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The cover and text format of this catalog were designed by the Office of University Publications.

The three Western Michigan University students shown on the cover are (from left) Jennifer Casebere, a junior from Livonia majoring in business; Brian Armstrong, a sophomore from Detroit majoring in criminal justice; and Steve Zyskowski, a sophomore from Farmington Hills majoring in English.

Undergraduate Catalog
Kalamazoo, Michigan
1989 • 1991

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 77,230. Kalamazoo County has a population of 218,500.

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 Education 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.
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Glossary of Terms

Academic adviser
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.

College
An administrative division of the University housing one or more academic departments or schools.

College-level writing requirement
A lower division writing requirement for all students. On the basis of test scores a basic, or remedial, writing course may be required as a prerequisite.

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

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

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

Course numbering system
The course numbering system is limited to three digits. The first digit includes the level of work. The second digit indicates an area of study within the series or level. The third indicates the specific course number in each area and each series. Undergraduate courses are numbered from 100 through 499. Graduate courses are numbered 600 through 799. Courses numbered 500 through 599 are for graduate and advanced undergraduate students.

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.

Graduate seminars, theses, independent research, etc.

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

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

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

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

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

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

Degree student
A student who has been admitted to a degree category and is seeking a bachelor's, master's, or 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
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Graduate seminars, theses, independent research, etc.

Credit/no credit
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Credit hour
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Good standing
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.00 or better.

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

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

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 degree and transcript to reflect outstanding scholarship.

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 Honors College designed to offer intellectual challenge and personal attention to particularly able students.

Incomplete
The 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 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.

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 “F” for that course; the “W” grade carries no honor points and affects the GPA in the same manner as an “E” or failing grade.
1989-90 Calendar

Fall Semester, 1989
August 28, Monday
Orientation Day
August 29, Tuesday
Classes Begin
September 4, Monday
Labor Day Recess
October 13, Friday
Classes Dismissed, 2 p.m. (Laboratories excepted)
October 14, Saturday
Homecoming
October 27, Friday
Last Day to Withdraw Without Academic Penalty
November 22, Wednesday
Thanksgiving Recess (Noon)
November 27, Monday
Classes Resume
December 11-15, Monday-Friday
Final Examination Week
December 16, Saturday
Semester Ends
Commencement

Winter Semester, 1990
January 8, Monday
Classes Begin
March 2, Friday
Last Day to Withdraw Without Academic Penalty
March 5, Monday
Semester Recess
March 12, Monday
Classes Resume
April 13, Friday
Recess—all day
April 23-27, Monday-Friday
Final Examination Week
April 28, Saturday
Semester Ends
Commencement

Spring Session, 1990
May 7, Monday
Classes Begin
June 1, Friday
Last Day to Withdraw Without Academic Penalty
May 28, Monday
Memorial Day Recess
June 27, Wednesday
Session Ends
June 30, Saturday
Commencement

Summer Session, 1990
July 5, Thursday
Classes Begin
August 3, Friday
Last Day to Withdraw Without Academic Penalty
August 25, Saturday
Session Ends

Fall Semester, 1990
September 4, Tuesday
Orientation Day
September 5, Wednesday
Classes Begin
October 19, Friday
Classes Dismissed, 2 p.m. (Laboratories excepted)
October 20, Saturday
Homecoming
November 2, Friday
Last Day to Withdraw Without Academic Penalty
November 21, Wednesday
Thanksgiving Recess (Noon)
November 26, Monday
Classes Resume
December 17-21, Monday-Friday
Final Examination Week
December 22, Saturday
Semester Ends
Commencement

Winter Semester, 1991
January 7, Monday
Classes Begin
March 1, Friday
Last Day to Withdraw Without Academic Penalty
March 4, Monday
Semester Recess
March 11, Monday
Classes Resume
March 29, Friday
Recess—All Day
April 22-26, Monday-Friday
Final Examination Week
April 27, Saturday
Semester Ends
Commencement

1990-91 Calendar
About Western Michigan University

Founded 1903
President Diether H. Haenicke, Ph.D.

State Assisted, Co-educational
College of Arts and Sciences
   School of Public Affairs and Administration
   Haworth College of Business
College of Education
College of Engineering and Applied Sciences
College of Fine Arts
School of Music
College of General Studies
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.

In 1915 Western Michigan University was placed on the approved list of the North Central Association of Colleges and Secondary Schools. The following year it was approved by the organization which, in time, evolved into the present National Council for Accreditation of Teacher Education. The National Council for Accreditation of Teacher Education reaccredited the following programs: bachelor's and master's programs for teacher preparation in elementary, secondary, special education, and K-12 education; educational specialist, and doctorate programs in science education and special education; master's program in reading and early childhood; and master's, educational specialist, and doctorate programs in educational leadership and counseling.

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.
Programs in the Department of Computer Science are accredited by the Computing Sciences Accreditation Board, Inc.
Programs in the Department of Dance are accredited by the National Association of Schools of Dance.
Programs in the Department of Education and Social Work are accredited by the National Association of Schools of Social Work.
Programs in the Department of Health, Physical Education and Recreation are accredited by the American Alliance for Health, Physical Education, Recreation and Dance and the National Athletic Training Association.
Programs in the School of Music are accredited by the National Association of Schools of Music.
Programs in the Department of Occupational Therapy are accredited by the American Medical Association and the American Occupational Therapy Association.
The Physician Assistant Program is accredited by the American Medical Association Committee for Allied Health Education Accreditation.
Programs in the School of Social Work are accredited by the Council on Social Work Education.

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Programs in the Department of Education and Social Work are accredited by the National Association of Schools of Social Work.
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Programs in the School of Music are accredited by the National Association of Schools of Music.
Programs in the Department of Occupational Therapy are accredited by the American Medical Association and the American Occupational Therapy Association.
The Physician Assistant Program is accredited by the American Medical Association Committee for Allied Health Education Accreditation.
Programs in the School of Social Work are accredited by the Council on Social Work Education.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
Western Michigan University
Kalamazoo, MI 49008-3899
University Telephone 616/387-1000
Fax 616/387-0958

Director of Admissions and Orientation
Including Admissions, University Literature, Credit Acceptance

Director of Career Planning and Placement Services
Including Educational Placement, Arts and Sciences and Fine Arts Placement, Business and Industrial Placement, Health and Human Services Placement

Dean of the College of Arts and Sciences

Dean of the Haworth College of Business

Dean of the College of Education

Dean of the College of Engineering and Applied Sciences
Including Matters Relating to Vocational Education

Dean of the College of Fine Arts

Dean of the College of General Studies

Dean of the College of Health and Human Services

Dean of Continuing Education
Including Adult Education, In-Service Courses and Credits, Consultative Services to Schools

Controller
Business and Financial Arrangements

Director of Counseling

Dean of The Graduate College

Dean of The Honors College

Dean of International Education and Programs

Director of Off-Campus Housing

Registrar
Including Credits, Provisional and Permanent Certification, Transcripts, Records, Physical Space Allocation

Director of Registration
Including Registration, Course Time Schedules, Student I.D.'s

Director of Residence Hall Facilities

Director of Residence Hall Life

Office of Student Employment
Including Student Part-time Employment and Referral Services

Office of Student Financial Aid and Scholarships
Including Scholarships, Loans, and Work-Study Employment

Director of Tenant/Landlord Services

Director of WMU Campus Apartments
capacity of 7,400, a hard surface main floor area of 160 feet by 212 feet, and a 200-meter resilient indoor track.

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

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

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

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

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

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

University Recreation Building

Lawson Ice Arena—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—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—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 and 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-six semester hours will be transferred). At least a “C” average in transferable work would be required.

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

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

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

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

Admission Procedures

Regular Procedures

REGULAR DEGREE BOUND STUDENTS

FRESHMEN

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

1. Submit an application (available from high school counselors or the WMU Office of Admissions and Orientation) with a nonrefundable $20 application fee;

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

3. 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);

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

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

Orientation

All first time freshmen are required to attend a University Orientation session. Two and one half day programs include placement testing, advising, course selection, meetings with various campus services, and registration for classes. Orientation Student Leaders, upperclass WMU students, assist freshmen to make friends and feel comfortable on the campus as well as to plan for a successful academic transition from high school to college. Orientation sessions for parents are held in conjunction with freshmen sessions.

Programs are held in the summer and just before the beginning of each term. Information is sent automatically to all admitted students.

TRANSFERS

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

1. Submit an application (available from community college counseling offices or the WMU Office of Admissions and Orientation) with a $20 nonrefundable application fee;

2. Request that each college attended send an official transcript directly to the Office of Admissions and Orientation at Western (transcripts brought or sent by the student cannot be accepted as official); Applicants currently enrolled at another institution should have a partial transcript sent to Western. A tentative admission decision and partial credit evaluation can be made to
If transferring fewer than twenty-six college semester hours, submit a high school transcript.

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

When to apply

Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid opportunities. 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 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, student's admission status or cause withdrawal of the admission offer.

Credit evaluation

Students accepted for transfer to Western 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 regionally accredited institutions are also available from the WMU Office of Admissions and Orientation.

Transfer courses completed at another college will be accepted for credit only. Grades earned in those classes will be used only to determine admissibility to the University; they will not be recorded on the Western 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 Western. “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 transfer work taken at a college or university accredited by a regional accrediting agency (for example, North Central Association of Colleges and Schools). Work taken at a college or university accredited by an agency other than a regional accrediting agency may be accepted on a provisional basis, subject to validation. The validation process consists of successful, subsequent completion of 26 semester hours of course work at Western or at another regionally accredited school with a minimum GPA of 2.0. The credit will be awarded after the validation has been completed.

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 must discuss course selection with their Western academic adviser and a credit evaluator in the Office of Admissions and Orientation to ensure transferability.

Advising/registration

All admitted transfer students should make arrangements for an advising session with a WMU adviser as soon as they have their admission materials and credit evaluation. At this session students will learn how transferred courses will apply to the WMU major and select courses for registration. Registration may be completed after the advising session. Admitted transfer students may receive information on these sessions from their WMU college, or they may call their college advising office directly. Transfer students may be advised and register during the regular 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.

INTERNATIONAL STUDENTS

To qualify for admission, international students must show that they are academically, financially, and linguistically capable of succeeding in full-time study. Before an international student can be admitted and the Certificate of Eligibility for a visa (Form I-20 or IAP-66) issued, the student must:

1. Obtain an application form and instructions from the Office of International Student Services.
2. Submit educational records documenting all previous secondary and postsecondary schooling.
3. Submit a financial statement that has been signed and returned from a sponsor showing that adequate funds will be available to cover the student's educational and living expenses for the duration of the anticipated enrollment.
4. If from a non-English speaking country, submit the results (scores) of a recognized English language proficiency examination prior to initial registration.

The University requires either the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB) for all prospective students whose native language is not English. To qualify for unrestricted enrollment, a prospective student must present a TOEFL “total score” of at least 550 or MELAB “adjusted score” of at least 85 percent.

Within certain limits, a prospective student who has achieved less than the minimum score required for unrestricted enrollment will be allowed to register for courses on a restricted basis. The Office of International Student Services will establish and apply the limits and restrictions.

Special Admission Programs

ALPHA PROGRAM

The Alpha Program is a limited admission program that seeks to provide the opportunity for college level work with academic assistance and support. The program provides academic advising and counseling, alerts students to tutoring services, and offers attendance at skill building workshops.

Consideration is given to those students who do not meet Western's regular admissions criteria but who have demonstrated the potential for college level work. From this pool, the University's Office of Admissions and Orientation will select those students who appear to have the best chance of success. Interested students should follow regular admissions procedures; the Office of Admissions and Orientation will notify those eligible for further consideration as Alpha students.

Admission to the Alpha Program is on a one year probationary basis. Selected students, and their parents, must sign a program contract accepting conditions of admission. These include:

1. Enrollment in Western's University Curriculum (UNV).
2. Attendance at Freshman Orientation.
3. Meeting with the Alpha/UNV adviser to schedule classes.
4. Enrollment in 100 and/or 200 level courses during the freshman year.
5. Registration for not more than 14 credit hours each semester during the freshman year.
6. Maintenance of a minimum 2.0 (C) grade point average while at Western.
7. Attendance at regularly scheduled skill building workshops.
8. Meeting with the Alpha/UNV adviser throughout each semester of the freshman year.

Before the end of each semester, students' grades and progress are reviewed by an Alpha/UNV adviser. 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 college education, the program provided scholarships and remedial help through a Kellogg Foundation grant. In its present form it is a year-round program, beginning in the freshman year, which seeks to:

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

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

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

Program students begin during 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 upperclass student who functions as friend, student evaluator, liaison, and resource person. The counselors and the full time administrative staff work in conjunction with other University departments to provide personal attention and supportive services.

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

Nontraditional Admission Programs

PERMISSION TO TAKE CLASSES

Students whose education has been interrupted for five years may wish to apply for nondegree Permission to Take Classes (PTC) status. Students applying for this status:
1. Should complete a regular application for admission and indicate PTC for program choice;
2. Will be admitted to nondegree status if they have not attended any school or college for at least five years;
3. May register for any course for which the prerequisites have been met. PTC students generally will take only two courses per semester; and
4. May enroll in subsequent terms for up to a total of 26 credits in nondegree status, providing they meet University probation and dismissal standards (see Academic Standards in the Registration, Records, and Regulations section of this catalog).

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

Students who have attended another school or college within the past five years may apply for 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 under the same standards used for degree admission. Students admitted through this review would be eligible to enroll in courses for which prerequisites had been met and could enroll in courses for up to a total of 26 hours, providing they remain in good academic standing. Students admitted in this way would also be able to change to degree status at any time, providing they were in good standing at Western. 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.

QUEST 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. Guest students should work with their home institution in advance to determine the appropriate classes to be taken at Western. Guest admission does not constitute degree admission. Guest applications are available from the Office of Admissions and Orientation or the Office of the Registrar at all Michigan colleges and universities.

HIGH SCHOOL GUESTS

Students who wish to take courses at the University while still in high school should submit a regular application and a High School Guest Request Form (available from the Office of Admissions and Orientation). Seniors with at least a 3.25 high school grade point average will normally be admitted.

Younger students with an outstanding record will be considered for enrollment on a case by case basis. In either instance, admission is as a guest student and does not constitute degree admission. Students who wish to apply for degree admission must be considered under regular admission standards.

PROJECT SCOPE (Senior Citizens’ Opportunity Program In Education)

Persons 62 years of age and older may enroll in University classes on a seats available basis without charge under these guidelines:
1. Students should apply as a Senior Citizen under the regular admission process on the day before classes begin (the application fee will be waived). No student is required to declare himself or herself a Senior Citizen student unless enrollment without charge;
2. As soon as the application is processed, students may complete regular registration, without charge;
3. Students must register their vehicles and pay for a student parking sticker or use metered parking; 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 Sincereus 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 adviser’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 this deposit are also made in accordance with detailed instructions received with the Certificate of Admission.

APPLICATION FEE
A non-refundable payment of $15 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.

FACILITY FEE
As a part of total student fees, each student is assessed $2.75 per credit hour for the retirement of debt and maintenance of various student facilities. This amount is included within the hourly tuition rate as described under "Tuition and Fees" in this section.

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.

HEALTH FEE
All students* enrolled for:
- 7 or more credit hours per semester, $36.00
- 4 or more credit hours per session, $18.00
- Plus a $15.00 visit fee for each clinician visit.
- Students enrolled for less than 7 hours per semester (4 hours per session) may buy in at $36.00 or be seen on a fee-for-service basis ($15.00 per clinician visit). Students will be assessed $1.00 per credit hour. This fee is included within the hourly tuition rate as described under "Tuition and Fees." *Not applicable to extension and continuing education students. Student fees are subject to change by action of the Board of Trustees. Partial payments will not be accepted.

LATE REGISTRATION FEE
A late registration fee of $20.00 will be assessed each student who registers after the final day of registration established by the Director of Registration. 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.

GRADUATION FEE
Newly admitted 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 an hour or $12.50 a session.

ROOM AND BOARD
Cost of room and board in 1989-90 is $1,565* for fall semester and $1,595* for winter semester, per student. The rate for room only in those residence halls that do not provide board is $644* 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.

FLIGHT INSTRUCTION
Those undergraduate students who 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.

TUITION AND FEES
Student fees are assessed on a credit hour basis. See Fee Revisions. Fees per credit hour for 1989-90 are listed below. The amount shown includes general purpose, facility fee ($2.75 per hour), and the student health service fee ($1.00 per hour).

Resident Undergraduate—Lower Division, $59.25
Resident Undergraduate—Upper Division, $65.00
Resident Graduate, $82.25
Non-Resident Undergraduate—Lower Division, $148.00
Non-Resident Undergraduate—Upper Division, $162.50
Non-Resident Graduate, $198.00

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.

UNIVERSITY COMPUTER FEE
A university computer fee will be assessed to all students registered for on-campus courses as follows:
- Full-time (all students enrolled for 7 or more credit hours per semester or 4 or more credit hours per session)
  - Fall and Winter, $50.00
  - Spring and Summer, $25.00
- Part-time (all students enrolled for less than 7 credit hours per semester or less than 4 credit hours per session)
  - Fall and Winter, $25.00
  - Spring and Summer, $12.50

Fee Revisions
Fees and costs pertain to the 1988-89 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.

Complete Withdrawal From All Courses
Students completely withdrawing from all classes must enter this information into the touchtone registration system or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a 100 percent refund. Students who find it impossible to be on campus to process a complete withdrawal and do not have access to touchtone phones may write to the Registrar's office, Room 3210 Seibert Administration Building, for aid in processing their withdrawal. All written requests for complete withdrawal must bear the appropriate postmark date for consideration of the 100 or 50 percent refund (see Refund Policies).
Refund Schedule

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

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

FLIGHT INSTRUCTION FEES
Refund of flight instruction fees will be made in accordance with the policy established by the Department of Aircraft and Automotive Engineering.

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.

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, federal 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 1989-90 awards. Awards state and federal regulations require changes in these programs for the 1989-90 awards. Should state or federal regulations require changes in these programs for the 1989-90 and subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

The scholarship program at Western Michigan University rewards academic excellence. Beginning freshmen who take part in the annual Medallion Scholarship Competition receive scholarships of $750 to $5,500 a year. A $500 scholarship for beginning freshmen and transfer students is based on grade point average as computed by the WMU Office of Admissions and Orientation and does not require an application other than admission. Recipients of an annual $1,500 University scholarship for transfer students are selected by Michigan community college presidents. Students transferring to WMU with a superior grade point average and an associate’s degree are automatically considered for an annual $3,000 University scholarship.

University and sponsored scholarships are also available for current students. Application forms for most of these scholarships are available from The Graduate College. Students at Western may also apply for scholarships in their field of interest through their academic department. These scholarships are offered by individuals and by local and national industries in recognition of Western’s unique contribution to many fields of study. Nontraditional undergraduate and graduate students may apply for several scholarship and grant programs.

Information concerning graduate fellowships, associateships, and assistantships may be obtained from The Graduate College. Students and prospective students may gain access to over 200,000 scholarship resources through a computer search service, WMU CASHE (Computer Assisted Scholarship for Higher Education). Application forms are available from Western’s Office of Student Financial Aid and Scholarships. Completed forms and the $10 fee should be submitted to Western’s Cashiering Office.

Employment opportunities, both on and off campus, are available to students at Western. On-campus employment opportunities include regular University employment and College Work-Study employment. Internships provide career-related work experience and may offer summer or part-time employment or may stipulate that the student alternate a semester of 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, and Supplemental Loan for Students.

The Office of Student Financial Aid and Scholarships also administers 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 parent’s adjusted gross income and/or the student’s income, Social Security benefits. Aid to Dependent Children benefits, Veterans Administration benefits, social services benefits, the number of family members, the number of family members in college, 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. Citizens or permanent residents of the United States.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours each academic semester.
3. Undergraduate students (for the Pell Grant program, students enrolled less than half time should contact Student Financial Aid regarding possible eligibility.
4. Students who are not in default on student loan payments and who do not owe student grant refunds.
5. Students enrolled in a degree-granting curriculum (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.

State of Michigan Assistance Programs


Eligible applicants for State of Michigan assistance are:

1. United States 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).

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 grant, U.S. citizens or permanent residents.
2. For the Nontraditional Student Scholarship, U.S. citizens or permanent residents who are Michigan residents.
3. For the Supplemental Western Assistance Grant, students enrolled full time, carrying a minimum of twelve undergraduate or nine graduate credit hours each academic semester.
4. Students enrolled part time for three 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 semesters.
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.
Guidelines also require that students applying
for financial aid make satisfactory academic progress at the institution where they
will receive the aid.

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,
which 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 Pell Grant processor will receive, within four
to six weeks, the Student Aid Report. Students
need to submit their Student Aid Report to the
Student Financial Aid Office as soon as
possible.

Stafford Loan (formerly Guaranteed
Student Loan)—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 eligibility criteria will be notified of
their scholarship award by the Michigan
Competitive Scholarship program.

Michigan Adult Part-Time Grant—In addition
to their Family Financial Statement, students
must submit to the University a nontraditional
award application available from the Student
Financial Aid Office, the WMU Adult Learning
Services, and all Western Michigan University
regional centers.

WMU Nontraditional Student Scholarship—
Students must submit to WMU a nontraditional
award application available from the Student
Financial Aid Office, the WMU Adult Learning
Services, and all Western Michigan University
regional centers.

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 selecting 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 1040 (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 other income, such as Aid to
Families with Dependent Children benefits,
Social Security benefits, Veterans
Administration benefits, social services
benefits, unemployment compensation, and
child support payments.

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

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 award first Pell Grant, then 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 $200 to $2,300 for each
academic year.

The student’s Pell Grant Student Aid Index (SAI)
number, 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 to assist 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
determined by the ACT score and financial need.
Recipients must be undergraduates and must
use the four years of scholarship eligibility
time to earn a high school degree.

Michigan Adult Part-time Grant
This state program, designed to assist
exceptionally needy undergraduate students
who are residents of the state of Michigan,
provides grants of up to $600 for each academic
year, with a limit of $1,000 for the fall and winter
semesters.

Supplemental Western Assistance Grant
This University program is designed to assist
exceptionally needy undergraduate students,
provides up to $500 for the fall and winter
semesters.

Educational Opportunity Program
This Western Michigan Undergraduate grant
provides up to $800 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 Summer 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.
Recipients work from eight to twelve hours a
week while attending school and may earn up to
$1,800 for the academic year.

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

The WMU Summer Employment Referral
Service places students awarded Michigan
College Work-Study in jobs across the
FINANCIAL ASSISTANCE AND SCHOLARSHIPS 19

University. When possible, students select jobs related to their degree programs or interests. Students work from eight to twelve hours a week while attending school and may earn up to $1,800 for the academic year.

Perkins Loan
Under this program undergraduates may borrow up to $4,000 through their sophomore year and up to $8,000 through their undergraduate career. Graduate students may borrow a maximum of $18,000 including undergraduate loans. The interest is 5 percent. Repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half-time, carrying six undergraduate or four graduate credit hours each semester. For students who received a first-time Perkins Loan beginning July, 1987, or later, repayment of the loan plus interest begins nine months after half-time enrollment ends. The minimum repayment is $30 a month.

A portion of the student's loan, both principal and interest, may be canceled for each year the student teaches full time in:
1. A school designated by the United States Secretary of Education as having a high enrollment of students from low income families, or,
2. A school for physically, mentally, or emotionally handicapped children according to the following schedule: 15 percent for the first year and second year, 20 percent for the third and fourth year, 30 percent for the fifth year.

Note that:
1. Fifteen percent of the loan (principal and interest) may be canceled for each year that the student teaches full-time in the Headstart Program, up to the whole loan amount.
2. The loan can be canceled at the rate of 1 1/2 percent for each complete year of service in the Armed Forces of the United States (in an area of hostility that qualifies for special pay) up to 50 percent of the loan amount.
3. The student's total disability or death cancels the loan.
4. The student may defer payment 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 when temporarily 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 also provides 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 Supplementary 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 Records 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 Paul Douglas 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 enrolled at least half-time, carrying a minimum of six undergraduate or four graduate credit hours a semester (fall/winter), and three undergraduate or graduate credit hours a session (spring/summer).
4. For the Paul Douglas Teacher Scholarship program, students who are enrolled full time, and students who have graduated or who will graduate in the top ten percent of their high school class.

Students who have earned a GED may also apply. Applicants must be U.S. citizens or permanent residents who are Michigan residents.

For women and men who are members of the Armed Forces a variety of educational assistance programs is available.

WMU opportunities include: Student Employment Referral Service, Professional Practice Services, the Academic Management Services Plan, 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 see their lender to discuss the possibility of applying for a Supplemental Loan for Students. Because repayment arrangements vary widely from lender to lender, students should contact their lender for repayment details.

Supplemental Loan for Students application forms are available from the student’s hometown bank, savings and loan association, or their college. 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 the Stafford Loan (formerly Guaranteed Student Loan) or the Michigan State Direct Student Loan may apply for a Parent Loan. To be eligible, students must be registered at least half-time, carrying six undergraduate credit hours or four graduate credit hours a semester.

Lenders determine the criteria for making Parent Loans, and borrowers begin repayment sixty days after the loan is disbursed. For the 1988-89 academic year, interest rates for Parent Loans were 12 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 has 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, 1110 Central Avenue, P.O. Box 1000, Pawtucket, Rhode Island 02862-1000.

Manufacturers Hanover Educational Finance Programs offers two plans which provide funds that parents must repay on a monthly basis. The annual percentage rate is 15.95. There are no other charges. For information on the tuition plan call 1-800-258-3640. For information on the Educational Line of Credit, call 1-800-MHT-1000, Pawtucket, Rhode Island 02862-1000.

WMU Short-Term Loan Program
Western’s Office of Student Financial Aid and Scholarship 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 $100, and the maximum for a tuition loan is $500. A modest simple interest rate of 5 to 7 percent is charged for most short-term loans, and the duration of the loan generally does not exceed sixty days.

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

A.A.U.W. Graduate Social Work Fund
A.A.U.W. Graduate Student Loan Fund
Alpha Epsilon Pi, Xi Chapter, Loan Fund
Alumni Short-Term Loan Fund
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. Bexley Memorial Loan Fund
Amelia Biscorn 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
Vida and Irene Dimack Loan Fund
The Gordon and Ferne Ellerdink Loan Fund
Frank Fatzinger Memorial Loan Fund
Michael Firley Memorial Loan Fund
Foreign Student Aid Loan Fund
James Gardner Memorial Loan Fund
Marie Harik Loan Fund
Harri-Bingham Loan Fund
Leroy H. Harvey Memorial Loan Fund
Eunice E. Herald Economics Loan Fund
Delode M. Herman Debate Loan Fund
HiLites Buyers Guide Loan Fund
John C. Hoejke Loan Fund
Horns College Loan Fund
Home Economics Memorial Loan Fund
Donald Huizenga Memorial Loan Fund
Inter-Fraternity Council Loan Fund
Frank Fatzinger Memorial Loan Fund
Freburn W. James Loan Fund
Rev. B. Moses James Memorial Loan Fund
John Jenkins Memorial Loan Fund
Walter Larry Jenkins Memorial Fund
Gordon O. Johnson Loan Fund
Kalamazoo Ares Chapter MAEDC Loan Fund
Kalamazoo Ladies’ Literary Association Loan Fund
Kalamazoo Motor Freight Loan Fund
Alice J. Kaufman Loan Fund
Jerome E. J. Keane Loan Fund
Kiwanis Educational Aid Fund
The Dr. Radford Kuykendall Memorial Loan Fund
Alice Louise Lefeve Memorial Fund
Elizabeth E. Lichly Loan Fund
Marcel F. Liddy Student Loan Fund
David E. Ling Memorial Loan Fund
Larry G. Lochter Memorial Fund
M. Dezena Loutzenhiser Short Term Loan Fund
Rayth W. Lower Memorial Loan Fund
Charles H. Maher Loan Fund
R. C. Mahoney Memorial Loan Fund
Mildred Maloney Memorial Loan Fund Jean G. Mainstrom Loan Fund
Mathematics Faculty Memorial Loan Fund
William Mccriken Memorial Loan Fund in Chemistry
Mexican-American Loan Fund
Migrant Student Loan Fund
Frederick W. Mehlhorn Educational Fund
Frederick W. Miholch Memorial Fund for Special Education

Muskegon County Retired Teachers Association Loan Fund
Charles S. Nichols Memorial Loan Fund
Occupational Therapy Fund
Omnibus Loan Fund
Dr. Gerald Osborn Memorial Loan Fund
Panhellicn (Grand Rapids) Loan Fund
Panhellicn (Detroit) Loan Fund
Panhellicn WMU Council Loan Fund
Truman A. Pascoe Memorial Fund
Ray C. Pellet Memorial Loan Fund
PIMA (Michigan Division) Loan Fund
Archie S. Potter Memorial Fund
Douglas V. Ratcliffe Memorial Loan Fund
Nellie E. Reid Memorial Loan Fund
Raleigh A. and Vivianne C. Robinson Memorial Loan Fund
Evelyn Underwood Rogers Loan Fund
Dr. Mike L. Sebaly Short Term Loan Fund
Rotary Student Loan Fund
Marion I. Siegel Memorial Loan Fund
Marion J. Sherwood Memorial Fund
Katherine Shuber Loan Fund
Sigma Phi Omega Bob Horsen Memorial Fund
Sigma Tau Gamma Loan Fund
John C. Jenkins Scholarship Loan Fund
Dorothy Sage Snyder Loan Fund
J. Towner Smith Loan Fund
R. Franklin Smith Memorial Loan Fund
Southwestern State Employees’ Credit Union Loan Fund
Marion R. Spear Occupational Therapy Fund
George Sprau Loan Fund
Kenneth H. Squires Memorial Loan Fund
Mr. and Mrs. J. Fred Staley Fund State D.A.R. Scholarship Loan Fund
Helen Slater Fund
Elaine Louise Stevenson Student Loan Fund
Stone D.A.R. Student Loan Fund
Ron Strawser Memorial Loan Fund
Student Loan Fund
Student Service Emergency Loan Fund
Marion Tamin Memorial French Loan Fund
TAPPI (Kalamazoo Valley Section) Loan Fund
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-Feather-Frazier Loan Fund
Dwight B. Waido Memorial Fund
Walter Wegerly Scholarship Fund
James A. Welch Foundation Loan Fund
Mary Howe Watt Student Loan Fund
Helen and Bernard Wesberg Loan Fund
WMU Language Department Intern Loan Fund
WMU Paper Technology Alumni Association Loan Fund
WMU Parents Association Loan Fund
WMU Southern California Alumni Loan Fund
Howard Wolpe Loan Fund
W. Dean Worden Loan Fund
Crystal 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 $5,000 a year, not to exceed the cost of attendance. The college budgets established for determining eligibility in the Michigan Competitive Scholarship Program will be used to determine the maximum award. Preference for awards will be given to students who demonstrate need, but the amount of the award will not be restricted to need. Awards are limited to four years of undergraduate eligibility.

Application forms are available in late February from high schools, college financial aid offices, and education offices at colleges and universities. Students may also obtain applications from the Michigan Department of
Education. In addition to submitting the application, the student must have a financial statement on file with the Michigan Higher Education Assistance Authority office. As an alternative, the student may submit a copy of page one of the parent's Federal Income Tax Return, Form 1040 or 1040A, for the year preceding the award year. Self-supporting students should attach a copy of page one of their own Federal Income Tax Return form for the year preceding the award year.

Employment

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-100, Ellsworth Hall. Openings include food service and clerical positions of all levels, retail sales positions, and technical positions requiring computer science skills.

Regular University Employment
Students may obtain regular University part-time employment by directly contacting the areas of the University where they wish to work. Students are employed by University departments, offices, libraries, laboratories, residence halls, and by the Bernhard Center.

Residence Hall Adviser Positions
Students who are residence hall advisers 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 adviser. 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 exciting co-op/internship program or 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 Service 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 advisers and chairpersons.

U.S. Armed Forces Programs
The United States Armed Forces offers women and men a variety of educational assistance programs:
- The Skill Training Option allows eligible high school students to attend basic training the summer after their junior year and to return for advanced individual training the summer after high school graduation. The student may then become a member of the Reserve/National Guard and while attending college receive $140 a month in addition to reserve/guard pay.
- The G.I. Bill for Reservists/National Guardsmen provides $5,040 over thirty-six months.
- The Unit Enlistment Reserve Bonus pays up to $2,000 to those who will take certain critical skills jobs upon enlistment.
- The Student Loan Repayment Program repays the student's Stafford Loans (formerly Guaranteed Student Loans).
- The Tuition Assistance Program repays 75 percent for individual classes.
For further details on these programs contact your local armed forces recruiter.

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, and the WMU Academic Scholarship. Other prestigious scholarships are: the WMU Award for National Merit Winners, the Higher Education Incentive Scholarship, the WMU Academic Achievers Award, the WMU Distinguished Community College Scholars Award, the WMU Community College Presidential Scholarship, the WMU Academic Scholarship for Transfer Students, the WMU Academic Scholarship for Currently Enrolled Students, and the WMU Undergraduate Research and Creative Activities Award.

Professional Practice Services offers both paid and unpaid internships.
Students may request help from Professional Practice Services by visiting the WMU Student Employment Referral Service 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 advisers and chairpersons.

U.S. Armed Forces Programs
The United States Armed Forces offers women and men a variety of educational assistance programs:
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- The G.I. Bill for Reservists/National Guardsmen provides $5,040 over thirty-six months.
- The Unit Enlistment Reserve Bonus pays up to $2,000 to those who will take certain critical skills jobs upon enlistment.
- The Student Loan Repayment Program repays the student's Stafford Loans (formerly Guaranteed Student Loans).
- The Tuition Assistance Program repays 75 percent for individual classes.
For further details on these programs contact your local armed forces recruiter.

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 Tuition Scholarship, and the WMU Academic Scholarship. WMU invites high school seniors who have earned a grade point average of 3.70 as computed by Western to participate in the competition. High school seniors who have a grade point average of 3.5 as computed by Western and an ACT score of 30 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 $22,000, awarded $5,500 each year of a four-year degree program at Western Michigan University. For 1989-90, Western awarded thirteen Medallion Scholarships.
Some Medallions carry the name of the donor and are awarded to students entering programs designated by the donor; others are open to students in all degree programs.

WMU Board of Trustees Scholarship
Western Michigan University awards ten 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 $12,000; $3,000 is awarded each academic year.

WMU Tuition Scholarship
This scholarship has a current value of $6,000; $1,500 is awarded each academic year.

WMU Academic Scholarship
Recipients of this $3,000 scholarship receive $750 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 $12,000; $3,000 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
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considers the student’s extracurricular activities, employment history, and volunteer work.

Eligible students are invited to take part in the HEIS Competition on Western’s campus. Students who participate in the competition will be offered either a Higher Education Incentive Scholarship of $12,000 ($3,000 a year) or a WMU Academic Scholarship of $3,000 ($750 a year).

Application forms are available from the WMU Office of Minority Affairs.

WMU Academic Achievers Award

This one-year freshman award of $500 honors outstanding academic achievement in high school. Criteria include a high school grade point average of 3.5 or above as computed by Western Michigan University, Michigan residency, and graduation from a Michigan high school.

To be eligible, students must be admitted to Western. The high school transcript, which the student submits to the Office of Admissions and Orientation during the admissions process, provides the basis for selection.

Sponsored Scholarship for Beginning Freshmen

Edwin and Adelaide Steffen Scholarship funds are provided from an endowment which the Steffens established to recognize students who have graduated from Saginaw, Arthur Hill, Decatur, and L’Arse high schools. Entering freshmen may apply for this $500 one-year award 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 are given annually to Michigan residents transferring to Western with an associate’s degree from a Michigan community college. Recipients of this $6,000 scholarship receive $3,000 each academic year.

To be eligible, students must have a grade point average of 3.75 or above 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—will be eligible for a $500 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 over one semester. Additional funds are available for a second semester renewal application.

The applicant must be a Western Michigan University undergraduate, should have a grade point average of at least 3.3, and typically have accumulated at least 60 credit hours at the time the project will begin. The program awards a $2,100 stipend for the first year. 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 award winners 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.

Alvin M. Bentley Foundation Scholarship

An award of up to $2,500 will be granted to a full-time undergraduate approved by the Bentley Foundation. The foundation’s selection criteria include: Michigan residency, scholastic curriculum and achievement, extracurricular activities, proficiency in arts and sciences, leadership qualities, vocational and occupational experiences, financial need, and social and cultural interests. The dean of each college must recommend applicants for this scholarship.

David and Priscilla Morris Scholarship

This scholarship pays WMU tuition and fees for extramurally needy undergraduate students. For application details, students may write the scholarship area of Student Financial Aid or may 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 2.5 grade point average as long as funds are available.

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

Elizabeth Durand Hebben Scholarship

This $200–$500 scholarship was initiated by Elizabeth Durand Hebben, who as a WMU student became aware of the many students in financial need. The desire to help these students has resulted in Elizabeth and George Hebben’s continued, generous support of this scholarship.

WMU juniors and seniors with significant financial need may apply for the Hebben scholarship at the Student Financial Aid Office. Selections will be made by a scholarship committee. The amount of the stipend depends on the student’s need and the availability of funds. Awards may be renewed for more than one semester.

Clifford and Ella Chapman Distinguished Senior Scholarship

The trust established in 1964 by Clifford and Ella Chapman, longtime friends of WMU and 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) while school is in session. It is not necessary to be enrolled in R.O.T.C. to apply for a scholarship.

General qualifications are as follows: The student must be a U.S. citizen, be enrolled as a regularly matriculated 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 eligible for appointment in the regular Army (there are extensions to this age granted to veterans), be of good moral character, and have a favorable National Agency check.

Scholarship boards begin in January of each year and are normally closed February for two-year scholarships, and around mid-April for three-year scholarships. Contact the Department of Military Science at 387-8120.
Military Science Grants—All advanced-course R.O.T.C. cadets receive $100 a month while school is in session (up to $1,000). Military Science Awards—The University President's Award is presented annually to the Cadet Company Commander. Academic and Military Achievement Awards are presented to outstanding cadets in each class year group. The outstanding Summer Camp Award is presented to the Western Michigan University cadet achieving the highest score at the annual R.O.T.C. Summer Camp.

College of Arts and Sciences

College of Arts and Sciences Merit Scholarships—The College of Arts and Sciences, from gifts to the Annual Fund of the University, offers merit scholarships for outstanding undergraduate students. Merit scholarships recognize and honor extraordinary students with unique abilities, exceptional aptitudes, unusual talents, and achievements beyond their grade point average. Three annual awards of $1,000 (divided equally between the fall and winter semesters) are offered to a student in each of the three divisions of the college. To be eligible, a student must be enrolled in a curriculum and major in the college, have at least sophomore standing (twenty-six credit hours) at the time of application (transfer students must have completed a minimum of twenty-one hours at WMU at time of application) and no more than ninety-eight credit hours toward their degree at the time of the award. Applications will be considered, also stressed are such qualities as intellectual curiosity, daring, forcefulness, and enthusiasm. These were qualities prized by Ralph Miller, who is remembered as a splendid teacher. This award is a way of preserving the memory of one of our outstanding scholars and teachers.

This award will be made annually 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 major in a preprofessional curriculum. No application is required.

The Merrill Wiseman Award—This award is given to those who are senior history majors with the best academic record in the field of history. No application is required.

Scholarships—The Sciences—This award is given to senior history majors with the best academic record in the field of history. No application is required.

President's Award—Presented annually to the outstanding sophomore history major of the year. No application is required.

Economics—The Economics Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

English—The English Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Geology—The Department of Geology offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

History—The History Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Environmental Studies—The Environmental Studies Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Geology—The Department of Geology Development Fund offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

History—The History Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Awards—The Kalamazoo Geological and Mineral Society offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

The American Institute of Chemists Award—This award is given to a 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 a student deemed by the Biological Sciences faculty to be the outstanding biology or biomedical sciences major in a preprofessional curriculum. No application is required.

The Merrill Wiseman Award—This award is given to those who are senior history majors with the best academic record in the field of history. No application is required.

Scholarships—The Sciences—This award is given to senior history majors with the best academic record in the field of history. No application is required.

President's Award—Presented annually to the outstanding sophomore history major of the year. No application is required.

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English—The English Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Geology—The Department of Geology offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

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The Merrill Wiseman Award—This award is given to those who are senior history majors with the best academic record in the field of history. No application is required.

Scholarships—The Sciences—This award is given to senior history majors with the best academic record in the field of history. No application is required.

President's Award—Presented annually to the outstanding sophomore history major of the year. No application is required.

Economics—The Economics Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

English—The English Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

Geology—The Department of Geology offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.

History—The History Department offers a number of merit scholarships for outstanding students in the department. These scholarships are one-year awards. The amount of the award may vary from year to year. Applications will be taken during the winter semester.
The Smith Burnham History Award—This award was established to honor a widely known speaker and head of the department for twenty years. It is made annually to the junior history major who has the most outstanding record.

The Margaret Macmillan Award—This award is for the best written work (of at least term paper scope) by a junior or senior.

The Robert R. Russel Award—This award is for the best written work by a graduate student. Both awards are designed to recognize excellence in courses in 300, 500, and 600 level history courses are eligible. The written work must be part of the assigned course work and meet certain grade standards. For information on the complete rules inquire in the History Office.

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 go 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 an approved program sponsored by an American university. Preference will be given to students who intend to study in a full-year program.

Matthile Stockelberg Scholarship—This endowed fund, established through the generosity of the late Matthile Stockelberg, former head of the language department, enables the Department of Languages and Linguistics to recognize outstanding scholarship performance by students majoring in French, German, Spanish, and classical languages. Academic achievement and potential in the particular language area will be stressed in the selection of recipients for the present annual, nonrenewable awards.

Victor Coutant Award in Classics—A generous gift by Dr. Victor Coutant, professor emeritus of modern and classical languages, has made it possible for 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. Performance in mythology, ancient history, and/or ancient philosophy may also be considered in the selection of the recipient 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. HermANN 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 contributions to German-American understanding will be considered in the selection of the student to receive the award.

Kalamazoo German-American Club Scholarship—The German—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 a German major, 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 Language Section in order to be considered for this scholarship.

Travel/Study Abroad Award—To encourage more foreign language students to travel and study abroad, four awards of $500 each will be granted annually by the Department of Languages and Linguistics. Recipients must have an academic record of 3.25 or better as a declared major or minor in the department, and must have submitted an acceptable individual project to be pursued during the travel and study abroad.

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, Dr. Robert Fouracre 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. Noble Prize for Excellence in French; German—the Preis der Bundesrepublik; Latin—the Excellence in Latin Award; Linguistics—the Excellence in Linguistics Award; Political Science—the dude’s Program Award; Russian—the 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 Award—This award is given to the senior major judged by the Department of Mathematics and Statistics to have exhibited the highest proficiency and promise in mathematics and statistics.

The Grover Bartoo Memorial Scholarship—This scholarship is awarded annually to the outstanding junior major.

The Dr. John P. and Nora Everett Award—Annual prizes are awarded to seniors showing outstanding promise as teachers of secondary school mathematics.

Annual prizes are awarded to freshmen and sophomore students scoring the highest on a competitive examination in mathematics and statistics.

Freshman Scholarship—A scholarship presented to an incoming freshman demonstrating academic excellence and promise in mathematics or statistics major in recognition of an outstanding high school record and the potential for an excellent university career.

Philosophy

The Robert Friedmann Philosophy Prize—This award was established by the Department of Philosophy and was made by the late Robert Friedmann upon his retirement. The award is given annually to the outstanding senior philosophy student.

Physics

The Paul Rood Scholarships—The Paul Rood 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.

Copies of A Handbook of Chemistry and Physics are awarded annually to the best students completing the sequence of calculus-based introductory physics courses.

Political Science

Arden J. Elsasser Memorial Scholarship—This scholarship has been established by the League of Women Voters of the Kalamazoo area in memory of Arden J. Elsasser, who gave faithful service to this organization and contributed to the Kalamazoo community. The award, which is made normally in November, is $400. This amount may 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, and must have second semester junior standing by the end of the term in which the award is granted. Contact the chair of the political science department for information and applications.

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

Zoa D. Shilling and D. C. Shilling Junior and Senior Scholarship Awards—These annual awards are presented to outstanding political science students and encouraging scholarly achievement. The fund that supports the 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.

George Klein Memorial Scholarship Award—An annual award to the political science student who has demonstrated a high level of scholarly achievement and intellectual interest in the fields of international relations and comparative politics. The fund that supports the scholarship award was established in memory of Dr. George Klein, through contributions at the time of his death, December 5, 1981. Dr. Klein was a scholar of international reputation and long-time faculty member in the Department of Political Science. His teaching and research focused on international relations and the Soviet Union and Eastern Europe.

Mark Denenfeld Memorial Endowed Scholarship—An annual award to a beginning senior majoring in political science who has met the basic requirements of, and demonstrated superior academic performance at, WMU, and compiled a record of community service and service to others. The fund that supports the scholarship award was established in memory of Mark Denenfeld, a graduate of the Department of Political Science, who died in 1985.

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

Psychology

Departmental apprenticeships and assistantships—The Department of Psychology offers undergraduate teaching apprenticeships and undergraduate practicum assistantships to advanced undergraduate students demonstrating academic excellence and
to sociology and criminal justice students who
awards are given to
General scholarships open to all students
Sociology, and friends, assistantships of at least
students receive a stipend, and are assigned to
time head (1940-72) of the Department of
Old Kent Bank Scholarship—This
sociology and criminal justice students each
outstanding students enrolled in a Haworth
department's activities and projects. These
department awards up to ten assistantships
in memory of Robert M. Rogge is given to a
Haworth College of Business. The award is
based upon scholastic ability and financial
need. Apply directly to the Haworth College
of Business.

Sociology
Leonard C. Kercher Award—Through the
generosity of Dr. Kercher, founder and long-
time head (1940-72) of the Department of
Sociology, and friends, assistantships of at least
$300 a semester are available for outstanding sociology and criminal justice students each year.

Undergraduate assistantships—The
department awards up to ten assistantships
during the fall and winter semesters each year
to sociology and criminal justice students who
will 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.

Proctor & Gamble Scholarship—This
annual award is given to a psychology major of at least
junior standing who has demonstrated
scholarship, leadership and service. Each
award includes a stipend and a plaque.

The Dean Arnold E. Schneider Management Achievement Award—These two awards, established by the founding dean of
the Haworth College of Business, are given annually 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—These two awards, established by Kalamazoo based Redwood and Ross
clothing, are given annually to management students for
exceptional scholarship, leadership and service. Each
award includes a $250 stipend and a plaque.

FINANCIAL ASSISTANCE AND SCHOLARSHIPS 25

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 participated in management as a minor or through
collections to student clubs may also be
considered. Students must be nominated by
Department of Management faculty members
to become 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 alumni of the department, is
given once annually to a management major or
minor for distinguished service to the
Department of Management. The award
includes a $200 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-five to ninety-five 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, and should be turned in to, the marketing
department secretary by February 28.

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
registration for the industrial or general
marketing major have been maintained.
Application forms can be obtained from, and
should be returned to, the Department of

program to honor Professor Bournazos, 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 stipend.

The Jeff Robideau Award for Meritorious
scholarship of $500 is awarded during the
winter semester for the following school year to
declared marketing majors who have
maintained 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
registration for the industrial or general
marketing major have been maintained.
Application forms can be obtained from, and
should be returned to, the Department of
College of Engineering and Applied Sciences

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

Louis Johnston Advertising Scholarship—Johnstons & Associates, Inc. sponsors this $500 award.

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

Zane Cannon Memorial Scholarship—This scholarship of at least $200 will be awarded each year. Sponsoring memorial gifts in honor of the late Professor Zane Cannon.

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 their 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.

Michigan Society of Professional Engineers Scholarship Program—Two scholarships of $500 each will be awarded annually to female or minority high school seniors selected from applicants affiliated with the Michigan Society of Professional Engineers/Michigan Society for Professional Engineers (NSPE/MSPE) Scholarship Program who will be pursuing an undergraduate degree in computer systems engineering, electrical engineering, industrial engineering, or mechanical engineering at WMU. Applications should be made directly to the MSPE Scholarship Fund, Michigan Society of Professional Engineers, P.O. Box 10204, Lansing, Michigan 48901.

Distributive Teacher Education

Distributive Teacher Education Scholarship—The consumer resources and technology department awards a $200 scholarship each academic year to a first semester distribution teacher education major. Applications may be obtained from the department office.

Engineering Technology

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

H.H. Harris Foundation Scholarship—This award is limited to students from the Saginaw, Bay City, Flint, and Midland, Michigan, areas who have junior standing or less and are majoring in cast metals, or metallurgy program, who has demonstrated purpose and commitment to one of these three areas. These awards are given in honor of 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, but include other automotive areas. Awards may be renewed, based on student's achievement and the recommendation of the scholarship committee. Apply to the Department of Engineering Technology.

Distributive Educational Foundation Scholarship—The Distributive Educational Foundation offers a number of scholarships each year to any technical student having a direct interest in the cast metals industry. A student must have FEF registration completed by November 1 each year to qualify. Apply to the Department of Engineering Technology.

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 $2,000. Apply to the Department of Engineering Technology.

Lloyd Hurt 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 re-awarded, based on the student's achievement and the recommendation of the scholarship committee.
Scholarship—Each county, and maintain good academic standing. Apply to the Department of Engineering Technology.

David Laine Memorial Scholarship—These awards are made available to students majoring in either Automotive Engineering or Automotive Technology. 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.

Herman Linder Award—Each spring, the department presents a $200 award to the student who, in the judgment of the evaluation 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.

Olson Manufacturing Company Scholarship—This scholarship is open to undergraduate students enrolled in the engineering graphics curriculum who have a grade point average of 3.0 in graphics classes and 2.5 overall. Applicants must have completed fifty-six semester hours. The amount of the scholarship is $150 for the academic year.

Neil Schoenhals Memorial Award—Each spring, the department presents a $300 award and an outstanding student who demonstrates scholarship in addition to the skills 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 year, and maintain 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 renewable award of $1,000 is awarded to a student who has completed two years in Manufacturing Engineering Technology or who transfers into that curriculum. Sponsored by the national Society of Manufacturing Engineers. Apply to the Department of Engineering Technology.

Paper and Printing Science and Engineering Paper Science and Engineering Merit Scholarships—These scholarships are available for American and Canadian citizens majoring in the paper science and paper engineering. Grants are given 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-to-semester basis, on the basis of superior academic achievement or promise. Conditions for renewal of the scholarships include the maintenance of at least a 2.7 cumulative grade point average and continued enrollment in one of the paper curricula 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.

Paper Technology Foundation Scholarship Funds

David and Doris Bossen Corp. Scholarship Burgess Cellulose Foundation Scholarship Moe Munter Callighan Scholarship Olin W. Callighan Scholarship Carlson H. Cameron Scholarship Cargill Incorporated Scholarship Champion International Packaging Scholarship Champion Paper Scholarship Bert Cooper Scholarship Corn Products International Scholarship Theodore W. and George C. Dunn Memorial Scholarship E. L. DuPont DeNemours and Company, Inc. Scholarship

Scholarship—Applications are made available to a student majoring in either Automotive Engineering or Automotive Technology. 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.

West Michigan Business Aircraft Association Scholarship—A scholarship is provided to a student who plans to become a professional pilot, has completed the junior year, and who represents high standards of academic performance, initiative, and commitment to professionalism. 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.

Home Economics

Chrystal I. Grady Scholarships—An endowment from the estate of Chrystal I. Grady has made possible an annual scholarship of $400 to students majoring in curriculum within home economics. Information is available from the home economics area in the Department of Consumer Resources and Technology.

Mechanical Engineering

Durametallic Corporation—Offers several scholarships each year to students in the mechanical engineering curriculum. Apply to the Department of Mechanical Engineering.

Paper and Printing Science and Engineering

Paper Science and Engineering Merit Scholarships—These scholarships are available for American and Canadian citizens majoring in the paper science and paper engineering. Grants are given 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-to-semester basis, on the basis of superior academic achievement or promise. Conditions for renewal of the scholarships include the maintenance of at least a 2.7 cumulative grade point average and continued enrollment in one of the paper curricula 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.

Paper Technology Foundation Scholarship Funds

David and Doris Bossen Corp. Scholarship Burgess Cellulose Foundation Scholarship Moe Munter Callighan Scholarship Olin W. Callighan Scholarship Carlson H. Cameron Scholarship Cargill Incorporated Scholarship Champion International Packaging Scholarship Champion Paper Scholarship Bert Cooper Scholarship Corn Products International Scholarship Theodore W. and George C. Dunn Memorial Scholarship E. L. DuPont DeNemours and Company, Inc. Scholarship

John M. Fisher/Tsai Lun Scholarship

James A. Foxgrover Memorial Scholarship

General Endowment

Gillian Hiler Scholarship

Philip H. Glatfelter Scholarship

Grain Processing Corporation Scholarship

Gerald A. Haile Scholarship

Hammermill Paper Company Scholarship

Albert S. Harman Scholarship

J. M. Huber Scholarship

Raymond L. Jones (Belot Corp.) Scholarship

John F. King Family Scholarship

Perry H. Koplik Scholarship

Louis Lerner-Texco Scholarship

K. A. Unogrenw Scholarship

E. D. Maun 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

Reckanagel Scholarship

Sandoz Foundation, Incorporated, Scholarship

William and Martha Siekman Scholarship

Simpson Paper Company Scholarship

St. Regis Paper Company Scholarship

Union Camp Corporation Scholarship

Other department scholarships include:

CMM Education Foundation Competitive Research Award

Robert Caine Outstanding Student Award

Robert A. Welborn Paper Science and Business Scholarship (alternate years)

Printing Management/Marketing Scholarships available only to WMU printing management/ marketing students.

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

Robert Caine Outstanding Student Award—One, $250 award is granted to a senior with outstanding academic and leadership abilities. E. G. Kelly Endowment Scholarship—This scholarship amount is variable. Available to entering freshmen. It is awarded on the basis of need and is renewable.

Gravity Education Foundation Fellowship—One fellowship of $1,800 plus travel is awarded to a junior for one academic year.

Kalamazoo Valley Printing House Craftsman Club—Three scholarships of $600 each year are available to entering freshmen based on need and academic achievement and are renewable.

Dells C. May's Memorial Scholarship Foundation for Minority Students—One scholarship of $500 is available to a minority student and is renewable.

Northeast Printer's Scholarship—One scholarship of $500 is available to a student with a freshman through senior standing. It is awarded on basis of financial need and academic achievement and is renewable.

Pendell Family Scholarship—One, $1,000 scholarship plus a summer internship opportunity is available to juniors. It is awarded on the basis of financial need and academic achievement and is renewable.

Quimby Walstrom Paper Company Scholarship—One scholarship of $1,500 is available to a student with a freshman through senior standing. It is awarded on basis of financial need and is not renewable.

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

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

Flexographic Technical Association—Eleven national scholarships of $500 are available to freshmen in the Flexo program. They are awarded on academic achievement and are renewable.

Graphic Arts Technical Foundation—There are 100 national scholarships ranging from $500 to $1,000. They are available to entering freshmen through juniors and are awarded on academic achievement and are renewable. Specific details are available in the Printing Programs Office, in Welborn Hall.

Petroleum Distribution

"Malcolm L. Ford" Scholarship Award—This award of $100 to $200 a year is awarded in February of each year. The overall grade point average is determined from the previous fall semester grade report. Apply directly to the petroleum distribution program, Department of Consumer Resources and Technology.

Harold Wright Scholarship Award—A grant up to a maximum of $1,000 a year is available on a one-year basis. This award is open to high school graduates and community college students majoring in petroleum distribution.

Michigan Ship Jobsbers Memorial Scholarship—A scholarship award of $500 to a student in petroleum distribution at Western is presented in memory of Larry C. Hull, long-time friend of Michigan Ship JOBBERS. The scholarship is based on need and the high school academic record. Apply directly to the Department of Consumer Resources and Technology.

College of Fine Arts

The Cornelius Loew Young Artist Scholarship—One $600 scholarship is awarded annually to an outstanding young artist in art, dance, music, or theatre. This scholarship is awarded on a semester basis, to remain eligible for the scholarship, a student must maintain a grade point average of 3.0 or above. Applicants must major or minor in a College of Fine Arts curriculum, attend Western as 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 HearrohnSommerfield Music Theatre Scholarship are available to full-time students in the Music Theatre Performer curriculum. These scholarships are based on talent and need and are renewable upon application to students maintaining a 3.0 or above average. Funds for these programs are made available through donations by alumni and friends of the University.

Art

WMU Art Excellence Scholarship for Freshmen—The Department of Art annually offers several $500 scholarships to entering freshmen 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 3.0, and living in Siedschlag Hall will automatically be considered. Recipients are notified prior to the Annual Art Awards Ceremony in late winter.

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

Rose and James Kerr Awards—These are annual awards granted to outstanding art students. Recipients are selected on the recommendation of a faculty committee.

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

Dance

Dorothy Utjohn 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 exhibited exceptional choreographic ability and musicality for proposed collaborative projects with musicians. Recipients are selected by application to the dance faculty. Awards range from $250 to $500 per semester and may be renewed provided artistic and academic excellence are maintained.

Music

Music Scholarships—Western Michigan University’s School of Music makes annual awards of $500 to $2,000 a year for undergraduate and $5,000 to $10,000 a year for graduate students who demonstrate outstanding musical and academic potential as music majors. These awards are made in recognition of the variety of talents that are necessary for success in the various professional fields of music. Students will qualify to hold an award until graduation (four-year maximum for undergraduates and two-year maximum for graduates) provided musical and academic excellence are maintained.

Undergraduate students may receive consideration for an annual scholarship award at the same time they audition for admission to the curriculum. Requests for an audition must be made by February 15 to the music student adviser, who will provide the student with an Audition Confirmation Form on which the student may indicate a desire for scholarship consideration. Final decisions on music scholarships are made in mid-March.

Certain conditions for holding a music scholarship may be stipulated at the time of award. These conditions might include such requirements as maintaining a certain grade point average, being a full-time music major, performing in School of Music ensembles, library assistance, and accompanying or other professional services. All special conditions relating to a scholarship are stated in writing prior to the student’s accepting the award.

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

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

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

Honors String Program Scholarships are made possible by grants from the Kalamazoo Symphony Orchestra which are supplemented by 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 endowment program in memory of Gene Whitfield, a prominent and respected Kalamazoo jazz artist.

The H. Glenn Henderson Scholarship recognizes a keyboard music major who demonstrates major evidence of accomplishment in his or her chosen field of music concentration. Funds are made available through donations to the scholarship endowment 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 which frequently receive special scholarship awards. These funds provide scholarships for which all music students are eligible.

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

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

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

The Leonard Meretta Band Scholarship—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 Theatre theatrem 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 promise. 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 a 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.

Jeffrey and Barbara Vortman Scholarship Award—This scholarship is awarded annually in the amount of $500; preference is given to an undergraduate or graduate student with a demonstrated commitment to pursuing a career in the health and human services fields. Selection of the successful recipient is determined by a scholarship committee, which also considers academic excellence, financial need, and record of community service.

Jeffrey and Barbara Vortman Scholarship Award—This scholarship is awarded annually in the amount of $500; preference is given to an undergraduate or graduate student with a demonstrated commitment to pursuing a career in the health and human services fields. Selection of the successful recipient is determined by a scholarship committee, which also considers academic excellence, financial need, and record of community service.

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 Theatre theatrem 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 promise. 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 a 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—Several awards in varying amounts are made on a departmental rotational basis to outstanding students who are enrolled in the department. Funds for this program are made available through donations by alumni and friends of the University. 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 $500; preference is given to an undergraduate or graduate student with a demonstrated commitment to pursuing a career in the health and human services fields. Selection of the successful recipient is determined by a scholarship committee, which also considers academic excellence, financial need, and record of community service.

The 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 Theatre theatrem 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 promise. 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 a 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.

Medical Assistant

John Josten Scholarships—These scholarships for physician assistant students were established to honor the founder 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 undergraduate student. Selection criteria include academic merit and interest in the area of child welfare. Potential recipients are identified by 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.

International Education and Programs

Study Abroad Scholarship—International exchange scholarships are awarded annually to qualified students for study in foreign universities in Europe and Asia. These scholarships are awarded on an annual basis in a competitive process including written applications and interviews. Contact the Office of International Education and Programs, 2090 Friedmann Hall, for information and application forms.

Free University of Berlin Exchange Scholarship—This scholarship enables one WMU student to study at the Free University in the city of West Berlin, Germany for an academic year beginning in October. Includes tuition, housing, and stipend.

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. Includes tuition, housing and stipend.

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. Includes tuition and housing.
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. Includes tuition and housing.

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 a foreign university or in a study-abroad program sponsored by an American university. Preference will be given to students who intend to study in a full-year program.

Japan Center for Michigan Universities Scholarships—The Japan Center for Michigan Universities was established in Shiga, Japan in 1988 by Shiga Prefecture and the State of Michigan to mark twenty years of formal sister-state relationship. Educational programs at the Center include credit courses of Michigan universities in Japanese language and culture. Contingent upon 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 Education and Programs Partial Scholarships—Jointly funded by the Provost and the Office of International Education and Programs, 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.
ACADEMIC POLICIES AND PROCEDURES

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

University Requirements
1. Courses must be selected so that the requirements in at least one of the curricula are fulfilled before graduation.
2. The student must complete a major with a minimum of twenty-four hours and, if required by the curriculum, a minor with a minimum of fifteen hours. A thirty hour subject major or thirty-six hour group major is required of students in Elementary and Secondary Education, with a minor or minors of at least twenty semester hours. For further details see 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 literacy requirement as outlined in this section.
8. Each student must complete two semester hours of general physical education activity classes. First-year students are urged to arrange their schedules so that they complete their two-hour physical education requirement no later than their sophomore year. Persons thirty years of age or older at the time of graduation are not bound by this requirement. Such a waiver applies only to general physical education and not to specific curricular requirements nor to total hours required for graduation.

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 will be placed into a remedial course, which must be passed 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.

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

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

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 complete this requirement after attaining junior standing.

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.
**ACADEMIC POLICIES AND PROCEDURES**

**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 Michigan University.

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

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

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

**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 MTELP (Michigan Test of English Language Proficiency) or the TOEFL (Test of English as a Foreign Language). Scores of 75-84 on the MTELP or 500-549 on the TOEFL warrant placement into Linguistics 111.

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

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

**QUANTIFICATION**

Students who transfer a mathematics course at the level of MATH 110 or higher are considered to have entry-level skills and need not take the computational skills assessment test upon entry. Further coursework in mathematics is not, at this time, required 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 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.

**Computer Literacy Requirement**

Computer and information technology and concepts pervade our culture, our jobs, and our lives. The modern computer constitutes one of the most significant changes for this century. In the near future, an individual lacking computer literacy will be at a career disadvantage comparable to that of not understanding or communicating by the written word.

In response to this challenge, Western Michigan University requires that every student demonstrate minimum competency in computer literacy, including at least the following:

1. The ability to use computer software as appropriate in his or her own discipline.
2. The ability to write, enter, and run a simple program in a general purpose computer language. This knowledge includes the ability to write programs with input and output features, processing of data, loops, and decision making.
3. Knowledge of computer terminology, and the current capabilities, limitations, and potential of computers, in general or specifically targeted to the student's own field of specialty.

It is also desirable that a computer literate student have an awareness of some of the ethical, moral, and legal implications of the impact of computer technology on today's society.

Students can fulfill this requirement in one of the following ways:

1. By successfully completing an approved course. Approved courses include Computer Science 106, Business Information Systems 102, and Sociology/Computer Science 182. Students wishing further information on courses or programs that satisfy the requirement should consult their curriculum advisers. Transfer students in business or engineering should consult with their respective college advising office. All other transfer students who wish to determine whether work taken elsewhere meets the requirement should consult with the Department of Computer Science, 4049 Friedmann Hall.

OR

2. By completing a major or minor program approved as satisfying the requirement. Students wishing further information on courses or programs that satisfy the requirement should consult their curriculum advisers. Transfer students who wish to determine whether work taken elsewhere meets the requirement should also consult their advisers.

OR

3. By certification of computer literacy by examination. This requirement applies to all students who enter WMU under the 1983-85 catalog or any subsequent catalog.

**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 not administered individually, individual results are provided to each student during the term after testing. Individual results of assessment are not used for placement in classes or curriculum, with the exception that the results of the individual student assessment may be used to satisfy 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 they become 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 courses in order for a student to graduate. These requirements are applied to all students in the University and are substantially the same for all curricula. The General Education program is designed to...
ensure academic breadth for every student at the University by requiring coursework in each of the following areas: (1) Humanities and Fine Arts, (2) Social and Behavioral Sciences, (3) Natural Sciences and Mathematics, and (4) The Non-Western World.

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

THE DISTRIBUTION PROGRAM

This program includes courses offered for General Education by departments throughout the University. These courses offer a variety of approaches to introduce the student to the Humanities and Fine Arts, the Social Sciences, the Sciences, and the Non-Western World. There are introductory courses for students wishing to explore new areas of knowledge and there are more advanced courses for students wishing to develop in specialized areas. Many special topics 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 select courses in a number of departments. Courses may count toward a student's major or minor as well as for General Education credit. Curriculum advisers will assist students in selecting and planning their Distribution Program.

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

REQUIREMENTS FOR THE DISTRIBUTION PROGRAM

There are five stipulations:

1. Coursework must total a minimum of thirty-five hour credit.
2. At least six hours of appropriate coursework must be from 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 from 300-400 level approved General Education coursework.
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 100, 101
SPAN 100, 101
LING 105
MEDV 145
MUS 150, 151, 350, 450
PHIL 200, 201, 220, 301, 303, 307, 310, 311, 312, 313, 314, 324, 332, 333, 334
REL 100, 200, 305, 306, 313
THEA 100

AREA II: Social and Behavioral Sciences

ANTH 100, 110, 210, 240
BAS 200, 300
ECON 100, 201, 202
GSSC 121, 123, 222, 301, 325, 351, 356, 425, 434
GEOG 102, 244, 311, 380, 383
HIST 100, 101, 102, 103, 204, 210, 211, 301, 302, 303, 315, 369
MGMT 404
PSCI 100, 200, 250, 300, 340, 344, 350
PSY 100
REL 323, 342, 334
SOC 100, 171, 190, 200

AREA III: Natural Sciences and Mathematics

ANTH 250
BIOL 101, 102, 105, 107, 112, 230, 234
CHEM 101, 103, 107
GEOG 103, 105, 204, 206, 350
GEOG 100, 130, 300
GSCI 130, 131, 132, 133, 134, 432, 433, 434
MATH 116, 122, 190, 200, 266
PHYS 102, 104, 106, 110, 210, 211

AREA IV: Non-Western World

ANTH 120, 123, 332
ECON 487
ENGL 313, 314
GENL 304, 305
GEOG 381, 382, 386, 389
HIST 370, 371, 381, 386, 389
MUS 352
PSCI 341, 342, 343
REL 302, 303, 307, 308
SOC 335, 336

AREA V: Optional Electives

BIS 142
CRT 160
CS 105
ENGL 105, 305
ENV 110
GEOG 312
GENL 195
HIST 390
IE 102
MLSC 150
PEPR 100
SWRK 100
SPPA 200

General Education Requirement for Transfer Students

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

Michigan Community College

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

2. Transfer Students from other Michigan Community Colleges.

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

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 adviser.

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.

ACADEMIC POLICIES AND PROCEDURES 33
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 or oral)
   - Film (appreciation or history)
   - Foreign Language (first year only)
   - General Humanities (nature of language)
   - Literature (English or English translation)
   - Music (appreciation or history)
   - Philosophy (and logic)
   - Religion (non-doctrinal)
   - Theatre (introduction or history)

B. Social and Behavioral Sciences—A minimum of six semester credits from the following fields:
   - Anthropology (cultural general, archeology)
   - Economics (principles, problems, and consumer education)
   - General Business (social issues or consumer education)
   - General Social Science
   - Geography (regional, human)
   - History
   - Minority Studies (general)
   - Political Science (introduction, principles, international relations, foreign and comparative political systems, general government)
   - Psychology (general)
   - Sociology (introduction, principles, social problems)

C. Natural Sciences and Mathematics—A minimum of six semester credits from the following fields:
   - Anthropology (physical)
   - Biology (introduction, general, outdoor science)
   - Chemistry (general, college level)
   - Environmental Science (emphasis on chemistry, physics, biology, geology, or geography)
   - General Biological Science
   - General Earth Science
   - General Physical Science
   - Geography (excluding regional or human)
   - Geology (physical, historical, or oceanography)
   - Mathematics (college-level not beginning or intermediate algebra, finite mathematics, analysis, or statistics, calculus, survey of mathematical ideas)
   - Physics (general, non-major course, astronomy)
   - Philosophy or Methodology of Science

D. Non-Western World—in order to satisfy this requirement a student must have completed a minimum of three semester credits in a humanities or social science course emphasizing aspects of non-western regions and societies.

E. Optional Electives—credits from the following areas may be used as General Education elective credits towards the thirty-five hour credit minimum: Agriculture (introduction)
   - Composition (freshman rhetoric, expository writing, informational writing, technical communication, etc.)
   - Computer Science (computer literacy, introduction)
   - Environmental Studies (fundamentals)
   - Health (general)
   - History (introduction to the study of history, historiography)
   - Military Science (military aspects of national power)
   - Social Work (introduction)
   - Speech Pathology (introduction to communication disorders)

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 majors and minors are listed elsewhere in this catalog. Where requirements are not specified, students should consult the departmental advisers for approval of a major or minor program as soon as possible but not later than the junior year.
3. Only approved majors and minors listed in the catalog will be posted to the student’s 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 advisers who will help them plan their degree programs. Curriculum advisers offer academic advising which includes General Education requirements, specific curriculum requirements, career opportunities, etc. In addition, they offer academic counseling, 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 advisers will make referrals to other advising facilities and departmental advisers when it is appropriate. It should be emphasized that it is the student’s responsibility to arrange to meet with curriculum and/or departmental advisers. A listing of curriculum advisers may be found in the Schedule of Classes, which is published each semester and session. Students not certain of their curriculum or adviser 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

Beginning students admitted for the Fall Semester 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 advisers, 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 advisers.

ACADEMIC ADVISING FOR TRANSFER STUDENTS

Newly admitted transfer students will be invited either to an Advising Conference scheduled especially for transfer students, or to an individual appointment. Invitations to these events, usually scheduled prior to the Fall and Winter Semesters, 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, 250 North Hall, 387-7115
College of Education, 2305 Sangren Hall, 387-3874
College of Engineering and Applied Sciences, 2038 Kohman Hall, 387-4033
College of Fine Arts, 2146 Dalton Center, 387-5840
College of General Studies, 2050 Friedmann Hall, 387-5439
College of Health and Human Services, B-124 Henry Hall, 387-2660
General University Studies Curriculum B-103 Ellwanger Hall, 387-4167
Honors College, D-1 Hillside West, 387-3230
University Curriculum, 201 Moore Hall, 387-4410
REGISTRATION, RECORDS, AND REGULATIONS

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.

Students who withdraw (drop) on the 4th and 5th day of classes will not receive a refund unless it is a complete withdrawal nor will the class show on the student’s official transcript. Students may withdraw (drop) from courses without academic penalty through the first Friday past mid-semester at the Registrar’s Office. The final date for dropping is published in the Schedule of Classes. Students may not withdraw from any class after this date without academic penalty.

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 mid-semester. 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 mid-point 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.

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.

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

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

The following policy guidelines are intended to serve that function.

PROPOSALS FOR INDEPENDENT STUDY

Independent Study requires an adequate description of the work to be undertaken, requiring planning in advance of the registration period. Sufficient time, therefore, must be allowed for such planning and for obtaining the necessary faculty and administrative approvals.

While the Independent Study project is normally student-initiated, early interaction with faculty is essential in the development of a mutually acceptable project description. At a minimum, such a description should contain an outline of the study topic, specification of the work to be done and the materials to be read, the credit to be given, the type and frequency of faculty-student contacts, and a statement of the evaluative criteria to be used by the faculty member.

APPROVAL PROCESS

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

Academic Regulations

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

University Tuition Scholarship Waiver
Undergraduate students interested in taking advantage of the University Tuition Scholarship Waiver must report to the Academic Records Office, Selbirt Administration Building to pick up the authorization form.

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

1. Must have previously earned thirty hours of credit from WMU.
2. Must presently be enrolled and have paid for fifteen hours of credit for the semester they are seeking the tuition waiver.
3. Must have an overall G.P.A. of 3.25 at Western Michigan University.
4. Must be an undergraduate student in a degree program.

Undergraduate students who meet the qualifications may select one course per semester outside their major, in underenrolled courses, as determined by the departments, during the drop/add week only.

Once the students have ascertained that they would like to participate in this program and meet all the criteria, they should go to the Registrar’s office for the authorization form. The student must then proceed to the department to see if the course they are interested in is available. If the course is available, the department will sign the authorization card and add the course via terminal. The student will present the signed authorization card to the Accounts Receivable Office, 1060 Selbert Administration Building as their payment.
FACULTY RESPONSIBILITY
Independent Study is basically a tutorial 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

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Very Good, High Pass</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable,</td>
<td>2.0</td>
</tr>
<tr>
<td>C</td>
<td>Adequate</td>
<td>1.5</td>
</tr>
<tr>
<td>DC</td>
<td>Poor</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>Failing</td>
<td>0.0</td>
</tr>
<tr>
<td>W</td>
<td>Official Withdrawal</td>
<td>0.0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td></td>
</tr>
<tr>
<td>AUD</td>
<td>Audit (non-credit enrollment)</td>
<td></td>
</tr>
</tbody>
</table>

Credit/No Credit System
The regulations of a system supplementing the A, B, C, and D 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 whose grade is "A" or better. "No Credit" will be posted for any grade below a "C". Faculty members will not be notified whether a student is taking a course for a grade or for Credit/No Credit.
3. A student may elect for Credit/No Credit any course approved for General Education or General Physical Education credit, as well as other courses not counting toward his/her major or specified in his/her curriculum as defined in the University Undergraduate Catalog. Directed Teaching, a required course, is taken on a credit/no credit basis.

Acceptance of Credit/No Credit in required courses may be permitted on an individual basis by the head of the department or dean of the college requiring the course.
4. A student may change only during the drop/add period from Credit/No Credit to grade or from grade to Credit/No Credit.
5. All undergraduate students, regardless of classification or probationary status, will be allowed to enroll Credit/No Credit.
6. Credit/No Credit courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student. Important: Students should be fully aware of the implications of this system for acceptance in graduate schools. It has been ascertained that most graduate schools will accept students who have elected to take courses on a Credit/No Credit basis, but that it courses taken on this basis are sufficient in number on the transcript, the Gradate Record Examination may be utilized to determine the student's acceptability. Graduate schools, in general, do tend to favor those applicants who have good letter grades on their transcripts.

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.
The number of times a course can be taken is limited to three (including withdrawals). Appeals may be addressed to the department chairperson. The limitation on the number of times a course can be taken applies only to students enrolling in Fall 1989 or thereafter.
There is no limit on the number of different courses that can be repeated.
A repeated course is not removed from the student's record. All grades earned are shown on the transcript.

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 time 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, or 12 honor points.

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

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 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. Recipients of honors receive their degrees:
Cum laude—when their grade point average is 3.50 to 3.69, inclusive.
Magna cum laude—when their grade point average is 3.70 to 3.89, inclusive.
Summa cum laude—when their grade point average is 3.90 to 4.00, inclusive.

In computing the grade point average for honors-in-course, the following rules will apply:
1. All credits and honor points earned at Western Michigan University will be counted.
2. Credits and honor points earned in correspondence and extension classes will be counted toward honors.
3. All students must have earned at least sixty semester hours of credits at Western Michigan University, of which fifty must be graded.

The graduation program will list as candidates for honors all students who have earned a point-hour average of 3.50 through the next-to-last semester of residence (based on a minimum of forty-five semester hours of credit).
College Level Examination Program (CLEP)

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

General Examinations
1. The general CLEP examination is available only to nontraditional students at WMU.
2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution on a full-time basis (minimum of twelve semester hours).
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 examination:
   - 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 social sciences-examination with a score of 520 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 natural sciences-examination with a score of 489 or above, three hours of credit will be awarded in Area III (natural sciences and mathematics) of the General Education Distribution Program.
   - If a student passes the mathematics examination with a score of 497 or above, three hours of credit will be awarded in Area III (natural sciences and mathematics) of the General Education Distribution Program.

Credit By Examination

Advanced Placement Program (APP)

Western Michigan University participates in the Advanced Placement Program (APP) of the College Board. Students with scores of at least 3 (4 in the case of Physics) on any APP exam will receive college credit in the 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.

Academic Standards

A student must earn an overall grade point average of at least 2.0 to satisfy degree requirements. The scholarship policy is intended to encourage satisfactory progress toward that end. The policy operates as follows:
1. Good Standing  A student is in good standing whenever his/her overall grade point average is 2.0.
2. Warning  Whenever the grade point average for any enrollment period is less than 2.0, but the overall grade point average is 2.0 or above, the student will be warned.
3. Probation  The student will be placed on probation whenever his/her overall grade point average falls below 2.0.
4. Probation Removed  Whenever the conditions of Good Standing are restored, Probation will be removed.
5. Continued Probation  If the overall grade point average increases .01 or better, although still below 2.0, the student may be continued on Probation for one additional enrollment period.
6. Dismissal  The student who fails to increase his/her overall grade point average .01 or better at the end of an enrollment period of Probation or whose overall grade point average fails to reach 2.0 at the end of one enrollment period of Continued Probation, will be dismissed from the University.

Students who have been dismissed from Western are expected to remain out at least one full fifteen-week semester. Exceptions may be granted at the discretion of College Admission Committees if the increase has been substantial but still falls fractionally short of the minimum 2.0 requirement. Students may apply for re-admission through their college advising office. College committees are concerned with the extent to which the dismissed student has resolved the causes of past academic difficulty. It is required, therefore, that the student include a written statement with the re-admission application.

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 should 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.

Compensatory Examinations

Each department shall have the authority, with the approval of its dean, to establish a procedure for granting credit for any course in that department through compensatory examinations. All compensatory examinations should be administered by authorized personnel determined by the department. Each department should determine those courses for which the compensatory 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 compensatory 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 compensatory examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
4. Credit by compensatory examination can be posted only for admitted students who have either previous or current enrollment.
5. All credit by compensatory 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, $25.00. Four credit hours to eight credit hours, $50.00. By special arrangement, some course examinations may require higher fees.
Winter Semester
Apply by September 1, but not later than March 1.

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

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

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

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

I.D. Validation Regulations
Each student on campus is required to have an identification card, which includes photo, name, social security number and student signature. Dates, time, and place of I.D. photography and validation are published in the Schedule of Classes prior to each semester or session. At other times, business may be conducted at the Registrar’s Office. Each new student is eligible for an I.D. card free of charge. 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.
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 students 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 the program which focuses on review of 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
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 introduces reading strategies to help students develop the ability to read critically. Students learn how to develop a set of questions to focus attention on what the author is saying.

VOCABULARY WORKSHOP
The Vocabulary Workshop focuses on the most common roots of the English language and reviews prefix meanings through brief exercises. The workshop can help improve scores on the vocabulary section of national standardized reading tests.

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.

EDITING BRUSHUPS WORKSHOP
The Editing Brushups Workshop emphasizes principles of grammar, mechanics and punctuation. Sessions supplement instruction on the writing process by answering specific questions.

SPELLING WORKSHOP
The Spelling Workshop covers syllabication, phonetic patterns, and rules by using exercises tailored to individual needs.

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 advisers. 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. 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 Employment Referral Service for assistance in locating internships, summer jobs, or part-time positions related to your career choice.
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 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.

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

Testing and Evaluation Services
University Counseling Center, D-4 West Hills (387-3905)
Career Planning and Placement Services
B Wing Ellsworth Hall (387-2745)
Student Employment Referral Service
Ellsworth Hall (387-2725)
Women's Center
A-328 Ellsworth Hall (387-5047)
College Advising Offices
Departmental Advising Offices

Career Planning and Placement Services

Assistance in total job search planning is offered charge of the Career Planning and Placement Services to students of Western Michigan University. These services include: job counseling, a career resource center, an on-campus interviewing schedule, a weekly employment opportunities bulletin, job vacancy postings, direct referrals to employers, maintenance and distribution of credentials, assistance with career search correspondence such as resumes and letters of application, interviewing videotapes, career workshops and seminars, annual career fairs and referral to other campus agencies providing career planning services.

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

Counseling Center

Many important decisions and situations will confront students while they are at Western Michigan University. They will need to make decisions regarding courses, curricula, and career interest. They may become involved in social and personal situations that leave them feeling confused and upset. In addition, it may be likely that the inherent stresses of university life will, at some time, interfere with academic achievement and personal growth. The University Counseling Center, located on the main floor of the Faunce Student Services Building, exists to help students deal effectivelly with such concerns.

The Counseling Center is staffed with professionally trained 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 they 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, educational goals, course selection, and curricular choices.

Career Development Programs to provide students with the resources, skills, and experiences necessary for reasonable educational and career choices. Individualized and group activities are offered to (1) increase self-understanding, including insights into one's interests, values, abilities, and skills; (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish plans of action; and (4) test the feasibility of individual plans by experiencing the reality of the working world.

The Career Exploration/Media Center contains a wide and varied selection of printed materials with an emphasis on self-understanding, career exploration and preparation, occupational information, and job trends. Included is a section of college and university catalogs, educational guides, and computer-aided guidance and information pertinent to career awareness.

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 need for confidentiality in client/counselor communications. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct.

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

All students enrolled at Western Michigan University are permitted to choose their own housing. Students are encouraged to give serious consideration to the financial, nutritional, educational, and social benefits of living in a residence hall or campus apartment as well as the convenience of being close to their classes and other University activities.

RESIDENCE HALLS

Twenty-two residence halls in a variety of locations on campus attract over 6000 students each fall and winter semester. These individuals come from all walks of life and possess diverse academic interests. Many of the 50 states and several foreign countries are represented.

Assignments to a hall are based on the preferences of the individuals if space is available. Halls are available which accommodate men only, women only, and men and women on alternating floors or suites. In locations where coed assignments exist, separate bath and toilet facilities are provided for each sex. Most assignments are made per room. Some single rooms and three-four person room assignments are also made. Certain halls are particularly attractive to individuals interested in meeting and well-oriented, computers, and international culture. Most halls are available on a room and dining basis. One room-only hall is available for continuous housing throughout the year which is permitted to remain during vacation periods.

All other residence halls close between semesters and sessions, and residents who must remain in Kalamazoo must arrange for alternative housing arrangements during these periods. Residents are permitted to remain in their assigned rooms during the Thanksgiving and spring break recess periods. Each residence hall varies slightly in its construction. The following services are available in most halls: reception desk with mail and message services, formal lounges; all-purpose rooms for meetings, games, etc.; study areas; television viewing areas (some 42" screens); exercise areas; rental refrigerators; paint-your-own-room opportunities; study rooms; and academic counseling. Residence halls providing dining service are available during the fall and winter semesters and the spring session. During these periods meals usually begin on the day before classes start and stop on the day the halls close for the semester/session. Meals are not served during the Thanksgiving period. Most residents select the Continuous Dining Plan covering all meals except Sunday evening. For persons leaving campus every weekend, the Continuous Dining Plan, providing meals Monday through Friday, is available. Some rooms are open from 7 a.m. to 6:15 p.m. six days a week and from 8 a.m. until 1 p.m. on Sunday. Serving hours are subject to change. Each year hundreds of new students enter the University discover more about the world they live in, their colleagues, and themselves through living in a residence hall. Opportunities for group participation and leadership await those interested. As you know, education takes place both in and out of the classroom; a well-rounded education includes 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.

Admission to the University or submitting a contract for a residence hall assignment does not guarantee that residence hall space will be available. Assignments are made on a first come, first serve basis. Requests received after halls have been filled to capacity will be placed on a waiting list.

Any student enrolled at Western for at least one credit hour may reside in the hall. Newly admitted students are automatically assigned to residence halls. Information covering all residence halls is available on a room-by-room basis. Detailed housing information covering all residence halls is available from the Housing Office located in the Bernhard Center.
International Student Services

Western Michigan University has long recognized the value of international educational exchanges. 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, on the campus 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, and providing tenant counseling and landlord services. For additional information regarding off-campus housing, 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 CELCIS for admission to the CELCIS program, Admission to CELCIS does not, however, imply admission to the University for academic study.

For further information and application forms, contact: Career English Language Center for International Students, Western Michigan University, Kalamazoo, Michigan 49008-3899; Telephone: (616) 357-4890; Telex: 687509 WEST MICH UNIV
SERVICES FOR STUDENTS

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 (Pell 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 7/4 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 not eligible for monies based on federal guidelines may secure a Guaranteed Student Loan through a bank in their hometown. The activities of the Division are designed to define and positively react to minority students' needs and impact their environment. By doing so, students and staff have 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 13,000 students who live off campus and commute to classes from many distances and locations. It is located in Room 3510 of the 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 ongoing 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: 387-2306.

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 student impressions and satisfaction with delivery of services from other areas to which they have been referred. Provides feedback to these areas on students perceptions.
4. Serves as advocate in presenting concerns that affect the quality of life for minority students on the campus of Western Michigan University, and works with students to identify concerns and to develop solutions.
5. Supports programs targeted at pre-college youth in order to increase the participation of minority students in higher education.
6. Provides information and on-campus program assistance to the Office of Admissions and Orientation to help increase the recruitment and enrollment of minority students.

The activities of the Division are designed to define and positively react to minority students' needs and impact their environment. By doing so, students and staff have the greatest opportunity for a successful and relevant educational experience.

Religious Activities

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

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

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

The Office of Religious Activities, which is a part of University Student Services, serves as a clearinghouse for campus religious programs and is responsible for management of the Kanley Memorial Chapel and for scheduling events there. The Kanley Memorial Chapel facility includes an interfaith chapel, several meeting rooms, and offices. It is maintained by the University as a center for religious activities and serves as the meeting place for most student religious organizations. It is also the home of regular weekday and Sunday worship services and provides a popular site for student weddings. The Office of Religious Activities and ten 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.

Services for Students

Sara Swickard Preschool

The Sara Swickard Preschool is open from 7 a.m. to 5:30 p.m. weekdays. It is located on Western's campus at 1211 Knollwood. The location is convenient for student parents who wish to leave their children on their way to class. Children 2 1/2 to 9 years old may be enrolled full or part-time (2 to 10 1/2 hours each day). The program and environment are designed to minimize failure and competition while promoting cooperation, creative thinking, problem-solving, and kindness. Application to the Preschool should be made well in advance. Forms are available at the Preschool. Telephone: 387-3547.

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 which include comprehensive examinations, treatments, urgent care, and minor surgical procedures. Our physicians, physician assistants, nurses, laboratory personnel, and pharmacists work as a team to assist you with your health care needs. With your help, the care we provide can be continuous during the time you're in school, comprehensive by addressing all your health concerns; and coordinated, with one clinician knowing all your health care problems and concerns.

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 the admissions process. All health information and records within the Sindecuse Health Center remain strictly confidential. Student signature is required for release of information to anyone.

SERVICES

The Center provides evaluation and treatment for a wide variety of illnesses and injuries, as well as preventive health checkups, pre-marital examinations, contraceptive services, pregnancy testing, and treatment for sexually transmitted infections. In addition, it offers the medical specialties of dermatology, gynecology, and psychiatry. When necessary, staff members can refer you to other medical specialists within the Kalamazoo area.

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 physicians. You may pay for pharmacy items by cash, check, MasterCard, Visa, or you may bill your student account. Most 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. Electrodensograms, interpreted by a radiologist, 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.

URGENT CARE
The Sindecuse Health Center’s urgent care clinic is designed for sudden injuries or 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. A list of providers is available by calling 387-3289.

If you have an appointment, you’ll go directly to your clinician’s office 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 should bring that identification card and information with you.

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

ALLENRY INJECTIONS
If you receive allergy injections, all you have to do is provide the Sindecuse Health Center with your antigen and an injection schedule from your allergist. Then all your injections can be administered at the Sindecuse Health Center while you’re attending school.

IMMUNIZATIONS
Several serious diseases, including measles, mumps, rubella, 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.

TUBERCLOSUS TESTING
Routine tuberculosis testing, required for some classes and jobs, is available.

SINDECUSE HEALTH CENTER HOURS
Appointments
8 a.m. to noon and 1 p.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 Sindecuse 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 Sindecuse Health Center visits may be voided at the Public Safety Annex when presented with your Sindecuse Health Center receipt.

STUDENT HEALTH FEE BENEFIT PLAN
All Western students carrying seven or more credits a semester or four or more credits a session are assessed a prepaid Student Health Fee. Except for a small physician visit charge and the cost of medications from the Sindecuse Health Center pharmacy, the fee covers all health care requested by Sindecuse Health Center clinicians and provided at the Center.

Students enrolled for less than the above hours and those attending other colleges within the Kalamazoo area may "buy in" to the Student Health Fee plan or use the Sindecuse Health Center on a fee-for-service basis.

In addition, spouses of currently enrolled students, seniors enrolled with current admission status and their spouses, and recently graduated students (one semester or two sessions immediately following graduation) may also buy into the benefit plan or pay on a fee-for-service basis.

The Student Health Fee complements your hospital and medical insurance. Many students have health insurance that protects them from the costs of hospitalization. Your fee protects you against the majority of costs you face outside the hospital, which are not covered by most insurance plans. Any student who has paid the fee is eligible for all Sindecuse Health Center services. Eligibility extends 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 Sindecuse Health Center by ambulance are not covered by the fee. Services rendered by Sindecuse Health Center personnel, but requested by clinicians outside the University, can be provided by the Sindecuse 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 charge card, 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 done 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 offer coverage for expenses not covered by hospitalization. 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.

SERVICES FOR STUDENTS
MANDATORY HOSPITAL, MEDICAL AND SURGICAL INSURANCE
All international students are required to carry health insurance for the semester or session they are enrolled if health care coverage is not provided by their sponsor. These students will be automatically enrolled in the University-sponsored policy unless an approved alternate policy is chosen.

Non-sponsored international students must show proof of coverage and have alternate policies approved at the Sindecuse Health Center during the first two weeks of the semester/session. No refunds of insurance premiums can be given after that time.

The Insurance Coordinator at the Sindecuse Health Center is available to assist students between 8-11:30 a.m., Monday through Friday, or can be reached at 387-3287.

STUDENT HEALTH ADVISORY COMMITTEE
The Student Health Advisory Committee gives you the chance to play a role in determining which health care services the Sindecuse Health Center can offer to Western students. Non-sponsored international students are also invited to participate. The committee participates in policy formulation, program review, and program development for the Sindecuse Health Center.

Seven undergraduate and two graduate students (selected by committee interview), and five faculty and staff members serve on the committee. Membership in the group, which meets throughout the calendar year, is open to any interested student. For more information regarding meeting times or application for committee membership, contact the committee’s recording secretary in the Sindecuse Health Center director’s office.

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

• A Wellness Resource Center, located in the front lobby of the Sindecuse Health Center, containing written information on a variety of health promotion and disease prevention topics.

• Staff Care Cold Centers, located in the Sindecuse Health Center front lobby and in all Residence Halls.

• Total Fitness — A comprehensive aerobic exercise program, designed to help you achieve fitness using exercises set to music. This program focuses on flexibility, muscle tone and strength, development as well as cardiovascular endurance. In addition to improving fitness, it provides a healthy outlet for reducing stress and tension.

• The Zest for Life Fitness Room, located in the Gary Center, contains a full line of weight equipment, exercise bicycles, rowing machines, hand weights, a nordic skier, and exercise mats. Evening fitness room hours for students are scheduled through the Office of Campus Recreation Activitiy.

• Computerized Nutrition Assessment — Optimal nutrition can be a key to improved physical and intellectual performance. What you eat has a definite impact on how you look, how well you feel, your resistance to illness, and prevention of heart disease, cancer, and osteoporosis. The Sindecuse Health Center can help you analyze your diet and suggest food
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services that can help you achieve a balanced nutrient intake for high-level wellness.

• Weight Control—Success in managing weight depends on many things, only one of which is wanting to do it. Our eight-week weight management workshop can help you increase your skills in eating and nutrition management, stress management, thought management, behavioral techniques, and commitment to increased physical activity.

• Managing Stress—Feeling overstressed and out-of-control can affect your emotional stability, your ability to think clearly, and your sense of purpose in life. In addition, stress is known to play a significant role in many physical illnesses and to contribute to lower resistance to all infections and disease. None of us can escape stress, but how we perceive it at deal with it can become a life-long habit. The Sindecuse Health Center offers stress management information and workshops to help you increase your ability to manage and minimize distress in your life.

• Quit-For-Life Stop Smoking Program—Cigarette smoking causes a powerful physical and psychological drug addiction. It is the strongest observable risk factor for sudden cardiac death. Smokers who choose a new nonsmoking lifestyle say they feel better and have a greater sense of personal effectiveness and self-esteem. The Sindecuse Health Center can help you develop skills for a lifetime of freedom from smoking. We offer group workshops and materials to assist and support your work in developing a new nonsmoking self-image and healthy alternatives to smoking.

• Healthy Sexual Choices—Young adults in a University setting are statistically at high risk for unintended pregnancy and sexually transmitted infections. This program covers sexual health concerns for men and women, prevention of common sexually transmitted infections, including herpes, chlamydia, AIDS and venereal warts, 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.

• Chemical Screening—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 artery 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. 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 and accomplishment in life.

Speech, Language, and Hearing Services

The Language, Speech, and Hearing Clinic, a service program provided for persons with communication disorders by the Department of Speech Pathology and Audiology, 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

Classes, professors, and term papers are an ever present part of one's college experience, but the University recognizes that classroom activities alone do not satisfy the total education today's college students are seeking. Students can enrich and broaden their collegiate life by becoming involved in any number of the more than 200 organizations coordinated and sanctioned by the Office of Student Life, located in the Student Services Building. To develop leadership skills, acquire valuable vocational training, gain new friends, get to know faculty members and administrators, serve the campus and the community—a student need only become involved in the extracurricular activities on campus.

Organizations are divided into these interest areas:

Departmental and Professional
Honorary
Publications and Communications
Religious
Student Volunteer Services
Service Organizations
Twenty Fraternities
Thirteen Sororities
Special Interests
Student Government

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 is 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, and is 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.

Testing and Evaluation Services

The Office of the Registrar on the third floor of the Administration Building certifies veterans under the G.I. Bill and its extensions.

The Office of the Registrar ensures that grades appear on students' transcripts immediately after the end of the term.

In addition to normal scholarship standards, students receiving benefits from the Veterans Administration are advised of their additional rights and responsibilities.

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 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

Testing and Evaluation Services provides many self-assessment instruments to 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 also offers assistance in planning research projects and papers. Scanning sheets can be used for multiple choice and true-false classroom tests. In addition, several computer printouts for each test can be obtained. They include lists with scores, percentiles, frequency distribution, and item analysis.

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.
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 retake specific courses, or to take other remedial action before re-certification. After two semesters on probation, the Veterans Administration is notified. Benefits may be terminated for such students even if allowed to remain in school. Students are certified on the basis of attendance and academic progress toward degree goals. Serious overpayment problems can be eliminated by prompt notification to the Office of the Registrar of changes in these areas.

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

**Women's Center**

The Women's Center was established in 1976. Its programs and services are directed toward education, information and research related to issues of women's equality, empowerment and leadership in all segments of the University and society.

Through programs, workshops, seminars and conferences the Women's Center:
- Clarifies issues of women's equity for administrators, faculty, staff and students.
- Promotes the upward status, capabilities and potential of women.

Women's Center is located in A-331 Ellsworth Hall. For further information call 387-2990.
The office of Alumni Affairs and Development provides two separate functions which are described below.

Each year the WMU Alumni Association presents several international projects as a corporate body and a Foundation Board of Directors comprised of thirty-seven 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.

Alumni Affairs and Development

The WMU Alumni Association presents several foreign and domestic travel opportunities to alumni and friends of the University, and special opportunities in group life insurance are also provided.

A link with the current student body is maintained through the Student Alumni Association, which conducts such projects as receptions for new graduates the afternoon before commencement.

Alpha Beta Epsilon is an alumnus society which maintains eleven chapters in eight Michigan cities. ABE conducts a scholarship program for prospective teachers.

Fifteen alumni are elected to staggered three-year terms on the board of directors of the Alumni Association. The board has a total of twenty-two members when various ex officio members are counted. The Alumni Office is the administrative arm of the board, and the director of alumni relations serves as executive director of the association.

Development

The Development Office seeks to raise private support for academic programs, building projects, loans and scholarships, and a variety of University needs. Support is received from alumni, emeriti, parents, friends, corporations, and foundations. The four major areas of development are: the Annual Fund, which through its direct mail, phonathon programs, and personal solicitation, seeks to enlist annual unrestricted support; Planned Giving Services, which provides consultation on estate and tax planning, including wills, bequests, charitable trusts, gifts of insurance, securities, and other properties; Corporation/Foundation Relations, which seeks support from business, industry, and private foundations; and the Mike Gary Athletic Fund, which solicits gifts for Western’s intercollegiate athletics program. The contributions received through these efforts help to ensure financial support for students, and provide the resources essential to the continued high 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 secure 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 Foundation Board of Directors selected of the seven 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.

Archives

The University Archives and Regional History Collections is located on the ground floor of Waldo Library. Staff collect, preserve, and make accessible records which document the history of the University and of twelve southwestern Michigan counties. Holdings include: books, ephemera, newspapers, microfilm, photographs, oral history tapes, and manuscript collections. In addition, local public records from southwestern Michigan are on deposit from the State Archives.

Athletics (Intercollegiate)

The University is represented by men’s teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, gymnastics, ice hockey, and soccer. Women’s teams represent the University in basketball, cross country, gymnastics, softball, tennis, indoor and outdoor track, and volleyball. Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association. Western Michigan University is a member of the Mid-American Conference. Other members of the conference are Bowling Green, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Toledo, Ball State, and Ohio. The teams winning the Mid-American Conference championships in men’s and women’s basketball, baseball, and volleyball qualify automatically for the annual NCAA playoffs.

THE ATHLETIC BOARD

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

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

Campus Recreational Activities

Campus Recreational Activities provides students, faculty, and staff with opportunities to participate in non-credit organized sports and recreational activities. Participation in such services as informal recreation, sports clubs, intramural sports, outdoor recreation and special events can greatly enhance the quality of your university life.

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 opportunities 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.

In general, 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 Student Activities Office or Campus Recreational Activities.
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 develops and recommends policies to provide a framework within which campus agencies may act in making administrative decisions; (2) develops procedures for policy decisions 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 regarding building sites, space allocation, long-range campus growth and development, or which impair, limit, or have any major impact on the aesthetic, physical, or socio-ecological environment of the campus, community, or region.

OUTDOOR RECREATION
Various recreational opportunities in outdoor settings are offered throughout the year. Activities like canoe trips, hiking trips, camping and bicycling are 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 instruction 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 Senate is composed of members elected by the faculty from 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 Council. The terms of elected members expire in April in a staggered year sequence. The Councils include: Admissions, Financial Aid, and Budget and Finance; Campus Planning; Graduate Studies; Research Policies; and Undergraduate Studies.

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 Council is a policy-making and review body with jurisdiction over any matter relating to all undergraduate curricula 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 the discretionary review of recommendations from the Undergraduate Curriculum Committee.

Libraries, University
The University Libraries consist of the Dwight B. Waldo (Main) Library, the Business Library, the Music and Dance Library, the Physical Sciences Library, the Education Library, and the Cistercian Studies 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 new addition is planned and is expected to be completed in 1990.

The Library system is a depository for United States and Michigan government documents and receives microform editions of United Nations documents and official records.

A microform collection of more than 900,000 contains such items as the Human Relations Area Files, the American Astrophysics, Early English Books printed in Great Britain from 1475-1700, and ERIC (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 programs:

1. The Ann Kercher Memorial Collection is an extensive collection of materials on Africa south of the Sahara. Started more than two decades 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 emphasis. Together with the Karcher 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.

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

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

The Business Library, located in North Hall, has a collection of some 90,000 items, which include special microform collections, annual reports from businesses and industries, and current subscriptions to periodical and newspaper titles.

The Music and Dance Library is located in the new Dorothy U. Dalton Center. In addition to more than 30,000 books and scores, and extensive holdings in music periodicals, this branch contains a collection of over 10,000 phonodiscs and tapes, and extensive listening facilities.

The Physical Sciences Library contains 67,000 volumes in the fields of mathematics, astronomy, physics, and geology and has subscriptions to about 600 periodical and serial titles. 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 Cistercian Studies Library located in Hillside Apts. West is a collection of books in the areas of monastic history, sacred scripture, and general church history which supports the research and programs of the Institute of Cistercian Studies and the area of medieval studies at the University. The collection includes
rare books, manuscripts, and incunabula, most of which are on an indefinite loan to Western Michigan University from the Archdiocese of Gethsemane. Over 9,000 of the some 9,000 volumes in the library are rare items of interest to medieval scholars from all over the world.

The University Libraries have a number of computer-based services available to users. An integrated computerized library system provides an online catalog with author, title, subject, and keyword-Boolean access to the library's collections. Terminals located in Waldo Library and its branches give the user access to a database of book and periodical holdings of the University Libraries. The library also has access to the holdings of area libraries and provides automated search services to selected vendor-supplied databases. At no cost to users, the BRS/ONSITE service allows the user personally to 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 automated access to periodical articles in general interest periodicals, in science and technology journals, in business journals, and in education documents and journals. A special CD-ROM index provides access to the NEWSBANK collection of articles from newspapers all over the country on a variety of topics. Search terminals that are online to the Computer Center provide keyword-Boolean searching of OLLI, a database of 550,000 records of the library's holdings.

General and specialized reference service is provided at the main Reference and Information Desk, at the Science Reference Desk, and in the Documents and Maps Department in Waldo Library. Reference collections of indexes, abstracts, dictionaries, handbooks, bibliographies, etc., are maintained in each of the University Libraries, and reference librarians offer personal assistance in finding the books, information, and other resources needed for class or research related problems. In addition, the reference staff offers a one credit hour course, Library Resources, in the General Studies curriculum. The course is designed to introduce the students to the use of the library system, especially to the bibliographic tools and methods necessary to find information in the various subject fields.

An on-line retrieval system (OARS), offered by the library, accesses data and reference materials not owned by the University Libraries. Requests for loans may be initiated at public service desks in all libraries, as well as at the Interlibrary Loan office in Waldo Library.

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

Students enrolled in off-campus classes are always welcome at the libraries on campus. They are also provided library services through the library at the Continuing Education Center in Muskegon (Frutrop), 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**

Media Services is a department within the Division of Academic Services. Its primary mission is to provide the full range of production facilities and expertise: media librarianship of film and video resources, a sophisticated computer graphics system in support of television, graphic and photographic production and consulting service for those considering the use of media. Services provided include: television production and campus distribution; motion picture production; film and videotape library; audiovisual equipment pool; graphic production; photographic services; a media laboratory for all students; and general media consultation (see specific catalog entries for these services).

While primarily serving students through audiovisual materials for specific courses, the service also assists non-instructional units of the campus community with media related needs as well as a service of support with the community-at-large through such activity as the preparation of broadcast and cable television programming.

**AUDIOVISUAL CENTER**
The Audiovisual Center is operated by the Media Services Department to provide faculty, staff, and students of the University with audiovisual materials and equipment. The AV Center includes an educational film and videotape library, preview facility, central office, and an equipment center in Dunbar Hall. Students are employed in all locations and may be available to operate audiovisual equipment for classroom instruction and other campus activities. Other services of the center include film and videotape scheduling, consultation, a source library for locating media materials nationwide.

**TELEVISION**
The Television Production Unit under Media Services creates a broad range of video and film programs in support of instructional and institutional needs. The center currently has three television studios, all of which are available to the University community. The television production studio which can be configured as a simulation classroom for faculty assisted production. Small format video recording and editing are also accommodated.

**PHOTOGRAPHIC SERVICES**
Photographic Services provides photographic work for faculty, staff, and students of the University with materials on materials for classroom instruction. Both original photography and copying can be done, but copying of copyrighted materials will only be done with permission from the copyright holder, obtained by the person requesting the copying. Photographic Services is located in Room 1500 of Dunbar Hall.

**Musical Activities**
Numerous musical activities and organizations at Western Michigan University are available for the cultural enrichment of the student. Faculty members, students, and guest artists provide a schedule of more than three hundred on-campus recitals every year, to which all University students are invited.

Students may participate actively in musical life on campus by becoming a member of one of the many organizations—the Marching Band, Symphonic Band, Concert Band, Orchestra, University Chorale, Collegiate Singers, Gold Company, Grand Chorus, Jazz Orchestra, Jazz Lab Band, Treble Choir, Collegium Musicum, Pep Band, Musical Theatre productions and Opera Workshop. The School of Music also offers opportunities for participation in small ensemble groups for voices, strings, woodwinds, brass, jazz, and percussion.

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, and 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 at the corner of West Michigan Ave. and Marion St. Telephone 387-4609 during normal University business hours.

Publications

Western Herald, WMU’s student newspaper, is published Mondays, 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/adviser.

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 Alumni Affairs and Development. 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.

East Lakes Geographer, a professional academic journal covering the entire breadth of geography and concentrating on the Great Lakes (Canada and the United States), is edited and published annually through the Department of Geography.

The Department of English publishes a number of journals: Comparative Drama, a scholarly journal, circulated nationwide, edited by members of the English Department; Currents, a student-edited literary journal containing poetry, prose, and the non-fiction writings of students and faculty; Trial Balloon, a faculty-edited literary journal containing work produced in creative writing courses; and Cellphone, for high school writers.

Other academic areas that publish scholarly works include Center for Educational Research, Cistercian Studies, Department of Blind Rehabilitation and Mobility, Department of Mathematics and Statistics, Evaluation Center, Medieval Institute, and New Issues Press.

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

WMUK(FM) has won many honors for its programming over the years, including the Major Armstrong Award for excellence in community service programming, the Corporation for Public Broadcasting award for extraordinary service to the community through public radio, the Ohio State Award, and the George Foster Peabody Award for meritorious service in broadcasting. WIDR(FM), a 100-watt station operated by students and broadcasting on frequency 89.1, offers the only alternative music programming, promotion, and station operation.

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.

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 at the corner of West Michigan Ave. and Marion St., or by telephoning 387-4609 during normal University business hours.

Substance Abuse Services

University Substance Abuse Services, located in the Sincoduce Health Center, provides a 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, case-finding, 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 licit and illicit drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates). University Substance Abuse Services is directed by a state certified substance abuse therapist and professor of counseling. It is open Mondays and Thursdays 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 Sincoduce 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 prosenium and arena stages, as well as student-directed "laboratory productions."
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. Material 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. When direct quotations are used, however, quotation marks must be inserted and acknowledgement made. Similarly, when a passage is paraphrased, acknowledgement is required.

Facilitating Academic Dishonesty
Definition: Intentionally or knowingly helping or attempting to help another commit an act of academic dishonesty.
Clarification: A student must not knowingly allow another student to copy from his or her work during any academic exercise. This includes, among other things, examinations, videotapes, audiotapes, laboratory experiments, and term papers.

COMPUTER MISUSAGE DEFINITION
Definition: Disruptive or illegal use of computer resources.
Clarification: 1. No student shall access, copy, examine, modify, utilize, or destroy any computer equipment, hardware, software, or file that is not specifically intended for his/her own personal use, without written permission.
2. Disruptive or illegal use of computer resources includes, but is not limited to: violation of copyrights held on software or programs; tampering with computer equipment or hardware; or with the operation of any computer system or function/execution; plagiarism or cheating in any form; any act which is unduly disruptive to other users, operators; and any invasion of personal or institutional privacy with the use or aid of any computer equipment.

WHAT ARE THE POSSIBLE CONSEQUENCES OF ACADEMIC DISHONESTY?
When academic rules are broken, procedures may vary according to circumstances. Actions that could be taken include (but are not limited to) a failing grade for the work involved, failure in the course, and/or removal from the program. Other penalties may be imposed under the Code of Student Life (copies are available from the Office of the Dean of Students).

The Academic Dishonesty statement of the University of Maryland was the source of material for this statement. It was prepared by a WMU Student Services committee.

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.
In the Classroom The professor in the classroom and in conference should encourage full discussion, inquiry, and expression. Student performance should be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards.

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 class. This information should be provided at the beginning of the semester or sufficiently in advance of actual evaluation.
2. Procedures for Reviewing Student

   Grievances Related to Grading

   • Students have the right to have all their
evaluations and other written graded
data available to them with an
explanation of the grading criteria. Faculty
should retain all such material not returned
to the student for at least one full semester
after the course was given.

   • 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.

   • If the student believes he/she has
not received a satisfactory resolution of
the grievance from the instructor, he/she
should then go to the department
chairperson or head, who may effect a
satisfactory resolution.

   • If the student is still dissatisfied after
seeking the department chairperson or head,
the student should next see the
University Ombudsman. The function of
the Ombudsman in this situation is to
collate information from both the student
and the faculty member and then make a
decision that (a) the student’s grievance is
unwarranted and should not be
considered further, or (b) there is sufficient
evidence that the situation be considered by
the Undergraduate Committee on
Academic Fairness.

   • The Undergraduate Committee on
Academic Fairness consists of three faculty
and three undergraduate students.

   • When a case is presented to the
Committee, the Committee shall investigate it,
making sure that all interested parties
have a full opportunity to present their
position. The Committee will be able to
recommend (a) no grade change, (b) a
change of letter grade, (c) credit/no credit,
or (d) any other grade used by the Records
Office

   • If the Committee decides there should
be no change of the grade, they will so
inform the student, the faculty member,
the department chairperson or heads, and
the Ombudsman. The Committee will then
recommend a change of grade, and the
Committee will inform the faculty
member of its intent so that he/she may
initiate the change. If the faculty member
prefers not to initiate the change, the
Committee will do so by notifying the
University Registrar.

   • To protect all parties involved in any
case, the strictest privacy consistent with
the Committee’s task will be maintained.

   • Occasions do occur when a faculty
member or an administrative official may
wish to question a grade or a grade
change. In such instances, these
procedures, beginning with review by the
Ombudsman, shall be available to them.

   • Policies and Procedures Regarding
Requirements

   • All students who seek advice on
academic records, or who request to be provided
written copies of their academic adviser’s
recommendations, and students will not be
held responsible for errors made by their
advisers. This section is not to be
interpreted to mean that the student is
relieved of responsibility for meeting the
total graduation requirements stated in the
catalog. In cases where errors were
made, the notices at the time he/she was
admitted, or in a later catalog if he/she
chooses to meet its graduation requirements.

• The student shall not be held
responsible for meeting curricula
requirements that are not listed or not
applicable under the catalog governing the
work held by the college.

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

• University policy and implementation of
such policy should not be determined and
enforced according to the needs of
computerized student records. Special care
should be taken to insure 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 covering student
conduct are developed by the Admissions,
Financial Aid and Student Services Council,
composed of faculty, administrative and
students. The policies, when approved, are
published in The Code of Student Life. Rules
and regulations appearing in this Code are
developed under the philosophy reflected in
this statement.

"It is the intention of Western Michigan
University that the individual student help
develop a responsible, intelligent University
community by maintaining his or her own
integrity through self-discipline and a sense of
responsibility to the community."

The Dean of Students has overall
responsibility for student conduct and
discipline. It is implemented by the Office of
University Judiciaries. When infractions of rules
and regulations occur, violators will be referred to
the Office of University Judicaries for
disposition.

The Family Educational
Rights and Privacy Act

The Family Educational Rights and Privacy Act
of 1974 is a Federal law which states that (a)
a written institutional policy must be established
and (b) a statement of adopted procedures
covering the privacy rights of students must be
made available. The law provides that the
institution will maintain the confidentiality of
student education.

Western Michigan University accords all the
rights under the law to students who are
enrolled, to persons or organizations providing
students financial aid, to accrediting agencies
in which students seek to enroll, to persons or organizations providing
students financial aid, to accrediting agencies
carrying out their accreditation function,
to persons in compliance with a judicial order,
and to persons in an emergency in order to
protect the health or safety of students or other
persons. All these exceptions are permitted
under the Act.

Within the Western Michigan University
community, only those members, individually
or collectively, acting in the students'
educational interest are allowed access to
student educational records. These members
include faculty, administration, clerical and
professional employees, and other persons
who manage student record information (e.g.,
Office of the Registrar, Academic Records
Office, Controller, Financial Aid, and the Office
of Admissions and Orientation).

As discretion, the institution may provide
Directory Information in accordance with the
provisions of the Act to include: student name,
address, telephone number, date and place of
birth, curriculum and major field of study,
dates of attendance, degrees and awards received,
the most recent previous educational agency or
institution attended by the student, participation
in officially recognized student sports,
and weight and height of members of athletic
teams. Students may withhold Directory
Information by notifying the Academic Records
Office in writing within 14 working days of
the initial request or the annual reapplicability
period of each semester or session.

The law provides students with the right
to inspect and review information contained in
their educational records, to challenge the
contents of these records, to have a hearing if
the outcome of the challenge is unsatisfactory,
and to submit explanatory statements for
inclusion in their files if they feel the final
decisions of the hearing panels are unacceptable.

The Registrar at Western Michigan University
has been designated by the institution to coordinate
the inspection and review of student educational records, which include
admissions, personal, academic, and financial
files and academic, cooperative education, and
placement records. Students may review their
educational records must make written
requests to the Registrar. Only records covered
by the Act will be made available within forty-
fiendays of the request. Students may have
copies made of their records with certain
exceptions. (e.g., a transcript of an original or
source document which exists elsewhere). The
copies are made at the students’ expense, at the
prevailing rate of ten cents per page. Educational records do not include
the records of institutional, administrative, and
educational personnel, which are the sole
possession of the maker and are not accessible
or revealed to any individual except a
temporary substitute, records of the law
enforcement unit; student health records;
employment records; or alumni records. Health
records, however, may be reviewed by
physicians of the students’ choosing.

Students may not inspect and review the
following, as outlined by the Act: financial
information submitted by their parents;
confidential letters and recommendations
associated with admissions, employment, or
job placement, or honors to which they have
waived their rights of inspection and review;
educational records containing information
about more than one student, in which case the
institution will permit access only to that part
of the record which pertains to the inquiring
student. The institution is not required to permit
students to inspect and review confidential
letters and recommendations placed in their
files prior to January 1, 1975, provided those
letters were collected under established
policies of confidentiality and were used only
for the purposes for which they were collected.

Students who believe that their educational
records contain information that is inaccurate
or misleading, or are 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’
complaints, 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 also will 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 who,
in ten days after receiving such request, will
inform students of the date, place, and the

STUDENT RIGHTS AND RESPONSIBILITIES 51
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 to and including discharge. However, to enable the University to act through these formal procedures employees and students are encouraged to report such incidents. Employees should report such conduct to the Associate Vice President for the Department of Human Resources, and students should report it to the Associate Vice President for Student Services.

The Department of Human Resources and the Division of Student Services shall jointly establish appropriate procedures to implement this policy. They shall also investigate thoroughly any complaints of alleged sexual harassment and 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 to and including discharge."

YOU COULD BE A VICTIM
Who are the victims? Anyone, male or female, young or old, can be the victim of sexual harassment from someone of the opposite, or even the same sex. But most often, 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.

Some options available to you are:

• Keep records of all incidents and confrontations.
• Find witnesses or others who will back up your complaints.
• 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.
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 conforming to the requirements of this degree, with a minimum of forty hours taken 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 resident 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 adviser 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 ACCOUNTANCY

MASTER OF SOCIAL WORK

SPECIALIST IN EDUCATION
Sixth-year programs are offered in Educational Leadership and School Psychology.

DOCTOR OF EDUCATION
Three doctoral degree programs are offered by the College of Education: Counseling and Personnel Education Leadership, and Special Education.

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

DOCTOR OF PUBLIC ADMINISTRATION

Certificates
Validity Level of Michigan Certificates
The two basic levels of Michigan teaching certificates are:

1. Elementary An elementary certificate which is issued after September 1, 1988, is valid for teaching all subjects in grade kindergarten to and including grade five, for teaching subject areas in grade six to and including grade eight in which the applicant has completed a major or minor, and for teaching all subjects in grade kindergarten to and including grade eight when those subjects are taught in a self-contained classroom in which a majority of the instruction is provided by one teacher.

2. Secondary A secondary certificate which is issued after September 1, 1988, is valid for teaching in subject areas in grade seven to and including grade twelve in which the applicant has completed a major or minor.

Types of Michigan Certificates
There are two basic types of Michigan certificates: the initial certificate, called the Provisional, and the subsequent certificate, called the Continuing.

PROVISIONAL CERTIFICATE REQUIREMENTS
A Provisional certificate is issued upon satisfactory completion of an approved program, including a bachelor's degree, offered by a teacher preparation institution. An overall grade point 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 CERTIFICATE REQUIREMENTS
The requirements for the Continuing 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.

   The success of the teaching experience is determined by the State Board of Education upon recommendation of the University and of the local school district(s) in which the candidate taught.

   Experience can be accumulated through part-time (including substitute teaching under the following pro-rating formula: one half or more of a teaching day (2½ or more clock hours) is the equivalent of one day, and 150 accumulated days is the equivalent of one year. There is no requirement that such experience be under contract, in consecutive years, be completed in Michigan, nor be completed before expiration of the Provisional certificate. All experience stays forever cumulative toward the Continuing 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 certificate by
Certificate Fees
Effective October 18, 1988, the Michigan Department of Education established an administration/teacher fee for all transactions involving certification. A schedule of fees and the procedure for payment may be obtained from the Teacher Certification Office.

Undergraduate Curricula and Approved Majors
College of Arts and Sciences: LAS
Students selecting Communication or Psychology will be placed in Pre-Communication (PCM) or Pre-Psychology (PPY) requirements have been met.
CURR: ASC Arts and Sciences
Major: AMS American Studies
ANT Anthropology
BIO Biology
BMS Biomedical Sciences
BUC Business-Oriented Chemistry
CHM Chemistry
COM Communication
CPS Computer Science
EAR Earth Science
ECO Economics
ENG English
FHY Field Hydrogeology
FRE French
GEG Geography
GEL Geology
GEP Geophysics
GER German
HCS Health Chemistry
HIS History
HYG Hydrogeology
LAT Latin
LAV Latin
LIN Linguistics
MAT Mathematics
PHI Philosophy
PHY Physics
POL Political Science
PCM Pre-Communication
PPY Pre-Psychology
PSY Psychology
PUR Public Relations
REL Religion
SOC Social Science
SOA Sociology
SOA Sociology/Anthropology
SPA 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: ENV Environmental Studies
Major: ENV Environmental Studies
CURR: PD Pre-Dentistry
Major: Must elect major from ASC Curriculum
CURR: PL Pre-Medicine
Major: Must elect major from ASC Curriculum
CURR: PM Pre-Medicine
Major: Must elect major from ASC Curriculum
CURR: PAP Public Administration
Major: PPA Political Science in Public Administration
CURR: PUN 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

Provisional Renewal Requirements
When the Provisional certificate expires before the holder is able to fulfill all requirements for the Continuing Certificate, such holder can, at any future time(s), qualify in the following manner for a renewal of the Provisional certificate. The first three-year renewal is available anytime after actual completion of the first six 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 anytime after actual completion of the entire eighteen semester hour "planned program." A "planned program" is the completion of an approved master's degree.

Validity Span of Michigan Certificates
All Provisional certificates expire on June 30 of the sixth year after issuance. All Provisional Renewal certificates expire on June 30 of the third year after the date of issuance.

Continuing certificates automatically remain valid as long as the holder serves in an "educational capacity" for a minimum of 100 days (need not be consecutive days) in any given five-year period. Continuing certificates 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.

Beginning September 1, 1989, persons receiving a Continuing certificate will be required to renew that certificate every five years on the basis of six semester hours of academic credit from an approved teacher preparation institution or the equivalent in State Board approved professional development programs or activities that will award credits obtained as State Board Continuation Education Units (SB-CEU's).

Procedures for Applying for the Continuing Certificate, or the Provisional Renewal
The Continuing certificate or the 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 the institution which "planned" or approved the eighteen semester-hour program from WMU must earn at least twelve semester hours of "planned program" from an approved Michigan teacher education institution or the equivalent in State Board approved professional development programs or activities that will award credits obtained as State Board Continuation Education Units (SB-CEU's).
CURR: RUL Rural Elementary
Major: RUL Rural Life
CURR: SDC Special Education—Emotionally Impaired
Major: SDE Special Education—Emotionally Impaired (Elem.)
CURR: SME Special Education—Mentally Impaired
Major: SDH Special Education—Mentally Impaired (Sec.)
CURR: SCH Special Education—Physically and Otherwise Health Impaired
Major: AGR Agriculture
CURR: AET Aircraft Maintenance Engineering
Major: AVE Aviation and Technical Operations
CURR: CSE Computer Systems Engineering
Major: CSM Construction Science and Management
CURR: DI Dietetics
Major: DI Dietetics
CURR: AAE Aircraft and Automotive Engineering
Major: AAE Aircraft and Automotive Engineering
CURR: AET Aircraft Maintenance Engineering
Major: AET Aircraft Maintenance Engineering
CURR: JUR Journalism
Major: JUR Journalism
CURR: AGR Agriculture
Major: AGR Agriculture
CURR: EGR Engineering Graphics
Major: EGR Engineering Graphics
CURR: FAS Fashion Merchandising
Major: FAS Fashion Merchandising
CURR: MAD Manufacturing Administration
Major: MAD Manufacturing Administration
CURR: MFT Manufacturing Engineering Technology
Major: MFT Manufacturing Engineering Technology
CURR: ME Mechanical Engineering
Major: ME Mechanical Engineering
CURR: MTL Engineering Metallurgy
Major: MTL Engineering Metallurgy
CURR: PAA Paper Engineering
Major: PAA Paper Engineering
CURR: PAS Paper Science
Major: PAS Paper Science
CURR: PAH Pre-architecture
Major: PAH Pre-architecture
CURR: PE Pre-engineering
Major: PE Pre-engineering
CURR: PRO Production Technology
Major: PRO Production Technology
CURR: TET Textile and Apparel Technology
Major: TET Textile and Apparel Technology
CURR: VET Vocational Education Teaching
Major: VET Vocational Education Teaching
CURR: ART Art
Major: ART Art
CURR: DAC Dance
Major: DAC Dance
CURR: MUC Music
Major: MUC Music
CURR: ITD Interior Design
Major: ITD Interior Design
CURR: MAD Manufacturing Administration
Major: MAD Manufacturing Administration
CURR: MFT Manufacturing Engineering Technology
Major: MFT Manufacturing Engineering Technology
CURR: ME Mechanical Engineering
Major: ME Mechanical Engineering
CURR: MTL Engineering Metallurgy
Major: MTL Engineering Metallurgy
CURR: PAE Paper Engineering
Major: PAE Paper Engineering
CURR: PAH Pre-architecture
Major: PAH Pre-architecture
CURR: PE Pre-engineering
Major: PE Pre-engineering
CURR: PRO Production Technology
Major: PRO Production Technology
CURR: TET Textile and Apparel Technology
Major: TET Textile and Apparel Technology
CURR: VET Vocational Education Teaching
Major: VET Vocational Education Teaching
CURR: ART Art
Major: ART Art
CURR: DAC Dance
Major: DAC Dance
CURR: MUC Music
Major: MUC Music
CURR: ITD Interior Design
Major: ITD Interior Design
CURR: MAD Manufacturing Administration
Major: MAD Manufacturing Administration
CURR: MFT Manufacturing Engineering Technology
Major: MFT Manufacturing Engineering Technology
CURR: ME Mechanical Engineering
Major: ME Mechanical Engineering
CURR: MTL Engineering Metallurgy
Major: MTL Engineering Metallurgy
CURR: PAE Paper Engineering
Major: PAE Paper Engineering
CURR: PAH Pre-architecture
Major: PAH Pre-architecture
CURR: PE Pre-engineering
Major: PE Pre-engineering
CURR: PRO Production Technology
Major: PRO Production Technology
CURR: TET Textile and Apparel Technology
Major: TET Textile and Apparel Technology
CURR: VET Vocational Education Teaching
Major: VET Vocational Education Teaching
CURR: ART Art
Major: ART Art
CURR: DAC Dance
Major: DAC Dance
CURR: MUC Music
Major: MUC Music
CURR: ITD Interior Design
Major: ITD Interior Design
### Programs Requiring Major and Minor Slips

(In All Cases Check Catalog Requirements)

Note: "No" means that a slip is not required for the major, curriculum, or minor.

"None" means that a major, curriculum, or minor is not offered.

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<th>USE CODE</th>
<th>DESCRIPTION</th>
<th>MAJOR AND/OR CURRICULUM SLIP REQUIRED</th>
<th>MINOR SLIP REQUIRED</th>
<th>USE CODE</th>
<th>DESCRIPTION</th>
<th>MAJOR AND/OR CURRICULUM SLIP REQUIRED</th>
<th>MINOR SLIP REQUIRED</th>
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Student Planned Curriculum

The Student Planned Curriculum (STC) provides students the opportunity to pursue educational goals which cannot readily be accommodated in other university curricula. The usual major/minor requirements are suspended within this program. Instead the individual student, working with an assigned adviser, selects coursework based around his/her academic and educational goals. Thus the student enjoys maximum freedom and flexibility in designing such a program. Aside from the University’s General Education and Intellectual Skills requirements, the curriculum consists entirely of elective courses which must be sufficient in number to meet general degree requirements. Students completing this curriculum are eligible to receive either the B.A. or B.S. degree depending upon the particular configuration of coursework selected.

The primary uses of the STC fall into three categories: 1) as a preparation for graduate or professional study; 2) as a way to pursue employment possibilities in areas where no conventional curricula exist; and 3) as a convenient and pleasurable way to obtain a broad interdisciplinary undergraduate education without particular concern for career possibilities. Non-traditional students are often especially attracted to it for this latter reason.

Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the STC. Students may initiate this process by contacting the University Counseling Center (387-1850) and requesting an appointment with one of the designated STC counselors. Those entering the curriculum are expected to develop a written statement outlining educational goals as well as the proposed course of study.

General University Studies

The Division of Continuing Education has developed a baccalaureate 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 adviser for the area of concentration.

Arrangements for consultation with an adviser 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 Elsworth Hall on Western’s main campus in Kalamazoo. Five additional regional centers are located as follows:

- Grand Rapids Regional Center
  2 Fountain Place
  2 Fountain Street
  Grand Rapids, MI 49503-3107

- Lansing Study Center
  309 N. Washington Square
  Lansing, MI 48933-1222

- Muskegon Regional Center
  444 S. Quarterline Road
  Muskegon, MI 49442

- Southwest Regional Center
  1100 Yore Avenue
  Benton Harbor, MI 49022-9654

- South Central Regional Center
  Kellogg community college
  632 North Avenue
  Battle Creek, MI 49016-3299

- South Central Regional Center
  Lake Michigan College
  1100 Yore Avenue
  Benton Harbor, MI 49022-9654

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
- Criminal Justice
- Health Studies
- Social Science Studies
- Technical-Scientific Studies

Please see section on the Division of Continuing Education elsewhere in this catalog for requirements of the individual areas of concentration.

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 profession. 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

Medical Sciences Adviser

2060 Friedmann 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 chemistry, biology, and 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 Friedmann Hall. The Dental Admission Test (DAT) is required by all dental schools, and is offered at Western Michigan University each spring and fall.

Most preprofessional students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, dental schools look with equal favor on other majors, as long as students complete the minimal preprofessional requirements. It is important that preprofessional students see the preprofessional adviser on a regular basis for curriculum guidance. The adviser is located in 2060 Friedmann 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. Predental students are encouraged to join the Medical Sciences Association, which is composed of students interested in health science careers.

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

- CHEM 101 or 102, 120, 360, and 361
- BIO 101, 102, 213, 250, and 350
- PHYS 110 and 111 or 210 and 211 (Physics is not required for the Dental Admission Test.)

4. ENGL 105 or a literature course.

LAW

Advisers: Hawthorn College of Business

W. Morrison, N. Balch, T. Goosen, F. W. McCarty, S. Scharn, L. Stevenson, C. Van Auker-Haught

260 North Hall

387-7100

Advisers: College of Arts and Sciences

G. H. Demetrakopoulos

2060 Friedmann Hall

387-4366

P. G. Renstrom

3029 Friedmann Hall

387-5697

No special college program is required or recommended by most law schools. In general, law schools urge a solid four-year program leading to a bachelor’s degree. Although it is relatively unimportant what the prospective law student uses as 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 adviser during the first semester for assistance in selecting a curriculum. A transfer student should see a prelaw adviser as soon as possible.
MEDICINE AND OSTEOPATHIC MEDICINE
Medical Sciences Adviser
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 adviser on a regular basis for curriculum guidance. The adviser 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 110 and 111 or 210, 211, and 212
4. ENGL 105 plus a literature course.

PRE-ARCHITECTURE
Charon L. Sanford, Adviser

A preprofessional curriculum in architecture is outlined in this catalog in the College of Engineering and Applied Sciences section.
MILITARY SCIENCE

MAJ Daniel J. Swacina, Interim Chair
CPT David L. Darroch
CPT Charles W. Williams
CPT Max J. Rieke
SGM Joseph J. Guilfoyle
MSG Lawrence E. Fitzgerald
SFC Charles C. Botts III
Mr. Jim Zesiger

The Department of Military Science offers courses intended to develop leadership and managerial 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 lead to an officer’s commission in the Army Reserve, 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 University 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 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 nonscholarship students. Starting salary for a second lieutenant on active duty is approximately $21,000.

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. Reserve forces duty is one weekend a month and two weeks of annual training sometime during the year. Starting salary for a second lieutenant in the Reserve or Guard is approximately $3,400.

ROTC Admission Requirements

In addition to meeting University admission requirements, a student enrolling in the Basic and Advanced ROTC programs must:
- be a full-time student at the University;
- be a citizen of the United States;
- be at least 17 years of age and not more than 27 years of age at the time of enlisting in the Advanced program;
- be in good academic standing with an overall cumulative grade point average of 2.0 or higher (on a 4.0 scale); and
- meet the medical fitness requirements necessary for enrollment in ROTC.

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 four, three, and two years. Four-year scholarships are awarded to incoming college freshmen. Three and two-year scholarships are awarded to students already enrolled in college. 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 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 a marksmanship range and classroom facilities in house. Special training is also conducted at Fort Custer and Asylum Lake. Facilities are available at the ROTC office or by calling (616) 387-8120 or 387-8115.

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). Students who participate in the basic course are under no obligation to the active Army or the reserves.

Basic Course

The basic course is designed to give students a general knowledge of the role of national defense and also to provide knowledge of leadership skills needed by military officers. Students completing the basic course have an opportunity to be considered for the advanced course program and obtain a commission in the active Army or Reserve Components. ROTC students take at least one military science course each semester. First year students normally take MLSC 140 in the fall and MLSC 150 in the winter semester. Sophomore students take MLSC 240 during the fall and MLSC 250 during the winter.

Exceptions to the above requirements must be approved by the chair of the department. Students who participate as cadets are expected to be physically qualified, of good moral character, and sign an oath of loyalty to the United States. 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 technical 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 will qualify for academic credit (MLSC 390). During the senior year, students complete MLSC 440 and 450. Course work is also required of students in the areas of history, behavioral sciences, written communications, mathematics, and national security 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 Enrollment Officer should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

Two Year Program

For those students who are transferring into the University, graduate students, and currently enrolled students who have not taken military science classes, a two-year program is available. Students enter this program by applying for attendance at a six-week 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 summer 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 Military Science Department for details.

Veterans can have the basic camp requirement and basic course waived by the department chair. Therefore, the student has 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.

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). Two year scholarships are available.

Military Science Minors
A department minor slip is required.

FOUR YEAR PROGRAM
Freshman Year
MLSC 140 and MLSC 150 ................................ 4 hrs.
Sophomore Year
MLSC 240 and MLSC 250 ................................ 5 hrs.
Junior Year
MLSC 340 and MLSC 350 ................................ 6 hrs.
Senior Year
MLSC 440 and MLSC 450 ................................ 5 hrs.

TWO YEAR PROGRAM
Prerequisite: Veteran, or 3 years JROTC, 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 366 ............................................. 4 hrs.

C. Political Science
PSCI 250 .............................................. 4 hrs.
PSCI 350 .............................................. 4 hrs.

D. Psychology/Sociology
PSY 194 .............................................. 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 instruction in tactical and technical subjects, with specific emphasis on leadership training in the form of problem analysis, decision-making, and troop-leading procedures. Travel to and from camp and room and board are provided at no expense to the student. Prerequisite: Approval of department chair.

MLSC 299 Studies in Military Science
2 or 3 hrs. Fall, Winter, Spring, Summer
An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student. Prerequisite: Approval of department chair.

ADVANCED COURSES

MLSC 340 Advanced Leadership (3-2)
3 hrs. Fall
Studies of authority and responsibility, span of control, planning, coordination, and decision-making with emphasis on practical application to military situations. Prerequisite: Approval of department chair.

MLSC 350 Advanced Concepts of Tactical Employment (3-2)
3 hrs. Winter
A study of tactical situations. Development of planning and coordination sequences applicable to the employment of military resources. Prerequisite: Approval of department chair.

MLSC 375 Studies In Combat Leadership
3 hrs. Spring, Summer
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 management and military law. Prerequisites: Approval of department chair.

MLSC 450 Military Law, Ethics and Professionalism (2-2)
2 hrs. Winter
Course content includes a survey of military law, the Army Officer Efficiency Rating System, planning and conducting military instruction, and ethics and professionalism required of military leaders. Prerequisite: Approval of department chair.

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

MILITARY SCIENCE 61
A Freshman Year Program For Students Who Choose To Explore Academic and Career Options

The 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 advisers 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 will 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 HONORS COLLEGE

Faith Gabelnick
Dean
Joseph G. Reish
Associate Dean
John Martell
Assistant to the Dean
Jeanine Bartholomew
Academic Adviser

The mission of the 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 Honors College are recognized by the University as individuals who are fine teacher/scholars and who enjoy working with students.

The Honors College strives to create an environment for critical thinking and active learning. Bringing together students in small classes allows for a variety of educational approaches which depart from the traditional lecture/note taking format. Teachers are encouraged to broaden the arenas for learning without compromising educational rigor. A variety of programs and activities is available to members of the Honors College. Independent study, special Honors seminars, interuniversity enrollment at local colleges, and undergraduate internships in the community may be arranged by Honors College students.

The Undergraduate Research and Creative Activities Award, administered by the Honors 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 Honors College is community involvement and volunteerism.

The 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 offices in these organizations and regularly participate on regional and national Honors committees.

THE ACADEMIC PROGRAM OF STUDY

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

The purpose of the 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 adviser, 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 the Honors College academic program of study, students graduate from the Honors College and the major College, with special Honors in a specific discipline. They are recognized as "graduates of the Honors College" at graduation ceremonies. This honor is also noted on the transcript.

For further information on specific aspects of the Honors College, call or write to: Dean of The Honors College, Western Michigan University, Kalamazoo, MI 49008, (616) 387-3290.

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 Honors College course booklet printed each semester. All honors courses taken since Fall 1968 are so indicated on the transcript.

The following variable topic/variable credit courses enable the 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 Honors College.

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 Honors College may enroll in this course for one or several semesters upon approval of the Dean of the 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 Honors College. Prerequisite: approval of the thesis project by the Dean.
INTERNATIONAL EDUCATION AND PROGRAMS

Norman C. Greenberg
Dean
Howard J. Dooley
Assistant Dean
Michitoshi Soga
Assistant to the Dean
Nita Hardie
Sunway College Liaison Officer

Western Michigan University conducts active programs of international education, research and service on campus and in a variety of overseas locations. Administration of international programming at the University is provided by the Office of the Dean of International Education and Programs.

The Office of the Dean of International Education and Programs was created because Western Michigan University recognized that in international programming the most successful efforts occur where overall responsibility is concentrated in a single office. The purpose of the office is to administer, monitor, assist and encourage the development of Western's international programs and activities and to work on a cooperative basis with the various colleges and departments of the University.

The responsibilities of the Office of the Dean of International Education and Programs include the management of all the University's relations with foreign universities and agencies as well as American universities and agencies operating internationally. The office administers the University's foreign study programs, faculty exchanges, student exchange programs, and study tours abroad. It also aids in the development and implementation of various international research, consulting and technical assistance programs.

INSTITUTION-TO-INSTITUTION LINKAGES

The Office of International Education and Programs 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. WMU's current linkage partners include:

- Free University of Berlin, West Berlin, Federal Republic of Germany
- University of Passau, Passau (Bavaria), Federal Republic of Germany
- Fachhochschule Niderhein, Munchengladbach, Federal Republic of Germany
- Keio University, Tokyo, Japan
- Rikkyo University, Tokyo, Japan
- Aoyama Gakuin University, Tokyo, Japan
- Josai University, Saitama, Saitama, Japan
- Saint Mark's Junior College, Tokyo, Japan
- Nankai University, Tianjin, People's Republic of China
- Guangxi University, Nanning, People's Republic of China
- Xibei University, Xi'an, People's Republic of China
- Sookmyung Woman's University, Seoul, Republic of Korea
- Sunway College, Petaling Jaya, Malaysia
- Inter-University Center, Dubrovnik, Yugoslavia
- University of Quebec at Hull, Quebec, Canada
- Yagc School, Madrid, Spain
- Autonomous University of Guadalajara, Guadalajara, Mexico
- The American University in Cairo, Cairo, Egypt
- University of Liberia, Monrovia, Liberia
- Inter-University Center, Dubrovnik, Yugoslavia
- Telex 6877099 WEST MICH UNIV INTERED

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 the catalog. The Center for Korean Studies and the Canadian Studies Committee also sponsor course offerings in their fields of interest.

Study abroad is an important ingredient of a strong liberal arts education and a sound investment in one's future. Students find that foreign travel, direct personal experience of other cultures and languages, and study in another tradition are all enriching experiences both academically and personally. Participants in study abroad programs almost always get more out of the experience than they ever anticipated. Most return to campus with a new perspective on themselves and the rest of the world and often regard the time spent abroad as a pivotal experience in their education. Many find that in our era of multinational business it can give them an important advantage in job interviews and career development.

Students in most majors can find an opportunity for a study abroad experience, both in general programs in the liberal arts and more specific curricula programs. WMU programs include semester abroad as well as travel study programs, and programs offered in English and several foreign languages.

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 Education and Programs offers a variety of study abroad and travel opportunities, open to undergraduate and graduate students as well as faculty, staff, alumni, and friends of the University.

AUSTRIA-BAVARIA

Summer Seminars in Admont, Enns-Lausiacum, and Vornbach/Passau Courses in art and architecture from the Gothic to the Baroque, 19th and 20th century Austrian and German history, Roman archaeology and Latin Paleography offered in cooperation with the Consortium for Austro-Bavarian Studies and the University of Passau. Participants may take part in an archaeological "dig" on the site of a Roman military camp.

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 tourism 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 semester break tour to London. Ten days at the beginning of March, 1988 to experience the life of one of the world's great cities. Theatre tickets included.

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

FRANCE

Undergraduate Language Program in Britain
For the French major, this program is offered in cooperation with the Council on International
Educational Exchange (CIEE) and the University of Haute-Bretagne in Rennes. Students may study 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 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.

Paris: Summer Study at the Sorbonne
Summer study in residence in Paris, with classes at the University of Paris-Sorbonne. Courses in French language at all levels from beginning to advanced, as well as literature, history and other subjects.

GERMANY
Student Exchange Programs
Western Michigan University has exchange scholarship programs with two German universities; the Free University of Berlin, in West Berlin, and the University of Passau, Bavaria. Tuition and housing included with both scholarships; Berlin scholarship also covers food costs.

Geography and Tourism Program
A field course offered in cooperation with the Eberhard Karls University, Tubingen, this program brings American and German students together in a study of the tourist industry in southern Germany, the Alps and northern Italy.

“GRAND TOUR” OF EUROPE
European Arts and Culture: Renaissance to Modern
A 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
Israeli 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, academic year, and summer options.

JAPAN
Student Exchange with Keio University
Western Michigan University’s exchange scholarship program with Keio University offers tuition, room and board for two semesters of Japanese language and culture studies in Tokyo.

Japan Center for Michigan Universities
Educational programs at the Center in Hikone, 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 as part of their more than twenty years of formal sister-state relationship. Semester and academic year options.

KENYA
East Africa Safari and Seminar
A safari in Kenya provides an opportunity to view and study the richest concentration of wildlife and birdlife 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 ship-based cruise program which visits archaeological sites in Italy, Southern France, Greece, Turkey, Egypt and Israel.

PUERTO RICO
Seminar in Tropical Biology
Field course held annually in spring term in Puerto Rico explores the ecologies of a Caribbean island: rain forests, desert zones, and coral reefs.

RUSSIA
Russia: History and Culture
Study tour to the Soviet Union featuring visits to Moscow, Leningrad, and other locations.

SPAIN
Undergraduate Language Program in Seville
For the Spanish major, this program is offered in cooperation with the Council on International Educational Exchange (CIEE) 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 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, Investandalia, 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 (CIEE).

YUGOSLAVIA
Criminal Justice Seminar
Seminar on issues in criminal justice at the University Centre of Post-Graduate Studies in Dubrovnik.

Future of Religion Seminar
Seminar on the Future of Religion at the Inter-University Centre of Post-Graduate Studies in Dubrovnik.

INTERNATIONAL BUSINESS SEMINARS
Europe and the Orient
Summer seminars programs to Europe and the Orient expose participants to the international business environment and practices outside the U.S. Students participate in lecture/discussion and structure; firms visited include BMW, Gucci, Lloyd's of London, Nissan, and Bank of Canton.

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: 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.

In addition to these programs, Western Michigan University sponsors a variety of Summer Seminars created for a particular term designed for students, teachers, alumni and friends of the University. Past Summer Seminars have included study-tours to the People’s Republic of China, Japan, the Soviet Union, and locations in Africa. Short field trips are also offered between semesters to England, Mexico and Guatemala. Subject to change, interested students are urged to contact the Office of International Education and Programs for current information.

SUMMER INSTITUTES
Summer Institutes in “English Language and American Culture” and “Business and American Society” are offered by the Office of International Education and Programs in cooperation with the Council on International Educational Exchange (CIEE). Seminars for particular terms are offered by the Office of International Education and Programs as follows: Business English, American national character, history, politics, social issues, international relations, business practices, arts and music.

The Business and Society program includes visits to factories, offices, and farms, including the Uppjohn Company, General Motors, Nippondenso, Pioneer Seed Company, and the Chicago Board of Trade. The extracurricular program includes home visits with American families, a picnic at a Lake Michigan beach, local touring and visits to e.g. 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 Education and Programs 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 Senior Scholars Awards Abroad, Fulbright Scholars-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.

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 270 Western graduates have served as volunteers. The Office of International Education and Programs assists in informational and recruiting activities.

LIAISON WITH INTERNATIONAL EDUCATION ORGANIZATIONS
The Office of International Education and Programs, maintains contact with international administrators and study abroad advisors at other universities, embassies, and consulates, travel bureaus and consultants on international education, and maintains affiliation with...
appropriate national and state organizations such as the Institute of International Education, the council on International Educational Exchange, the Association of Collegiate Registrars and Admissions Officers, and the National Association of Foreign Student Affairs.

International and Area Studies
Norman C. Greenberg, Director
2090 Friedmann Hall
(616) 387-3851

African Studies Program
Sisay Asefa, Chair
Asian Studies Program
Arthur Helweg, Chair
European Studies Program
William Ritchie, Chair
Latin American Studies Program
David Chaplin, Chair

The International and Area Studies Program, established nearly thirty years ago with the assistance of a major Ford Foundation grant, serves as the focus of four areas of specialization: African Studies, Asian Studies, European Studies and Latin American Studies. Every semester, more than 140 courses are offered in International and Area Studies by faculty in 15 departments. The Area Studies programs operate under the supervision of the Dean of International Education and Programs. 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) 387-4836

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) 387-2997

The Canadian Studies Committee promotes teaching and research in Canadian history, culture, and contemporary affairs. It sponsors course offerings in Canadian subjects, organizes an annual Canada Week on campus with lectures and cultural events, and organizes summer study tours to Canada.

Foreign Study Services
Mrs. Eleanor Krawutschke, Coordinator
A-404 Ellsworth Hall
(616) 387-5890

The Foreign Study Office, a unit of International Education and Programs, provides an advisory and referral service for students, faculty, and staff interested in study, work, or travel in foreign countries. The following services are provided:

FOREIGN STUDY OPPORTUNITIES
Students at Western Michigan University have opportunities to study abroad for a semester or a year earning credit toward graduation. The Foreign Study Office provides information about such opportunities and counsels with students on fitting these experiences into their programs.

There are two principal methods by which students at Western Michigan University may earn credit through a period of foreign study:
1. A student may enroll in one of the University’s study abroad programs, e.g. the Oxford Seminar or the Mediterranean Institute. Information on these programs and their procedures for enrollment can be obtained by contacting the Office of the Dean of International Education and Programs.
2. A student may enroll directly in a foreign university or participate in foreign study programs sponsored by other American colleges and universities. Information about the opportunities and procedural requirements of this option is provided by the Foreign Study Office, which maintains up-to-date listings, brochures, and application forms for more than 1,500 study programs in other countries. Material and advice on evaluation of foreign study programs is available.

FINANCIAL AID INFORMATION
The office provides information on sources of financial aid for undergraduate, graduate, and post-graduate study abroad.

TRAVEL SERVICES AND INFORMATION
Students may purchase the International Student Identity Card, Youth Hostel Pass, Eurail Pass, Eurail Youthpass, and France Vacances pass at the Foreign Study Office. Information on all aspects of foreign travel is provided, including passport application procedures, visa information, consulate addresses, currencies and rates, health regulations, and customs information. The office is especially interested in providing information on low-cost opportunities—youth hosteling, bicycling and hiking, low-cost accommodations, car rental possibilities, the most reasonable flights for students and faculty, etc.

EMPLOYMENT ABROAD
A collection of source material on employment in various countries is maintained. The office is specifically concerned with short-term employment that is of interest to students, but there is also some information on teaching, internships, and other job possibilities abroad.

FOREIGN STUDY RESOURCE CENTER
The office houses a growing library of books, pamphlets, newspaper and magazine clippings, maps, posters, pictures, etc., on travel and study abroad. Students, faculty, and staff are invited to use the library materials in the office at any time during regular working hours. Some travel posters are available for purchase.

SPECIAL PROGRAMS
The Foreign Study Office coordinates the annual International Study/Travel Night and workshops and smaller presentations on study, work, and travel abroad throughout the year. Students, faculty, and staff wishing to participate are urged to contact the office.
The College of Arts and Sciences at Western Michigan University offers undergraduate courses and programs in the humanities, the social and behavioral sciences, and the physical, biological, and mathematical sciences. The goals of the college for the undergraduate student can be seen as liberal, professional, pre-professional or vocational, depending on the student's motivation for enrolling in a particular course or program. In addition to providing specialization in its many disciplines, the college contributes to the basic knowledge and the general education of students throughout the University. The College of Arts and Sciences expects that its students will develop self-confidence through what they learn, as well as a proper awareness of the extent of the knowledge they do not yet possess. It provides students with the tools to explore and master knowledge in areas beyond their present grasp. Thus, it hopes to encourage the growth of persons who are competent, humane, and sensitive to the human condition, 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 curriculum 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 (B.A. 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
   One course in Social Sciences
   One course in the Humanities (excluding language courses)
   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 adviser.
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 adviser listed with each program.

The Academic Advising Office
K. Kileen Cassaday
George H. Demetrakopoulos
Stephen B. Friedman
Rhonda Sherman-Huntoon
2060 Friedmann Hall
387-4366

Students in the Arts and Sciences Curriculum and the Liberal Arts Curriculum should see a college adviser 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 adviser should be scheduled during the students first enrollment.
period in order to obtain information regarding requirements.

Transfer students in the Arts and Sciences and Liberal Arts Curriculum, 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 advisers, 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)**

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 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 Adviser.

**FOREIGN STUDIES SEMINARS**

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

A-S 504 Foreign Studies Seminar 1-6 hrs.

Seminars in the Social Sciences conducted outside the U.S. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science or Sociology, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

A-S 505 Foreign Studies Seminar 1-6 hrs.

Seminars in the Humanities conducted outside the U.S. Students completing such a seminar may receive credit in the departments of Communication, English, Languages and Linguistics, Philosophy, Religion and the departments of the College of Fine Arts, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

**INTERDISCIPLINARY PROGRAMS**

1. American Studies Program
2. Black Americana Studies
3. Criminal Justice Program
4. Environmental Studies Program
5. Integrated Language Arts Minor
7. Medieval Institute Program
8. Science (Group) Major
9. Science and Mathematics Teaching Minor
10. Social Science Major and Minor
11. Women's Studies Minor
12. World Literature Minor

**American Studies Program**

Lewis Carlson, Director and Adviser
214 Moore Hall (387-5375)

James M. Ferreira, Adviser
205 Moore Hall (387-5382)

Students in American studies follow an interdisciplinary program bringing to bear the insights of art, music, drama, literature, and the social sciences on the problems of American life. A broad-ranging study of American culture can provide an excellent background for students preparing for careers in education, advertising, journalism, research organizations and publishing houses, politics, public relations work in government and industry, the foreign service, mass communications, or law. American studies also offers perceptive students an opportunity to evaluate the forces shaping their own culture and to assess their personal role in a complex society.

A 3.00 grade point average is generally considered a prerequisite.

**MAJOR IN AMERICAN STUDIES**

Students majoring in American Studies are expected to complete:

1. At least 36 hours in five approved fields.
2. At least 18 hours in courses numbered 300 or above.
3. At least 12 hours in one participating department.
4. An interdisciplinary course dealing with basic issues in American culture. A list of approved courses is available in 214 Moore Hall.

**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 adviser is required for entry into the program. Minor slip is required. A list of approved courses is available in 214 Moore Hall.

**Black Americana Studies**

LeRoi R. Ray, Jr., Director and Adviser
815 Sprau Tower
(616) 383-9015

Leander C. Jones
Benjamin C. Wilson

This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to penetrate, permeate, and pervade the life of the University. Its more specific aims are to provide...
INTERDISCIPLINARY PROGRAMS

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 physical aspects of the environment 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 emigrés, and the development of 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.

BAS 360 Black Woman-Black Man Relationships
3 hrs.
This is a study of the dynamics of the Black Woman-Black Man Relationships in a variety of contemporary settings. Special attention will be given to family settings as the Black man and Black woman conduct their lives and respond to the various stimuli and pressures of contemporary society. An attempt will be made to examine some positive ways to improve Black man/Black woman relationships in the future (annual male/female panel discussion). Prerequisites: BAS 310 or consent of instructor.

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 American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black communities and individuals and the availability of the Black Presence and Experience. What universal elements can be identified in "soul"? What are the unique qualities of "soul"? What would American life and culture be like without this elusive quality?

BAS 510 Multicultural 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.

DEPARTMENTAL COURSES
The following courses are related to Black Americana Studies. Students may elect the additional hours necessary to satisfy requirements for a minor or a teaching minor from the following departmental courses.

(please note: Black Americana Studies is interdisciplinary in approach, and students are encouraged to select courses from several fields of study rather than concentrating in one area to satisfy departmental course requirements.)

Anthropology Hrs.
220 Cultural Anthropology
3

322 Topics in World Culture Areas: Culture of Africa
3

Economics
201 Principles of Economics
3

202 Principles of Economics
3

410 Labor Problems
3

English
223 Black American Literature
4

History
314 Black American History
3

386 Introduction to African History and Civilization
3

Political Science
341 African Political Systems
4

Religion
304 African Religions
4

311 Myth and Ritual
4

Sociology
200 Principles of Sociology
3

314 Ethnic Relations
3

Criminal Justice Program
Paul C. Friday, Director
2409 Sangren Hall
(616) 387-5284

Carole J. Rogers, Adviser
2407 Sangren Hall
(616) 387-5286

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

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 preserve 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.
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 at least 15 hours of which must be taken at the 300, 400, or 500 level.
2. Successful completion of program component requirements as outlined below under the heading of program components.
3. Selection of a second, disciplinary major, the choice of which is left to the student's discretion.

The EVS Curriculum Major
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 is not focused on the training of specialists for any specific environmental 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.

The EVT Coordinate Major
This option is offered for those who desire to graduate with a Bachelor of Science 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.

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 who seek some insights into the nature of environmental concerns.

The Non-Teaching Minor
Those electing a non-teaching minor in Environmental Studies must fulfill the following program requirements:
1. Successful completion of a minimum of 21 semester hours of approved course work within the program.
2. Successful completion of program component requirements as outlined below under the heading of program components.

The Teaching Minor
This option is available only to those enrolled in the secondary education curriculum. Those electing a teaching minor in Environmental Studies must fulfill the following program requirements:
1. Successful completion of a minimum of 24 semester hours of approved course work within the program.
2. Successful completion of the same program component requirements as set forth for the non-teaching minor, plus an approved course in environmental/ outdoor education.

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.

Program Components
The Environmental Studies Program is divided into five components, each of which addresses itself to a major facet of a comprehensive environmental education.

1. Program Introduction Component
   (required of all majors and minors)
   • ENVS 110—Fundamentals of Environmental Studies .................................. 3

2. The Concepts Component (All majors must choose one course from each topic area or be certified as competent in that area. Those obtaining certification in one or more topics areas can elect additional courses from the Implementation Skills Component of the program to satisfy the 32 hour minimum requirement for the program. All minors must choose one course each from at least three of the four topic areas. The topic areas chosen must be approved by the program advisor so as to balance or complement the student's major and/or additional minors).
   • INTRODUCTION TO BIOLOGICAL SYSTEMS ...................................................... 3
   • BIOS 105—Environmental Biology ......................................................... 3
   • INTRODUCTION TO PHYSICAL SYSTEMS ...................................................... 4
   • GEOL 100—Earth Studies ............................................................................. 4
   • GEOG 105—Physical Geography .................................................................. 4
   • PHYS 102—Physics and the Environment .................................................... 3
   • CHEM 140—Introductory Environmental Chemistry ..................................... 4
   • INTRODUCTION TO HUMAN SYSTEMS .......................................................... 4
   • GGSC 123—Human Society .......................................................................... 4
   • ANTH 220—Cultural Anthropology .............................................................. 3
   • GEOG 205—Our Human World ................................................................. 3
   • SYSTEMS IN EVOLUTIONARY PERSPECTIVE ................................................. 3
   • ANTH 100—Man in Evolutionary Perspective ............................................... 3

3. The Values/Ethics Component (All majors and minors must choose two courses from this area).
   • ENGL 311C—Perspectives Through Literature: Man's Place in Nature ......... 4
   • REL 333—Religion and Ecological Awareness ............................................. 4
   • GEOS 350—Principles of Conservation and Environmental Management (not to be taken by those opting for a geography cognate major) ........................................... 3
   • ENVS 300—Introduction to Appropriate Technology ..................................... 3

4. The Implementation Skills Component (All majors must take a minimum of two courses from the approved list of electives below. These courses are to be chosen in consultation with and must have the written approval of the Program Advisor. Non-Teaching minors are not required to take any courses from this component. Teaching minors are required to take one approved course dealing with outdoor/environmental education).
   • ANTH 200, 220, 540
   • BIOS 101, 102, 105, 201, 225, 230, 234, 250, 258, 512, 520, 548, 549, 552, 553, 554
   • CHEM 140
   • COM 549
   • CRT 266, 266, 363, 364, 560
   • ECON 319
   • ED 502 (when subtitled Environmental Education)
   • ENGL 311 (when subtitled Man's Place in Nature)
   • ENVS 300, 310, 398, 550
   • GGSC 123
   • GEOL 100, 105, 204, 205, 206, 225, 265, 350, 356, 361, 375, 553, 554, 556, 557, 580, 582
   • GEOL 100, 130, 131, 300, 312, 544
   • GSM 430
   • ME 339, 454
   • PAPP 351, 350, 353, 450, 451
   • PHIL 314 (when subtitled Philosophy of Environment)
   • PHYS 102
   • PSCI 306, 330
   • PEFR 276
   • REL 333
   • SOC 171, 250, 353, 501, 523, 553
   • TRAN 270

5. The Integrating Capstone Experience
   (Required of all majors and minors)
   • ENVS 400—Senior Seminar ................................................................. 3

Advising
Given the interdisciplinary nature of the program, it is very important that students work with one of the program advisers. 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)
(Courses described in italics are approved for General Education.)

ENVS 110 Fundamentals of 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 111 Fundamentals of Environmental Studies—Discussion
1 hr.
A discussion section to accompany ENVS 110. Weekly meetings will explore the political, social, economic and ecological ramifications of problems discussed in lectures.

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 role in today's world, and its role in creating a livable future.

ENVS 310 Homesteading Theory
4 hrs. Winter
An introduction to modern homesteading as a self-sufficient way of life, its importance in our time, and how it can be done. The new homesteading movement is viewed as a complex cultural and agricultural phenomenon which reflects the pastoral ideal in American life, a concern for working out more ecological agriculture, and the search for a rural way of life and appropriate technologies which are less demanding of energy and material resources.

ENVS 398 Readings in Environmental Problems
1-4 hrs.
This course is designed as an interdisciplinary reading course for students majoring or minoring in Environmental Studies. It will permit students to study in depth some aspects of their environmental specialization under the direction of a faculty member. They may work alone or with a small group. Prerequisite: Approval of the instructor and the Director of the Environmental Studies Program.

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.

### Integrated Language Arts Minor (ILAM)

**Dr. Jim Burns, Adviser**
3414 Sangren Hall
(616) 387-3470

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. Program bulletin and application form are available in the Education and Professional Development Department and from the Integrated Language Arts (ILAM) Adviser, Dr. Jim Burns, 3414 Sangren Hall, 387-3470. A minor slip is required. Students must see an adviser before they begin the minor. A 2.75 GPA is required for entrance.

### Program

This 24-hour interdepartmental minor for elementary education students consists of the following:

**Entry Courses**—must be taken concurrently:

- ILAM/ED 260 Cognitive Development of The Child
- ILAM/EDP 260 Linguistic Development of The Child

**Intermediate Courses:**

- ILAM/COM 365 Oral Communication and the Early Elementary Child
- ILAM/COM 366 Oral Communication and the Later Elementary Child
- ILAM/ENG 375 Acquisition of Literacy and the Early Elementary Child
- ILAM/ENG 376 Acquisition of Literacy and the Later Elementary Child

**Capstone**—to be taken after at least 16 hours of the minor are completed:

- ILAM/ED 460 Integrated Language Arts Seminar

For individual course descriptions see catalog listings under the participating department.

### International and Area Studies

**Norman C. Greenberg**
Dean, International Education and Programs
Director, International and Area Studies

**AFRICAN STUDIES PROGRAM**

- Sisay Asefa, Chair

**ASIAN STUDIES PROGRAM**

- Arthur W. Helweg, Chair

**EUROPEAN STUDIES PROGRAM**

- William Ritchie, Chair

**LATIN AMERICAN STUDIES PROGRAM**

- David Chaplin, Chair

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 the Dean of International Education and Programs.

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 into 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 elementary and secondary education curricula. Students who enroll in any of these co-ordinate majors must also enroll in a standard major in any college in the University.

The International and Area Studies Programs are a joint endeavor by faculty and students designed to provide a curricular framework within which to examine, analyze, and—hopefully—understand the peoples and institutions of the world in cross-disciplinary perspective. The programs seek to provide students with a broad variety of intellectual and experiential stimuli designed to promote an understanding of areas—their history, languages, literature and fine arts, social institutions, political processes, major intellectual currents, geography, economic problems, and the relationship of these factors to the role of these nations in the world community. Students enroll in relevant departmental courses including readings and independent courses.

The International and Area Studies Programs are designed for those undergraduate students who plan to pursue careers in business, education, government, or the professions in which success would be enhanced by an understanding of peoples whose values, traditions, customs and institutions differ markedly from those with which most of us are familiar.

These programs seek to promote the following educational objectives:

1. To assist Western Michigan University students achieve a better understanding of other peoples and institutions.
2. To explore, analyze, and evaluate the impact of specific areas on the course of world events.
3. To stimulate acquisition of foreign language skills by Western Michigan University students.
4. To provide a forum for the exchange of views between students and faculty concerned with contemporary world affairs.
5. To encourage cross-disciplinary research and study by both students and faculty of issues affecting the contemporary world.
A language is required in some majors. However, any student planning the study of an area at the graduate level or the pursuit of a foreign-related career should obtain as much fluency in a language as possible as an undergraduate. To avoid studying a language only makes the successful pursuit of a related career more difficult.

The International and Area Studies Programs offer an interdisciplinary international education program of concentrated study leading to a coordinated major or ordinary regular minor in African studies as part of the student's overall bachelor's degree program. Specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements; to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs; and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning U.S.-African relations and the importance of African studies 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 for the coordinate major 24 semester hours of courses for the major and 15 semester hours for the minor (24 hours for students enrolled in any curriculum in the College of Education).

Courses for the coordinate major or minor must be taken from the following list of courses and departments. Students must have their program of study approved by the African Studies Program Adviser.

**African Studies Program**

**Coordinate Major**

Sitay Asefa (Economics), Adviser 5025 Friedman Hall 387-5540

The African Studies Program is an interdisciplinary international education program of concentrated study leading to a coordinated major or ordinary regular minor in African studies as part of the student's overall bachelor's degree program. Specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements; to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs; and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning U.S.-African relations and the importance of African studies 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 for the coordinate major 24 semester hours of courses for the major and 15 semester hours for the minor (24 hours for students enrolled in any curriculum in the College of Education).

Courses for the coordinate major or minor must be taken from the following list of courses and departments. Students must have their program of study approved by the African Studies Program Adviser.

**ANTH 332 Peoplies and Cultures of Africa** 3

**ANTH 542 Development Anthropology** 3

**BAS 200 Black Presence** 3

**ECON 484 Comparative Economic Systems** 3

**ECON 588 Economics of Development** 3

**ENG 314 African Literature** 4

**GENL 305 Non-western Societies** 3

**GEOG 386 Subsaharan Africa** 3

**GEOG 309 Studies in Regional Geography—Africa** 3

**HIST 386 Introduction to African History and Civilization** 3

**PSCI 250 International Relations** 3

**PSCI 341 African Political Systems** 3

**REL 304 African Religions** 4

**SOC 430 Sociology of Development** 3

**Core Courses**

**ASIAN STUDIES PROGRAM**

Arthur W. Helweg (Social Science), Adviser 315 Moore Hall 387-5362

This is a program to acquaint people with Asia as a whole 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 or doing graduate work in an Asian related field. There is a wide range of course offerings and a high degree of freedom for the student to study the various complexities and processes going on in this region stretching from Mongolia to Australia and Micronesia to the Middle East. 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 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.

**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 curriculum) 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 adviser listed above.

**EUROPEAN STUDIES PROGRAM**

**Coordinate Major**

William Ritchie (Political Science), Adviser 3025 Friedman Hall 387-5695

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 who have an interest in European culture and its institutions, and who do not wish to specialize in one of the major complexes, there is the general option.

1. A minimum of 24 credit hours must be required for the completion of the coordinate major in European Studies. The European Studies coordinate major will be offered in the following options concerning these specific areas:

- **British Studies**—Professor Dale Patterson (Department of History)
- **Germanic Studies**—Professor Peter Krawutschke (Department of Languages and Linguistics)
- **Romance Studies**—Professor Joseph G. Resh (Honors College)
- **Slavic Studies**—Professor James Butterfield (Political Science)
- **General Option**—Professor William Ritchie, General Adviser

2. Students are encouraged to consult the area advisers in the field of their interest. Their tentative program worked out by the area advisers should be brought to the European Studies Program adviser for audit and final signature. Interested students can also approach the adviser for European Studies directly.

3. Each regional option will require 8 hours of an appropriate language. Language study can be undertaken in the Department of Languages and Linguistics. Students with the knowledge of an appropriate language may have this requirement waived.

4. Candidates for coordinate major degree must select three courses appropriate to their area of interest from an approved list with the assistance of their adviser.

5. The remaining hours are elective with the requirement that they have relevance to the European area and are to be selected in consultation with the student's adviser.

- **MINOR**

Fifteen semester hours taken from the list of European Studies courses are required for completion of a minor concentration in European Studies. Eight hours of language and one course, drawn from each of two disciplines listed in the core, will be part of the requirements. The language requirement can be waived only by written approval of the European Studies adviser. In case the student obtains permission to waive language, the required hours will be drawn from an appropriate list of core courses by the European Studies adviser.

**British Studies**

Dr. Dale Patterson (History), Adviser British Studies Program 4006 Friedman Hall 387-4639

Dr. William Ritchie (Political Science), Chair European Studies Program 3025 Friedman Hall 387-5695

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 adviser to further the student's interests and career needs. Twenty-four credit hours must be selected from several of the thirteen departments participating in this 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 adviser. A minimum of 15 credit hours of approved British Studies courses must be accumulated successfully. Courses in British Studies currently approved are included in the list below. Students should consult with the adviser as to additions or changes.


ECON 484 Comparative Economic Systems 3

ENGL 252 Shakespeare 4

ENGL 340 Development of English Verse 4

ENGL 442 Modern Drama 4

ENGL 532 English Restoration Literature 4

ENGL 534 Restoration and 18th Century Literature 4

ENGL 535 18th Century Literature 4

ENGL 536 19th Century British Literature 4

ENGL 538 Modern Literature 4

ENGL 544 The British Novel 4

GEOG 383 Western Europe 3

HIST 361 British History 3

HIST 561 Victorian England 3

HIST 563 Europe: 1945-1995 3

PSCI 340 West European Political Systems 4

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), Adviser

Germanic Studies Program 419 Sprau Tower 387-3010

Dr. William Ritchie (Political Science), Chair

European Studies Program 387 Friedmann Hall 387-5698

Students in Germanic Studies usually combine a major in a regular academic discipline with a broader study of the culture, history, literature, politics, geography, and economics of the Germanic areas of Europe. Travel and study in the particular literature are encouraged whenever possible. Opportunities are made available through Foreign Study Seminars and through the Office of Foreign Study Services.

The Coordinate Major in Germanic Studies must be combined with a major in a conventional academic discipline such as language, art, music, political science, history, or business. It consists of 24 credit hours which the student chooses together with an adviser 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 drawn from the list below.

**CORE COURSES**

- **GEOG 383 Western and Southern Europe**
- **HIST 563 Europe Since 1945**
- **PSCI 340 West European Political Systems**

**A SELECTION OF GERMANIC STUDIES COURSES**

A-S 504 -505 Foreign Studies Seminars 1-12

- **ART 221 History of Art**
- **ART 585 History of Renaissance Art**
- **ART 586 History of Baroque Art**
- **ART 597 History of Modern Art**

- **ECON 484 Comparative Economic Systems**

- **ENGL 410 Norse Literature and Mythology in Translation**

- **GEOG 360 Northlands Frontier**

- **GER 200 -201 Intermediate German**
- **GER 316 German Composition**
- **GER 317 German Conversation**
- **GER 322 German Life and Culture**

- **HIST 307 Main Currents of Modern Western Thought**

- **HIST 346 History of Germany**

- **HIST 354 Medieval History**

- **HIST 420 War in the Modern World**

- **HIST 562 Hitler’s Europe: 1919-1945**

- **MUS 270 -271 Music History and Literature**

- **MUS 572 Baroque Music**

- **MUS 573 Classical Music**

- **MUS 574 Romantic Music**

- **PHIL 301 History of Modern Philosophy**

- **PHIL 303 Existentialist Philosophies**

- **PSCI 355 International Law**

- **REL 305 The Christian Tradition**

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

**INTERDISCIPLINARY PROGRAMS 73**

**Romance Studies**

Dr. Joseph G. Reish (Honors College), Adviser

Romance Studies Program 509 Sprau Tower 387-3230

Dr. William A. Ritchie (Political Science), Chair

European Studies Program 3025 Friedmann 387-5698

Romance Studies is a coordinate major or minor program emphasizing an interdisciplinary approach to the study of France, Italy, and Spain. Europe. Its aim is to present an integrated course of instruction in the arts, sciences, and philosophies of these modern-day nations linguistically and culturally linked to ancient Rome. The program offers a variety of options to the student interested in broadening his/her knowledge of the cultural life of Western Europe. Courses may include music, political science, history, and Romance languages (French, Italian, and Spanish). A student selects a program of study in consultation with the Romance Studies adviser.

The **Coordinate Major** in Romance Studies (24 credit hours) is to be taken in conjunction with a standard academic major, such as accounting, English or dance. The **Coordinate Minor** in Romance Studies (15 credit hours) may be pursued independent of any other University minor. Romance studies enhances the student’s overall academic program by giving it a global perspective.

Knowledge about the world community can be useful in future employment and travel. The Coordinate Major consisting of 24 credit hours must include three core courses as well as 8 credit hours (or equivalent knowledge) of a Romance language above the 100-101 basic level. To complete the major or minor the student chooses from the list of optional courses.

**CORE COURSES**

- **GEOG 383 Western and Southern Europe**
- **HIST 563 Europe Since 1945**
- **PSCI 340 West European Political Systems**

**OPTIONAL COURSES**

- **A-S 504 -505 Foreign Studies Seminars**
- **ANTH 333 Cultures of Europe**
- **ART 220 -221 History of Art**
- **ART 585 History of Renaissance Art**
- **ART 586 History of 19th Century Art**
- **ART 589 History of 20th Century Art**
- **ART 590 History of 20th Century Art, Modern Period**
- **ECON 484 Comparative Economic Systems**
- **ENGL 442 Modern Drama**
- **FREN 200 -201 Intermediate French**
- **FREN 316 French Composition**
- **FREN 317 French Conversation**
- **FREN 322 French Civilization**
- **FREN 328 -329 Introduction to French Prose, Poetry and Drama**
- **FREN 344 Summer Study in France**
- **HIST 556 Studies in Modern European History**
- **HIST 559 The French Revolution and Napoleon**
- **HIST 560 Nineteenth Century Europe**
- **HIST 652 Hitler’s Europe, 1914-1945**
- **LANG 375 Foreign Literature in English Translation (French, German, and Spanish)**
- **MKTG 575 International Marketing**
- **MUS 270 -271 Music History and Literature**
- **MUS 572 Baroque Music (1600-1750)**
- **MUS 573 Classical Music (1750-1800)**
- **MUS 574 Romantic Music (1800-1910)**
- **MUS 579 Operatic Literature**
- **PHIL 301 History of Modern Philosophy**
- **PHIL 303 Existentialist Philosophies**
- **PHIL 307 Phenomenology**
- **PSCI 541 Comparative Political Systems**
- **PSCI 549 Problems of Foreign Political Systems**
- **PSCI 555 International Law**
- **REL 305 The Christian Tradition**
- **SPAN 200 -201 Intermediate Spanish**
- **SPAN 316 Spanish Composition**
- **SPAN 317 Spanish Conversation**
- **SPAN 322 Life and Culture of Spain**
- **SPAN 325 Introduction to the Study of Spanish Literature**
Slavic Studies Program

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

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

Slavic Studies as 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 students 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 studies, or those who simply wish in-depth interdisciplinary study of the Soviet and East European geographical area.

A student who enrolls in this Coordinate Major in Slavic Studies must take at least 24 credit hours of coursework distributed as follows:

REQUIRED COURSES—All students must take the following:
- RUSS 200 Intermediate Russian I 4
- RUSS 201 Intermediate Russian II 4
- RUSS 310 Russian Civilization 3

ELECTIVE COURSES—The remaining 13 hours are to be taken from among the following courses and/or others as approved by a Slavic Studies adviser:
- ECON 484 Comparative Economic Systems 3
- ENGL 510 Special Topics in Literature: Russian Literature 4
- GEOR 384 Soviet Peoples and Landscape 3
- HIST 300 Issues in History: Modern Eastern Europe 3
- HIST 369 Soviet Union 3
- LANG 375 Foreign Literature in English Translation 3
- PSCI 344 Soviet and East European Political Systems 4
- PSCI 549 Problems of Foreign Political Systems: Soviet Politics 3
- RUSS 344 Summer Study in the Soviet Union 4

The Coordinate Minor in Slavic Studies requires 15 credit hours (24 for students in the SED Curriculum) as follows:

REQUIRED COURSES
- RUSS 100 Basic Russian I 4
- RUSS 101 Basic Russian II 4

The balance of the courses must be taken from the electives listed under the major.

LATIN AMERICAN STUDIES PROGRAM

Coordinate Major
David Chaplin (Sociology), Adviser
2408 Sangren
387-5285

Students enrolled in this coordinate major must select at least 24 hours from core and cognate courses available from the program adviser. Students must demonstrate intermediate-level proficiency in Spanish or Portuguese. Students wishing to enroll in the Latin American studies coordinate major should make this intention known to the Latin American studies adviser by no later than the first semester of their junior year—and preferably earlier.

Honors Certificate Program A Certificate in Latin American Studies will be awarded from Western Michigan University on graduation to those who have completed the 24 hour coordinate major requirements as well as an oral and written examination by three members chosen from the Latin American Studies Committee. A grade point average of 3.50 and intermediate level proficiency in Spanish is a prerequisite to this program. The certificate is designed for students whose interest in Latin America goes beyond the usual academic programs. The program is flexible involving independent studies and is, above all, tailored to each individual's interest.

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 adviser before courses employed to satisfy this program are taken; records of the minor are maintained and verified by the Latin American studies adviser.

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 coordinate 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.

A special feature of this program is the opportunity to spend a year abroad in approved schools in Latin America or Spain. Such experiences are very valuable aid to linguistic fluency. For an up-to-date course listing, see the program adviser listed above.

The Medieval Institute

Otto Gründler, Director and Adviser

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.

Electives from the approved list with the approval of the adviser.

APPROVED COURSES

Art
- HIST 220 History of Art (to the Renaissance) 3
- HIST 520 Independent Study in Art History 2-3
- HIST 583 History of Medieval Art 3
- HIST 585 History of Renaissance Art 3

Arts and Sciences
- HIST 504 Foreign Minor Seminar: Social Sciences 1-6
- HIST 505 Foreign Minor Seminar: Humanities 1-6

English
- ENGL 252 Shakespeare 4
- ENGL 372 Development of Modern English 4
- ENGL 452 Shakespeare Seminar 4
- ENGL 510 Special Topics: Norse Literature and Mythology 4
- ENGL 530 Medieval Literature 4
- ENGL 532 English Renaissance Literature 4
- ENGL 555 Studies in Major Writers (Dante, Chaucer) 4
- ENGL 598 Reading in English 1-4

History
- HIST 354 Medieval History 3
- HIST 550 Topics in Medieval History 3
- HIST 554 Renaissance and Reformation 3
- HIST 598 Independent Study in History 3

Languages and Linguistics
- FREN 550 Independent Study in French 1-3
- FREN 560 Studies in French Literature (Medieval) 3
- FREN 560 Studies in French Literature (Renaissance) 3

German
- GER 528 Survey of German literature (early) 3
- GER 550 Independent Study in German 1-3
- GER 559 History of the German Language 3

Latin
- LAT 550 Independent Study in Latin 1-3
- LAT 560 Medieval Latin 3

Spanish
- SPAN 322 Life and Culture of Spain 3
- SPAN 550 Independent Study in Spanish 1-3
- SPAN 560 Studies in Spanish Literature 3

Linguistics
- HIST 421 The Development of Language: History and Dialects 4
- HIST 598 Readings in Linguistics 1-4

Medieval Studies
- MED 145 Heroes and Villains of the Middle Ages 3
- MED 500 Interdisciplinary Studies in Medieval Culture 3

Music
- MUSC 270 Music History and Literature (early) 3
- MUSC 498 Readings in Music 1-4
- MUSC 517 Collegium Musicum 1
- MUSC 585 Medieval Music 2
Theatre

An interdisciplinary course designed to study such as art, history, literature, music, philosophy, political science, religion, and sociology.

Religion

305 The Christian Tradition 4
306 The Jewish Tradition 4
307 The Islamic Tradition 4
500 Historical Studies in Religion (Christian Theology to 1500) 4
510 Morphological and Phenomenological Studies in Religion (Great Islamic Thinkers) 4

Theatre

370 Theatre History I 3

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, philosophy, political science, 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 Renaisssance 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 perspectives of 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:

**Biological Science**

- BIOS 101 Animal Biology 4
- BIOS 102 Plant Biology 4
- One of the following:
  - BIOS 301 Ecology 4
  - BIOS 211 Human Anatomy 4
  - BIOS 220 Applied Botany 4
  - BIOS 234 Outdoor Science 4
  - BIOS 250 General Genetics 4
  - BIOS 541 Invertebrate Zoology 3
  - Earth Science 11-12

**Physical Science**

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

**Geosciences**

- PHYS 106 Elementary Physics 4
- PHYS 110 General Physics I 4
- One of the following:
  - CHEM 101 General Chemistry I 4
  - CHEM 102 General Chemistry I 4
  - CHEM 103 General Chemistry I 4
  - CHEM 140 Intro. Environmental Chemistry 4
  - CHEM 120 General Chemistry II 4
  - PHYS 111 General Physics II 4
  - PHYS 104 Astronomy 3

Minimum Total 36

RELATED COURSE OFFERING

PHYS 308 Teaching of Physical Science 3 hrs. (See Department of Physics)

Science and Mathematics Teaching Minor

Adviser: 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 adviser 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 are 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 *)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>BIOS 101</td>
<td>Animal Biology</td>
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<td>BIOS 102</td>
<td>Plant Biology</td>
<td>4</td>
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<td>GEOL 130</td>
<td>Physical Geology</td>
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<td>Earth History and Evolution</td>
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<td>Minerals and Rocks</td>
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<td>GEOG 225</td>
<td>Intro. to Meteorology and Climatology</td>
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<td>CHEM 103</td>
<td>General Chemistry I</td>
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<td>CHEM 140</td>
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<td>CHEM 120</td>
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<tr>
<td>PHYS 104</td>
<td>Astronomy</td>
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</table>

B. REQUIRED MATHEMATICS

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MATH 151</td>
<td>Geometry for Elementary Teachers (Prerequisite: MATH 150)</td>
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<tr>
<td>MATH 265</td>
<td>Probability and Statistics for Elementary Teachers (Prerequisite: MATH 151)</td>
<td>3</td>
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<tr>
<td>MATH 552</td>
<td>Teaching of Elementary Mathematics (Prerequisite: MATH 265)</td>
<td>3</td>
</tr>
<tr>
<td>ED 401</td>
<td>Teaching Elementary School Science</td>
<td>3</td>
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<tr>
<td>ED 402</td>
<td>Seminar in Elementary Science and Mathematics</td>
<td>2</td>
</tr>
</tbody>
</table>

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 adviser in 2060 Friedmann Hall.

GROUP SOCIAL SCIENCE MAJOR

This major provides an interdisciplinary experience in the social sciences. It is not open to students in education curricula. Requirements include:

1. At least 36 hours credit in the College of Arts and Sciences from the departments of anthropology, economics, history, political science, and sociology.

2. The following basic courses must be completed. They may be applied towards either the social science major or a minor in one of the departments.

   - Anthropology (ANTH 210 or 240)
   - Economics (ECON 201 and 202)
   - History (HIST 210 and 211)
   - Political Science (PSCI 200)
   - Sociology (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.

GROUP SOCIAL SCIENCE MINOR (non-teaching curriculum)

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.
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 Scientist
3 hrs.
An introduction to data processing for students of the behavioral sciences. Emphasis to be placed upon computer programming in one 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, Adviser
337 Moore 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, communications, 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 at least 24 hours of credit from courses listed above, six (6) hours of credit at the 300-level or above, and must include at least six (6) hours of credit in the behavioral sciences. Emphasis to be placed upon computer programming in one 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.

World Literature Minor
William Combs, Department of English, Adviser
Robert Felkel, Department of Languages and Linguistics, Adviser

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

Studying the literature of other peoples of the world is one of the best ways to begin to know them. A great body of the world's literature is available for study in English translation in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses. This minor should be of value to students who have a general interest in literature and are curious about the world, especially that major part which does not have English as its literary language.

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

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

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

1. ENGL 312 Western World Literature or 313 Asian Literature or 314 African Literature 4

2. Two courses selected from the following list:
   - ENGL 110 Literary Interpretation 4
   - ENGL 252 Shakespeare 4
   - ENGL 312 Western World Literature 4
     - not used under Requirement (1) 4
   - ENGL 313 Asian Literature 4
     - if not used under Requirement (1) 4
   - ENGL 314 African Literature 4
     - if not used under Requirement (1) 4
   - ENGL 315 The English Bible as Literature 4
   - ENGL 410 Special Topics in Literature 4
     - if the topic is appropriate it may be approved by the minor adviser 4
   - ENGL 442 Modern Drama 4
   - ENGL 510 Special Topics in Literature 4
     - if the topic is appropriate it may be approved by minor adviser 4
   - ENGL 530 Medieval Literature in English Translation 4
   - ENGL 538 Modern Literature 4
   - ENGL 555 Studies in Major Writers 4
     - if the authors studied are appropriate, this course may be approved by the minor adviser 4
   - ENGL 598 Readings in English: Independent Study 4
     - with the approval of the minor adviser 4

3. Three courses selected from the following list:
   - LANG 375 French Literature in English Translation 3
   - LANG 375 German Literature in English Translation 3
   - LANG 375 Russian Literature in English Translation 3
   - LANG 375 Spanish-American Literature in English Translation 3
   - LANG 350 Classical Art and Architecture of the Aegean World 3
   - LANG 375 Classical Drama in English Translation 3
   - LANG 450 Classical Greek and Roman Mythology 3

PERMISSIBLE SUBSTITUTIONS FOR REQUIRED COURSES
With the approval of a minor adviser, students may:

1. Substitute one of the following courses for one course listed above in either Requirement 2 or Requirement 3:
   - THEA 370, 371, Theatre Backgrounds I, II 3
   - THEA 570 Dev. of Theatre Arts 3

2. Substitute an advanced literature course in a foreign language for one of the courses listed above in either Requirement 2 or Requirement 3.

3. Substitute a course or courses (maximum of 4 hours), not presently listed in the catalog, which may be offered as a special or temporary course and which is deemed by the advisers appropriate to the World Literature Minor.

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

ANTHROPOLOGY

Robert Sundick, Chair
Nicole Constable
William Cramin
Elizabeth Garland
William Garland
Norman Greenberg
Arthur Helweg
Lawrence Israel
Alan Jacobs
Erika Loefller
Allen Zagarell

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 advisers. A major in anthropology consists of a minimum of 30 hours of anthropology courses and must include ANTH 210, 240, and 250. Only one course at the 100 level may be counted toward the major. A minor in anthropology consists of a minimum of 20 hours of anthropology courses and must include ANTH 210, 240, and 250. Only one course at the 100 level may be counted toward the minor. Though not required, it is recommended that at least 6 additional hours of elective work be taken in appropriately related fields, such as Black Americana 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.

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 Program" section of this catalog for a description of the minor requirements.

Anthropology Courses (ANTH)

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

ANTH 100 Man in Evolutionary Perspective 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 kingdoms 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. Selected portions of the Old and New World prehistoric cultural sequences provide the frame of reference.

ANTH 220 Cultural Anthropology 3 hrs. Fall, Winter
A survey of the role and relevance of "culture" in various societies throughout the world, with emphasis on the nature and function of particular cultures and their interrelationship with environment, society and the individual. (Does not count for anthropology major/minor program.)

ANTH 240 Principles of Cultural Anthropology 3 hrs. Fall, Winter
An introduction to the basic concepts, theoretical approaches, and methodological strategies employed in the study of traditional and contemporary sociocultural systems throughout the world. Attention given to research techniques and the insights derived from detailed case studies and cross-cultural comparisons.

(Course intended as general introduction to the field for anthropology majors and minors, combined sociology/anthropology majors, social science and Honors College students.)

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

ANTH 300 The Prehistory of North America 3 hrs.
A survey of the major prehistoric cultures of North America, including American Indian origins, early big-game hunters of the Great Plains, ecological adaptations of the Archaic stage, the complex building and temple mound cultures of the East, and prehistoric Paleo-Indians of the Southwest.

ANTH 310 Method and Interpretation in Archaeology 3 hrs.
An introduction to formal archaeological research design and an examination of the interpretive processes used in the analysis and synthesis of material culture. Topics to be discussed include fieldwork survey, excavation techniques, classification, systems theory, model building and the reconstruction of prehistoric social organizations. Prerequisite: ANTH 210 or consent of instructor.

ANTH 325 Social Structure 3 hrs.
A study of the various social groups and institutions by which diverse societies and cultures throughout the world are organized, with emphasis on the nature and role of kinship, territoriality, ethnicity and other principles in ordering membership both within and between various groups and societies, with particular attention given to the various analytic concepts and theoretical approaches that are relevant to such studies. Prerequisite: ANTH 240, 220, or consent of instructor.

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-nomad, great civilizations-tribal organizations. Emphasis will be on the unity and diversity, tradition, and changes of peoples and cultures in the developing world. Topics will be announced each semester. May be repeated for credit with different topics.

ANTH 333 Cultures of Europe 3 hrs.
A study of cultural characteristics of the various peoples of Europe, both East and West, with special emphasis placed on the comparison of world views, life styles and problems of cultural change among peoples of divergent historical and political backgrounds.

ANTH 339 Native Cultures of North America 3 hrs.
A survey of the rich heritage of American Indian cultures north of Mexico. Ethnographic, ethnohistoric, and archaeological materials will be utilized to examine regional differences in cultural patterns.

ANTH 345 Topics in Anthropology 3 hrs.
An intensive study of selected topics or emerging fields in anthropology, such as visual anthropology, museology, voluntary associations, population genetics, women and culture, socialization, and occult or utopian movements. 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 learning program commands for purposes of customizing software packages for specific research tasks. Students will be expected to implement one or more software packages as part of their current research activities. Prerequisite: Computer literacy or consent.

ANTH 350 Human Evolution 3 hrs.
Study of both the indirect evidence and the fossil evidence concerning human evolution, including comparison with other primates, living and extinct, and a consideration of the present-day human variation. Prerequisite: ANTH 250 or consent of instructor.

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, ethnography, communication and the culturalsystems which have arisen from the nuclear centers of prehistoric civilization will be considered in some detail. The course may be considered insome detail. The course may be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 210 or consent of instructor.

ANTH 498 Honors Study 2 hrs.
A program of independent study (reading or research) to provide the honors student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the Department. May be repeated once. Permission to register must be obtained from the department chair.

ANTH 500 Topics in Anthropology 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. prehistory, prehistoric ecology). The topic to be studied will be announced each semester. (May be repeated for credit.) Prerequisite: Varies with topic.

ANTH 501 The Rise of Civilization 3 hrs.
The archaeological sequence in one or more of the nuclear centers of prehistoric civilizations 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 210 or consent of instructor.

ANTH 502 The Origins of Agriculture 3 hrs.
An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archaeological and botanical models to explain these comparison of agricultural systems in various parts of the world, the geographic distribution and biosystematics of selected cultivars, and the cultural systems which have arisen from the economic foundations of plant domestication. Prerequisite: ANTH 210 or consent of instructor.

ANTH 510 Field Methods in Archaeology I 3 hrs. Spring
Prerequisite: ANTH 511 Field Methods in Archaeology II 3 hrs. Spring
Implementaiton of the field research strategy. Instruction in the basic skills of site excavation, mapping and retrieval of recording of data, and laboratory analysis, including classification and cataloguing of artifacts. Depending upon the problem orientation in a given field season, instruction may include site survey, site sampling techniques, and paleoenvironmental reconstruction. To be taken concurrently with ANTH 510. (May be repeated for credit.) Prerequisite: consent of instructor.

ANTH 511 Field Methods in Archaeology II 3 hrs. Spring
A systematic examination of the evolution of the significant theoretical problems and
contributes to anthropology over the last two centuries. Developments are examined in relation to the prominent figures in the discipline and their times. Prerequisite: ANTH 240, 220, or consent of instructor.

ANTH 522 Methodology in Ethnographic Research 3 hrs. Emphasis is on quantitative and qualitative research materials as the basis for successful description and hypothesis testing in cultural anthropology. Considers the importance of research design and operations in generating more accurate observations on which theory building and testing rest. Includes introduction to ethnographic research techniques, e.g., participant-observation, structured and semi-structured interviews, questionnaires, sampling, technical equipment, etc. Prerequisite: ANTH 240, 220, or consent of instructor.

ANTH 523 Ethnographic Field Session 3-6 hrs. Summer Supervised field examination of human communities in respect to specific ethnographic questions, analysis of field data, and report writing. (May be repeated for credit up to a total of six hours.) Prerequisite: consent of instructor.

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 532 Culture and Personality 3 hrs. An investigation of the interaction of culture and personality with particular attention to the role of culture as a force in the development of the individual. Prerequisite: ANTH 240, 220, or consent of instructor.

ANTH 536 Cultural Evolution 3 hrs. An inquiry into the dynamics of culture through a study of selected theories of culture change and their application to concrete situations such as the rise of complex civilizations and the reactions of non-Western societies to contact with the West. Prerequisite: ANTH 240, ANTH 220, or consent of instructor.

ANTH 538 Law and Culture 3 hrs. A study of law through the theory and method of comparative legal dynamics. The relation of law to the whole of culture; the function of law as revealed in the comparative study of societies ranging from simple to complex. Prerequisite: ANTH 240, 220, or consent of instructor.

ANTH 540 Social Impact Assessment 3 hrs. The application of anthropological knowledge to assess and evaluate the socio-cultural effects of proposed developmental policy, programs or projects as they relate to environmental impact assessment while in the planning stage, to improve project design and mitigate undesired secondary effects.

ANTH 542 Development Anthropology 3 hrs. An examination of the role of social science when applied to the solution of specific development problems, particularly in the Non-Western world. Explores a wide range of applied or adaptive research techniques designed to insure that directed social change actually benefits those for whom it is intended. Also surveys numerous research strategies, methods, and constraints involved in conducting research for national or international development agencies. Prerequisites: ANTH 220, 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, paleopathology, and reconstruction of the individual and the population. 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, paleopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

ANTH 558 Readings in Anthropology 1-4 hrs. Independent study arranged in consultation with an instructor. Intended for advanced students with good academic records. One to 2 hours credit per semester, cumulative to 4 hours. Prerequisite: consent of instructor.

BIOLOGICAL SCIENCES

BIOLOGICAL SCIENCES

Richard W. Pippen, Chair
Leonard J. Beuving
Richard D. Brewster
David P. Cowan
Elwood B. Ehrlie
Robert C. Eisenberg
Joseph G. Engemann
Gyula Ficor
Stephen B. Friedman
Leonard C. Ginsberg
Edgar Inselberg
Cecil McIntire
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 a major and minor program designed to provide today's student with effective knowledge and training in various areas of the Life Sciences. The Biology Major explores the broad spectrum of the life sciences with opportunities to concentrate in aquatic biology, botany, ecology, evolutionary biology, physiology, zoology, or sample a number of areas. Students completing this major should be prepared for one or more of the following goals: (1) graduate study toward an advanced degree in the Biological Sciences, i.e. M.S. or Ph.D.; (2) employment in state and federal government service, industry, laboratory or technical work; (3) advanced study at the professional level, i.e. M.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 are available in several elective courses. Three options are available within this major: the general and preprofessional option, the medical service representative option, and the medical technology option.

The specific objectives of the General and Preprofessional Option 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., M.D., D.D.S., D.O., D.P.M., or D.V.M.

The specific objective of the Medical Service Representative Option is to produce students with a sound understanding of the biomedical sciences, who are also knowledgeable in law, accountancy, economics, psychology, marketing, and interpersonal communication. Such students would be employable as technical representatives in the pharmaceutical or biomedical-industrial field.

The Medical Technology Option leads to a B.S. degree and is designed to prepare the student for entrance into the twelve-month clinical practicum in a hospital school of medical technology, which is required for certification by the American Society of Clinical Pathologists (ASCP). The resulting medical technologist is an important member of the health care team. He/she is the one who performs specialized tests that assist the physician in the diagnosis and treatment of various diseases. The medical technologist must, therefore, be precise and accurate in the performance of these tests and possess a keen awareness for the importance of quality control within the laboratory. This option assures the necessary strong background in biomedical
schools: GEOL130 (in addition to PHYS111 or above curricula, the following cognates are needed for admission to most graduate programs in Biology and Biomedical Sciences majors and minors or the honors program. All major and minor programs are to be pursued under the direction of and with the approval of the departmental advisor. Students who want to major or minor in Biology or Biomedical Sciences should consult with the appropriate departmental advisor during their first or second year of college work. Students are invited to contact the department offices (Biology, Room 100 Wood Hall, 616-387-5600; or Biomedical Sciences, Room 5330 McCracken Hall, 616-387-5625) for information concerning the Biology and Biomedical Sciences majors and minors or the honors program.

Minors are available in Biology, Biomedical Sciences, Botany, or Zoology. An honors program in Biological Sciences is available to students who demonstrate superior abilities during their first or second year of college work. Students are invited to contact the department offices for more information.

Biological Sciences (Biology) consists of a minimum of thirty-six hours of coursework in BIOG courses, including the core courses and electives. Electives chosen to complete the thirty-six hour major should reflect the student's interests and educational objectives. A minimum of six hours of BIOG electives must be taken at the 500 level.

CORE COURSE REQUIREMENTS
- BIOG 101, 102, 301; BIOG 213, 250; and one of the following: BIOG 317, 319 or 350.

COGNATE REQUIREMENTS
- Arts and Sciences (ASC) and Liberal Arts (LA) curricula.
- CHEM 101 (or 102) and 120, and a course in organic chemistry. Any two of the following courses in MATH: 118, 122, 123, 200, 260; PHYS 110 (or 210) and 111 (or 211); and GEOL 130 may be substituted for PHYS 111 (or 211).

Preprofessional (PD, PM, etc.) curricula. In addition to the cognates required for the ASC and LA curricula, the following cognates are needed for admission to most medical and dental schools: CHEM 210 and 211; PHYS 110 (or 210) and 111 (or 211); and GEOL 130 may be substituted for PHYS 111 (or 211). We urge you to consult with the preprofessional curriculum advisor at an early stage, to determine any special requirements or variations from the above that may pertain to medical or dental schools that you are planning to apply to for admission.

Preparation for Graduate School in Biology, Botany and Zoology (especially in the areas of ecology and field biology). In addition to the cognates required for the above curricula, the following cognates are needed for admission to most graduate schools: GEOL 130 (in addition to PHYS 111 or 211); a course in statistics (MATH 260, 364, or 366). Transfer students must complete a minimum of nine hours of biological sciences coursework at Western.

Biological Sciences Major—Secondary Education Curriculum

The SED curriculum consists of core course requirements including BIOG 101 (Animal Biology), BIOG 102 (Plant Biology), BIOG 301 (Ecology), BIOG 211 (Human Anatomy), BIOG 213 (Cell Biology), BIOG 250 (Genetics), a microbiology course (BIOG 232 or 312), a physiology course (one of the following: BIOG 240, 317, 319, or 350) and BIOG 404 (Problems in Teaching Biology). Also two 500-level BIOG courses (excluding 598 and 599) are required.

In addition, the following Group Science Minor is required: CHEM 101 (or 102), 120, and 365 (or 360 and 361); PHYS 110 (or 210) and 111 (or 211) and 4 hours of physical geography.

Cognate requirements include MATH, any two of the following: 118, 122, 123, 200, or 260.

Biological Sciences Major—Preprofessional Option

REQUIREMENTS
- A major in Biological Sciences (Biology) consists of a minimum of thirty-six credit hours including the basic core curriculum and electives. The electives must include at least eight credit hours at the 500 level. A student may be eligible for equivalency and transfer credit toward the major.

CORE CURRICULUM
- BIOG 101, 102, 211, 213, 250, 312 and 350.

COGNATE REQUIREMENTS
- Twenty-one hours of college chemistry including organic chemistry, biochemistry, and biochemistry laboratory. Eight hours of college mathematics which must include one of the following options: MATH 118 and 122 or 200; MATH 122 and 123; MATH 122 or 200 and 260 or 366. Eight hours of general physics are also required.

Biological Sciences Major—Medical Service Representative Option

REQUIREMENTS
- A major in Biomedical Sciences (Biology) consists of a minimum of thirty-six credit hours including the basic core curriculum and electives. The electives must include at least eight credit hours at the 500 level. A student may be eligible for equivalency and transfer credit toward the major.

CORE CURRICULUM
- BIOG 101, 102, 211, 213, 250, 312, 350 and 356.

COGNATE REQUIREMENTS
- At least twenty-one credit hours of college chemistry are required including general chemistry, CHEM 101 or 102, and CHEM 120; quantitative analysis, CHEM 222; organic chemistry, CHEM 365 or CHEM 360 and 361; biochemistry, CHEM 450 and 456. At least eight credit hours of college mathematics including MATH 122 or 118 or 200 and MATH 260 or 366, and PHYSICS 110 and 111 are required. In addition, the student must take an education elective and a management elective.

Biological Sciences Major—Medical Technology Option

REQUIREMENTS
- A Biomedical Sciences major, Medical Technology Option, consists of a minimum of thirty-six credit hours of selected courses. These are BIOG 101, 102, 211, 213, 250, 312, 330, 350, 430, 534 and 536. BIOG 559 is highly recommended. Only BIOG courses in which a "C" or better is obtained may be counted toward a major in the Medical Technology Option.

COGNATE REQUIREMENTS
- At least twenty-one credit hours of college chemistry are required including general chemistry, CHEM 101 or 102, and CHEM 120; quantitative analysis, CHEM 222; organic chemistry, CHEM 365 or CHEM 360 and 361; biochemistry, CHEM 450 and 456. At least eight credit hours of college mathematics including MATH 122 or 118 or 200 and MATH 260 or 366, and PHYSICS 110 and 111 are required. In addition, the student must take an education elective and a management elective.

Biological Sciences Major—Secondary Education Curriculum

The SED curriculum consists of a minimum of twenty-four hours of coursework in BIOG including BIOG 101 (Animal Biology), BIOG 102 (Plant Biology),
**General Education elective 3-4**

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<td>CHEM 101 or 102</td>
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<td>CHEM 120</td>
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A prerequisite for one of these, according to placement test. General Education elective—English 105, classes.

**Coursework**

<table>
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<th>Hours</th>
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<tbody>
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<td>Physical Education 1</td>
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</table>
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.

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 monocots, fungi, algae, and multicellular plants is included. This course may be taken concurrently with BIOS 101, Animal Biology.

BIOS 105 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.
A course designed to provide 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 course designed to provide a natural science foundation for BIOS minors, allied health majors, and general education students. Foundation concepts in anatomy, physiology, genetics, microbiology, cell chemistry and biology, and ecology and botany are presented for students who do not have strong biology and chemistry backgrounds.

BIOS 211 Human Anatomy
4 hrs. Fall, Winter
A lecture and laboratory course in which all major structures of the human body are studied. Prerequisites: BIOS 101 or BIOS 112 or equivalent.

BIOS 213 Cell Biology
3 hrs. Fall, Winter
This course presents an introduction to the field of cell biology. Concepts which are stressed include cell structure and function, types, chemistry, transport, and interactions. Prerequisites: BIOS 101 or BIOS 112 and a college-level chemistry course.

BIOS 220 Applied Botany
4 hrs.
A course dealing with the practical applications of botany. Principles and practices in indoor and outdoor gardening, landscaping, plant propagation, and the care and identification of cultivated plants are emphasized.

BIOS 230 Microbiology and Man
3 hrs. Fall, Winter
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. For Bronson Hospital nurses or by consent of instructor.

BIOS 234 Outdoor Science
4 hrs.
A course designed to increase the student's awareness and appreciation of the biological environment. Lectures provide introductions to basic ecological principles. Weekly field trips to a variety of environments involve identification and ecology of local aquatic and terrestrial plants and animals.

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. 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.

BIOS 312 Microbiology
5 hrs. Fall, Winter
An introduction to the fundamental relationships among microbes with an emphasis on unified principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BIOS 250 and a course in organic chemistry, or consent of department.

BIOS 317 Animal Physiology
4 hrs.
The field of comparative animal physiology is considered. Organisms are compared and considered in their function of maintenance of homeostasis (a healthy state). The structure and physiology study are combined in lecture and laboratory experiences. Emphasis is placed on the experimental investigations of physiological processes, laboratory instrumentation and scientific writing. Prerequisites: organic chemistry, introductory physiology, and one year of biological sciences or consent of instructor.

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 role of plant functions. The lab uses up-to-date techniques and equipment to investigate processes, such as enzyme action, respiration and the movement of substances through membranes. Prerequisites: BIOS 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 330 Clinical and Pathogenic Microbiology
4 hrs. Winter
A course dealing with infectious diseases and their etiology. Emphasis will be placed on epidemiology, pathogenesis and pathology, diagnosis and treatment of various diseases.
Laboratory will employ current methods utilized for cultivation and identification of most common pathogens and nonpathogens encountered in a clinical microbiology laboratory. Prerequisites: BIOS 312.

BIOS 350 Human Physiology for Majors 3 hrs. Fall, Winter
An introduction to the function and interrelationships of the human body organ systems with description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing. Prerequisites: BIOS 250 and organic chemistry; anatomy is recommended.

BIOS 401 Pathogenic Microbiology for Physician's Assistants 2 hrs. Winter
This course describes the common diseases and their treatment with emphasis on the significance of laboratory findings in their diagnosis. Students must be in Physician Assistant program and consent of instructor.

BIOS 404 Problems in the Teaching of Biology 3 hrs.
Class discussions, laboratory experiences and field work are concerned with the teaching of biology in high school. Required of all students who are following a secondary education curriculum and fat 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 430 Hematology—Serology 4 hrs.
The principles of normal blood cell maturation, morphology and function will be discussed. Additional consideration will be given to various blood dyscrasias and immunological deficiencies. Laboratory will include an introduction to a variety of hematological and serological procedures routinely employed in hospitals and clinics, with special emphasis on the principles involved and interpretation of the test results. Prerequisites: BIOS 350, CHEM 450 and 456.

BIOS 485 Medical Genetics 3 hrs. Winter (alternate years)
This course provides the information necessary to understand Medical Genetics. The principal focus will be on syndrome identification. After an introduction to the basic principles of human genetics and birth defects, genetic and congenital abnormalities associated with various parts of the body will be presented. Topics to be covered include: sensory disorders, mental retardation, genetics of cancer, skeletal abnormalities, genetic disorders of the blood system, and genetic counseling. Prerequisites: BIOS 112, 240 or permission of instructor.

BIOS 501 Ecological Adaptations of Organisms 3 hrs.
An investigation of the many environmental factors (light, temperature, time, magnetism, and others) that influence the life and behavior of organisms. A study will be made of the strategies used by organisms to adapt to these factors. Adaptations will be considered as adjustments in both behavior and physiology. Ecological interactions between the environment and the organisms at the molecular, cell, and organism levels will be studied. Plants, animals, and microorganisms will be used as examples. Prerequisite: consent of instructor.

BIOS 507 The Biology of Addictive Drugs 3 hrs.
The principles of pharmacology (modes of action and effects of drug) as related to abuse drugs, such as marijuana, alcohol, heroin, methadone, LSD, amphetamines (Speed), and cocaine. The course is designed primarily for non-science majors to give them an understanding of the objective and subjective effects of drug use. Legal and social implications of illegal drug use are discussed. No prerequisites.

BIOS 509 Evolution 3 hrs.
A consideration of the theory of evolution by natural selection, including discussions of the mechanisms of evolution and predictions generated by the theory. 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 organism 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 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 biosystematics are presented in lectures in the field, and laboratory experiences using vascular plants as examples. Evolutionary trends, family characteristics and experimental systematics of vascular plants are emphasized. Students will be encouraged 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 physiology of the vascular plants. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 102.

BIOS 531 Biology of Aging 3 hrs. This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisites: An introductory physiology course 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 cell as a traditional 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, readings assignments are from the scientific literature. Prerequisites: a microbiology course and a biochemistry course.

BIOS 533 Neuroendocrinology 3 hrs.
Neuroendocrinology is designed to acquaint the student with the interrelationships of the environment and the organisms as mediated by the neuroendocrine system. The anatomy and physiology of the neuroendocrine system will be studied, as well as the chemical structure of the neurohormones. Regulation of cellular chemistry by the neuroendocrine products will be emphasized. Prerequisite: a course in physiology, organic chemistry or consent of instructor.

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 aspects of plant nutrition. 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. Prerequisites: 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 with emphasis on evolution and ecology. Includes an introduction to the ethological point of view. One student project. Prerequisite: 8 hours of biological sciences or consent of instructor.

BIOS 540 Cell and Organ Culture
3 hrs. Fall
The purpose is to introduce the student to the fundamental procedures of cell and organ cultures of mammalian tissue. The application of cell and organ culture to routine clinical, research or drug screening procedures will be emphasized as well as specialized procedures employed to solve specific biomedical research problems. Prerequisite: 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.
A general study of insects, their structure, classification, life history, ecological relationships and economic importance. Collection and identification of local species is included. 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 201 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 554 Histological Techniques
2-3 hrs. Winter (alternate years)
A variety of techniques including celloidin, paraffin, decalcification and special stains will be used to prepare mammalian tissues for histological examination. Prerequisites: BIOS 537 or consent of instructor.

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 to 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.

BIOS 598 Readings in Biological Sciences
1-3 hrs. Approved application required.

BIOS 599 Independent Studies in Biological Sciences
1-4 hrs. Approved application required.

BLACK AMERICANA STUDIES
See "Interdisciplinary Programs" in the College of Arts and Sciences.
CHEMISTRY

Michael E. McCarville, Chair
Donald C. Berndt
Donald B. Borden
Dean W. Cooke
J. Lindsley Foote
Robert E. Harman
Thomas Houser
James A. Howell
Joseph M. Kanamueler
George G. Lowry
William J. Kelly
Donald R. Schreiber
Ralph K. Steinhaus
Jochanan Stenesh
H. Dale Warren

Students majoring in chemistry may prepare for a career in high school teaching, industrial laboratory work, or graduate work in departments of chemistry, biochemistry or medical colleges. The course offerings for the undergraduate attempt to give a broad but thorough grounding in the elements of chemistry. They should be fortified by a minor in physics, mathematics, or biology. Most students who intend to do advanced work in chemistry should plan to obtain a reading knowledge of a 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 American Chemical Society.

In order to complete an American Chemical Society Certified chemistry major, the following would be the minimum required schedule of chemistry and prerequisite courses:

Freshman Year:
- CHEM 101 or 102, General Chemistry I
- CHEM 120, General 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 210, Mechanics and Heat
- PHYS 211, 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 520, Instrumental Methods
- CHEM 510, Inorganic Chemistry

In addition two 3 or 4 hour advanced electives from 500 level lecture or laboratory chemistry as approved by the Chemistry adviser. 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 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 adviser. 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 A.C.S. certified program and two 3 or 4 hour courses at the 500 level, chosen from at least two areas of chemistry.

Secondary Education Chemistry 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, clinical chemistry, toxicology, pharmacology, etc. A minimum of 33 chemistry credit hours must be selected according to the following:
- CHEM 101 or 102, General Chemistry I
- CHEM 120, General Chemistry II
- CHEM 360, Organic Chemistry I
- CHEM 361, Organic Chemistry II
- CHEM 222, Quantitative Analysis
- CHEM 552 and 556, Biochem. I and II with Laboratory
- CHEM 535, Introduction to Physical Chemistry
- CHEM 430, Physical Chemistry I
- CHEM 436 (1 hr.), Physical Chemistry Laboratory
- CHEM 506, Chemical Laboratory Safety or CHEM 564, Drugs and Pesticides and additional 500 level Chemistry electives if necessary to meet the minimum hour requirement.

The Business-Oriented Chemistry Major is available to provide chemical understanding to the level needed by students who intend to prepare for careers in non-laboratory functions of chemical industry and distribution of its products and technology, principally in the areas of management and sales, as well as for some aspects of government service. Those who elect this major are required to complete a minor in either General Business—option I (21 hrs.), Management (21 hrs.), or Marketing—option II (21 hrs.) in the Haworth College of Business and must include BUS 142, 242 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 450, Introductory Biochemistry
- CHEM 535, 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 adviser.

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.

Chemistry Placement Examination

The chemistry placement examination is required in order to ensure 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 well prepared may earn credit by taking examination. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.
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 passed with a grade of "C" or better. This course includes lectures and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.

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 applied science who handle the materials being considered. Not applicable for major or minor in chemistry nor as a prerequisite to other chemistry classes, this course includes lecture and laboratory.

CHEM 119 General Chemistry Laboratory
1 hr.
A laboratory course designed to complement the lecture topics covered in General Chemistry. This course is intended for those students who have had a general chemistry course at another school which did not have a laboratory 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 principles involved. This course treatment considers elementary concepts of the nature of matter with application of tools of chemists important in exploration of environmental problems. Laboratory may entail field trips as well as experiments which relate to environmental problems. Credit does not apply for graduation if CHEM 101, 102 or 103 are used, or for major or minor in chemistry.

CHEM 200 Chemical Science in Elementary Education
4 hrs. Winter
This course is designed to help students understand the chemical nature of the world around them and how the behavior of things depends on chemical makeup and physical conditions. Demonstrations and experiments will show how these ideas can be made meaningful to students in the context of everyday experiences and commonly encountered materials. Credit does not apply for a major or minor in chemistry.

CHEM 222 Quantitative Analysis
4 hrs. Fall, Winter
This course includes the theory, techniques and calculations of qualitative 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 which are required for an understanding of physiology and pharmacology. The focus includes metabolism, bioenergetics, pH control systems, oxygen-carbon dioxide transport and some aspects of nutrition, disease and hormone action. Prerequisite: PA Curriculum and CHEM 365 or 361.

CHEM 360 Organic Chemistry I
4 hrs. Fall, Winter
The preparatory and chemical properties of aliphatic and aromatic compounds are studied. Emphasis is placed upon the nature of covalent bonds and molecules and the general reactions of functional groups. The course includes lecture and laboratory. Prerequisite: CHEM 120.

CHEM 361 Organic Chemistry II
4 hrs. Fall, Winter
A continuation of CHEM 360. Prerequisite: CHEM 360.

CHEM 365 Introduction to Organic Chemistry
4 hrs. Fall, Winter
A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds with emphasis on those feeding a working knowledge of organic chemistry without the theoretical detail of a full year course. Credit may not be received for both CHEM 365 and 366. This course, which includes laboratory, will not serve as a prerequisite for CHEM 361. Prerequisite: CHEM 120.

CHEM 369 Organic Chemistry Laboratory
1 hr.
A laboratory course designed to complement the lecture topics covered in Organic Chemistry. This course is intended for those students who have had an organic chemistry course at another school which did not have a laboratory as part of the course. Prerequisite: A minimum of 3 hours of non-laboratory Organic Chemistry and permission of chemistry adviser.

CHEM 390 Special Problems in Chemistry
2 hrs. Fall, Winter
This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member. May be repeated once for credit. Prerequisite: 18 hours of chemistry, with approval of the department chairperson and a faculty director.

CHEM 430 Physical Chemistry I
3 hrs. Fall, Winter
Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibria, electrochemistry, quantum theory, spectroscopy, statistical mechanics, chemical kinetics and mechanisms, transport properties, surface chemistry, macromolecules, crystal structure, etc. Prerequisites: PHYS 210, 211; MATH 272; CHEM 120.

CHEM 431 Physical Chemistry II
3 hrs. Winter
A continuation of CHEM 430. Prerequisite: CHEM 430.

CHEM 436 Physical Chemistry Laboratory
1 hr. Fall, Winter
Laboratory experiments designed to emphasize and reinforce the principles covered in CHEM 430 and 431, with consideration of the limitations of physical measurements and their quantitative interpretation. Can be multiply enrolled or reenrolled for a total of 2 credit hours. Prerequisites: CHEM 222 and 430 or 535. Repeatable for up to 2 credit hours.

CHEM 450 Introductory Biochemistry
3 hrs. Winter
A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins and nucleic acids. Not applicable for a major or minor in chemistry majors. Prerequisite: CHEM 365 or 361.

CHEM 456 Introductory Biochemistry Laboratory
2 hrs. Winter
Basic biochemical laboratory techniques; isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids; studies of metabolism; determinations of clinical interest involving blood, urine, liver, skin, etc. Prerequisite or corequisite: CHEM 450 or 550.

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. Problems involving literature searches in analytical, inorganic, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

CHEM 506 Chemical Laboratory Safety
1 hr. Fall
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: 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 361 or 365, and CHEM 431 or 535.

are studied in terms of the organic, physical, and analytical chemistry involved. Prerequisites: CHEM 431, 436.

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 111 or 211.

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 456. 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 456. 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.
Pre-Communication Major
Any freshman or transfer student planning to pursue communication as a major will require admission as a pre-communication student, PCM, and will work with a communication adviser in the development of a planned program. This status, however, does not guarantee admission to the 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 the first semester, and will be acted upon at the completion of their first semester.

Admission as a major in communication 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.
3. Application forms and additional information can be obtained from the departmental office, 301 Spray Tower. Students not meeting admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary basis to the communication major will be considered on an individual basis.

General Program Requirements
1. All major/minor programs must be approved by a departmental adviser. Admission to the major in COM bill be considered by a departmental adviser following completion of the PCM requirements. Declaration of a minor in communication must be made with a departmental adviser 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.

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 adviser. Twelve of these hours must be taken at the 300-500 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 production 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 Adviser. Deadlines for submitting applications are October 1st, February 1st, and June 1st.

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 Interpersonal 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
- 331 Persuasive Speaking 3

Select one of the following (3 hours):
- 482 Communication Processes in the Organization 3
- 547 Organizational Uses of Radio and TV 3
- 335 Leadership 3
- 583 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
- 357 Television Studio Production (256 Prerequisite) 3
- 458 Television Performance 3

Select two of the following (6 hours):
- 240 Broadcast Communication 3
- 543 Mass Communication and Social Change 3
- 544 Mass Communication, News and Public Affairs 3

COGNATE COURSE REQUIREMENTS Include 14 hours:
- Required: PAPR 150 Graphic Arts 3
- Select one of the following (3 hours):
  - ED 548 Audio Visual Media I 3
  - ED 550 Photography Workshop 3
- Select two of the following (required courses in English can be used as part of a journalism minor) (8 hours):
  - ENGL 264 News Writing 4
  - ENGL 265 News Editing (264 Prerequisite) 4
  - ENGL 363 Advanced Reporting (264 Prerequisite) 4
  - ENGL 364 Feature/Article Writing 4

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

Minors
Communication Minor
A communication minor requires 21 semester hours of COM, including COM 104, COM 200 and 14 additional elective hours to be chosen in consultation with the appropriate advisers of the department.

Nine of these hours must be taken at the 300-500 level.

Interdisciplinary Minors
Integrated Language Arts Minor
The Department of Communication is one of five participating departments in the integrated language arts minor—a program designed particularly for pre-service elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternative learning styles. Interested persons should contact the ILAM adviser, Dr. James P. Burns, 3414 Sangren, 387-3516.

Integrated Creative Arts Minor
The Department of Communication is a participant in the integrated creative arts minor. An interdepartmental program, the minor offers elementary school teachers an opportunity to emphasize the integration of all the arts into the core of the elementary school curriculum. Interested students should contact A. Balkin, Department of Education and Professional Development.

Transfer Students
Transfer students are permitted to transfer as many as 12 semester credit hours for a major and 9 hours for a minor in communication.

Communication Courses (COM)
(Course described in italics is approved for General Education.)
COM 104 Public Speaking 3 hrs.
- Study of the principles of communication underlying effective oral presentations, with attention given to speaking to 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 a student learns his/her powers of speech to increase his/her effectiveness in interpersonal relationships through understanding of self and others.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COM 200</td>
<td>Introduction to Communication Theory</td>
<td>3 hrs.</td>
<td>A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication.</td>
</tr>
<tr>
<td>COM 210</td>
<td>Oral Interpretation I</td>
<td>3 hrs.</td>
<td>Emphasis is placed on developing the student’s appreciation of literature and his/her skill in analysis and oral reading of representative works in prose and poetry.</td>
</tr>
<tr>
<td>COM 211</td>
<td>Oral Interpretation II</td>
<td>3 hrs.</td>
<td>A continuation of COM 210. COM 211 introduces the individual reading of dramatic scenes and the basic theory of readers theatre. Class activities include group reading of prose, poetry and drama. Prerequisite: COM 210.</td>
</tr>
<tr>
<td>COM 222</td>
<td>Discussion</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 240</td>
<td>Broadcast Communication</td>
<td>3 hrs.</td>
<td>A survey of the nature and structure of contemporary broadcasting in the United States as a mass communication process involving a publicly owned but privately operated medium.</td>
</tr>
<tr>
<td>COM 241</td>
<td>Film Communication</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 256</td>
<td>Broadcast Operations</td>
<td>3 hrs.</td>
<td>Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio/television production, storage and distribution.</td>
</tr>
<tr>
<td>COM 257</td>
<td>Radio Programming and Production</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 305</td>
<td>Special Topics in Communication</td>
<td>1-4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 307</td>
<td>Intrapersonal Communication</td>
<td>3 hrs.</td>
<td>The examination of intrapersonal communication models showing how imagery and symbolism organize patterns of thinking that permit self-direction and regulation.</td>
</tr>
<tr>
<td>COM 311</td>
<td>Readers Theatre</td>
<td>3 hrs.</td>
<td>Selecting and arranging materials for readers theatre, directing and participating in performances. Prerequisite: COM 210 or consent.</td>
</tr>
<tr>
<td>COM 331</td>
<td>Persuasive Speaking</td>
<td>3 hrs.</td>
<td>The study and application of logical, emotional and ethical principles of persuasion.</td>
</tr>
<tr>
<td>COM 334</td>
<td>Argumentation and Debate</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 335</td>
<td>Leadership</td>
<td>3 hrs.</td>
<td>A study of the characteristics and behaviors of leaders with emphasis on the development of leadership abilities in the individual for different group situations.</td>
</tr>
<tr>
<td>COM 342</td>
<td>The Film Industry</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 355</td>
<td>Small Format Video Production</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 356</td>
<td>Film Production</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 357</td>
<td>TV Studio Production</td>
<td>3 hrs.</td>
<td>Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. $15 lab fee. Prerequisite: COM 256.</td>
</tr>
<tr>
<td>COM 358</td>
<td>TV and Film Scripting</td>
<td>3 hrs.</td>
<td>The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary.</td>
</tr>
<tr>
<td>COM 359</td>
<td>Broadcast Journalism</td>
<td>3 hrs.</td>
<td>Radio and TV as news and information media. Studies and applies principles of news gathering and reporting, commentary, on-the-spot news coverage, features, and structure of the newscast.</td>
</tr>
<tr>
<td>COM 365</td>
<td>Oral Communication and the Early Elementary Child</td>
<td>4 hrs.</td>
<td>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.)</td>
</tr>
<tr>
<td>COM 366</td>
<td>Oral Communication and the Later Elementary Child</td>
<td>4 hrs.</td>
<td>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.)</td>
</tr>
<tr>
<td>COM 370</td>
<td>Interpersonal Communication II</td>
<td>3 hrs.</td>
<td>An analysis of relational communication with particular emphasis on the nature of transactional relationships. Prerequisite: COM 170 or consent of instructor.</td>
</tr>
<tr>
<td>COM 372</td>
<td>Introduction to General Semantics</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 373</td>
<td>Communication Skills and Career Planning</td>
<td>3 hrs.</td>
<td>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 those findings. The course makes use of real interviews and outside resource people as an integral part of the experience.</td>
</tr>
<tr>
<td>COM 398</td>
<td>Independent Study Communication</td>
<td>1-6 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 441</td>
<td>Documentary in Film and Television</td>
<td>3 hrs.</td>
<td>A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarists, movements, and films. $10 fee.</td>
</tr>
<tr>
<td>COM 457</td>
<td>Advanced TV Studio Production</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>COM 458</td>
<td>Television Performance</td>
<td>3 hrs.</td>
<td>Exercises in television performance, stressing the special problems of the video performer. $10 lab fee. Prerequisite: Consent of instructor.</td>
</tr>
</tbody>
</table>
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.

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 of Communication.

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 a 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

Analysis in depth of continuing issues in mass communication. Topics vary from semester to semester and 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, and the role 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.

COM 543 Mass Communication and Social Change 3 hrs.
The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups and institutions. The fields of politics, advertising, and public relations are studied from the communication/ change viewpoint of the practitioner and the consumer.

The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation and message production are discussed in light of current events.

COM 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.

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. Prerequisite: COM 241 or COM 356.
COM 572 Non-Verbal 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 ethnocentrism, 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 perspective of ethical speech communication are studied and applied to a variety of private and public communication situations. The impact of honest versus deceptive communication on the individual and society is evaluated.

COM 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 582 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 583 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 interviewee.

COM 584 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 581 Introduction to Communication Research
3 hrs.
In this introductory course, students will acquire skills and knowledge of basic research design, data collection, data analysis, computer usage, and report writing needed for the completion of a research project.

COM 598 Independent Study
1-4 hrs.
A program for advanced students with an interest in pursuing independently a program of readings, research or projects in areas of special interest. To be arranged in consultation with a member of the staff and the Department Chair.

COMPUTER SCIENCE

Donald Nelson, Chair
Fred Boals
Donna Kaminski
Elise de Doncker Kapenga
John Kapenga
Mark Kerstetter
Dionysios Kountanis
Dalia Motzkin
Carolyn Oberlink
Ben Pirkowski
Naveed 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 adviser, Marianne Vakalis, by contacting the Computer Science Office located in 4045 Friedmann Hall (phone 387-5645). This should be done as soon as possible—certainly within the second semester of enrollment in computer science classes. Eligibility requirements for admittance into a major or minor program are available from the computer science adviser.

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.

Majors

Computer Science—Theory and Analysis in the Computer Science Curriculum

The Theory and Analysis program has been accredited by the Computing Sciences Accreditation Board, Inc. (CSAB). It provides a greater depth and breadth in computer science than the Arts and Sciences major (see below). The Theory and Analysis major includes additional emphasis in physics, science, and engineering, as well as the minor in
Computer Science in the Arts and Sciences Curriculum
This major is designed to provide the student with the fundamental concepts of computer science and a broad selection of electives in liberal arts and other fields. The major requires a minor in mathematics. Students selecting this major are encouraged to consider completion of a second minor in some other field of interest.

COMPUTER SCIENCE COURSES (34 hrs.)
CS 111 Computer Programming I 3
CS 112 Computer Programming II 3
CS 201 Programming in FORTRAN 2
CS 202 Programming in COBOL 2
CS 223 Computer Organization and Assembly Language 3
CS 224 Systems Programming Concepts 3
CS 331 Design and Analysis of Algorithms and Data Structures 3
CS 342 Analysis of File Systems and Structures 3
CS 485 Programming Languages 3
CS 554 Operating Systems 3

MINORS
General Option
COMPUTER SCIENCE COURSES
CS 111 Computer Programming I 3
CS 112 Computer Programming 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
CS 554 Operating Systems 3

Two approved non-language electives (see adviser) 6

REQUIRED MATHEMATICS COURSES (19 hrs.)
MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 145 Discrete Mathematical Structures 3
MATH 230 Elementary Linear Algebra 4
MATH 236 Statistical Methods 4

REQUIRED ELECTRICAL ENGINEERING COURSE (3 hrs.)
EE 250 Digital Logic I 3

Approved electives can be CS 495, 506, 518, 527, 543, 544, 555, 580, 581, 582, 595, MATH 440, 507, 574, PHIIL 520. Electives should be approved in advance by the student's adviser.

Secondary Teaching Major
The Secondary Teaching Major is designed for the student interested in the teaching of computer science in the secondary school.

COMPUTER SCIENCE COURSES (32 hrs.)
CS 105 Introduction to Computers 3
CS 111 Computer Programming I 3
CS 112 Computer Programming II 3
CS 201 Programming in FORTRAN 2
CS 202 Programming in COBOL 2
CS 223 Computer Organization and Assembly Language 3
CS 299 Professional Concerns for Computer Scientists I 1
CS 331 Design and Analysis of Algorithms and Data Structures 3
CS 443 Database Management Structures 3
CS 502 Introduction to Microcomputer Concepts for Teachers 3
CS 503 Programming the Microcomputer for Teachers 3

Note: With approval of adviser, other 200-level language courses may be substituted for 201 and 202.

CS 302 Teaching of Computer Science does not carry credit toward the major but is a required course for those in secondary education.

REQUIRED MATHEMATICS COURSES (11 hrs.)
MATH 122 Calculus I 4
MATH 145 Discrete Mathematical Structures 3
MATH 230 Elementary Linear Algebra 4

MINORS
Sciences Option
COMPUTER SCIENCE COURSES
CS 111 Computer Programming I 3
CS 112 Computer Programming 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
CS 105 Introduction to Computers 3
CS 111 Computer Programming I 3
CS 112 Computer Programming II 3
CS 223 Computer Organization and Assembly Language 3
CS 502 Introduction to Microcomputer Concepts for Teachers 3
CS 503 Programming the Microcomputer for Teachers 3
MATH 122 Calculus I 4
MATH 230 Linear Algebra 4

Students majoring in mathematics may not count mathematics courses for both computer science and mathematics.

Computer Science Courses (CS)
(Courses described in italics are approved for General Education.)
CS 105 Introduction to Computers 3 hrs.
The BASIC programming language is used to acquaint students with the computer facility and with the abilities of computers. The course consists of one hour of lecture and two hours in recitation sections each week. Computer terminology and capabilities are explored. Student-written computer programs are executed and related to a variety of computer applications. Illustrations of programming techniques and the significance of computers in contemporary society will be given. A student may not receive credit for both BIS 102 and CS 105. A student may not receive credit for CS 105 after the completion of any CS course except CS 306.
CS 106 BASIC for Engineers 1 hr.
The 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 coursework. Prerequisite: 1½ years of high school algebra or MATH 111.
CS 110 Introduction to Computer Programming Using BASIC 3 hrs.
The course is designed for those with little previous programming experience beyond computer literacy. The emphasis is on non-numerical problem solving. Students learn about system commands necessary to create and execute computer programs written in a high-level
programming language and are introduced to problem solving, program design, coding, and debugging using the BASIC programming language. Programming assignments are given to build technical skill. These general language concepts will be discussed: program syntax, declaration and basic data types, constants and variables, arrays, executable instructions, statements and expressions, statement types (i.e., assignments, decision, looping, subprogram definition and use, functions with parameters). This course cannot be used for a major or minor in computer science nor can it be taken for any credit after completing CS 111 or a higher level course. Prerequisite: Computer Literacy.

CS 111 Computer Programming I
3 hrs.
A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithms to solve problems in a structured computer language. Applications will involve the use of the Pascal language to solve numerical and non-numerical problems with a microcomputer. Prerequisite: CS 105 or BIS 102. (This prerequisite will be waived for students with a year of high school computer programming or a college level programming course.) Corequisite: MATH 122 or 200.

CS 112 Computer Programming II
3 hrs.
This course is a continuation of Computer Programming 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 and 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 title of the course. Students obtain practical experience by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught. Course can be repeated for credit in a different language. Prerequisite: CS 110 or CS 111 and 19 hours 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 address decoding, internal machine representation of numbers, characters, and programs; program control; arithmetic and logical operations; input-output; subroutines and macros; system control programs in timesharing and batch environments. An introduction to assembly languages will be given. Prerequisite: CS 111.

CS 224 Systems Programming Concepts
3 hrs.
This course introduces concepts and examples of systems software: assemblers, linkers, loaders, macroprocessors, compilers, and language run time systems. An introduction to operating systems concepts including device drivers, time-sliced and interrupt driven processes, interprocess communication, real-time control, and device drivers, and data and instruction space will also be provided. A discussion of the structure of a single user operating system will take place. Prerequisite: CS 112 and CS 223.

CS 298 Professional Concerns for Computer Scientists I
1 hr.
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 TRANslator). 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 309 Introductory Programming: ALGOL
2 hrs.
An introduction to computer programming using the ALGOL language (ALGOrithmic Language). Prerequisite: A programming course.

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 implemented. Algorithms to manipulate structures will be studied and analyzed. Memory management systems as well as techniques for searching and sorting will be discussed. The ideas of a data base will be introduced. Prerequisite: CS 112 and 223.

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 management systems, characteristics of storage media, algorithms to process direct access devices, inverted lists, multilists, indexed sequential and hierarchical structures. Prerequisites: CS 331.

CS 443 Data Base Management Systems (DBMS)
3 hrs.
This course presents the fundamental concepts and practices of data base management systems. The data base environment and administration are defined along with the roles of the data base administrator and the data dictionary. Conceptual and logical models are discussed. The three approaches—relational, hierarchical, and network—are briefly described. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be 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). Prerequisites: CS 202 or BIS 362. A student may not receive credit for both CS 443 and CS 543.

CS 485 Programming Languages
3 hrs.
Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. 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 310.

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 adviser. Prerequisite: Approval of Department.

CS 499 Professional Concerns for Computer Scientists II
1 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 is to provide awareness of professional issues such as ethics and current events. Oral and written communication will be stressed. Students are required to become involved with the profession outside of class. Prerequisite: Senior status.

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 are explored as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors and minors (except teaching). Prerequisite: MATH 150 or equivalent.

CS 503 Programming the Microcomputer for Teachers 3 hrs.
A course in programming 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 504 Advanced Microcomputer Concepts for Teachers 3 hrs.
A course which will provide teachers with an understanding of how microcomputer software is developed to fit the hardware. A review of number systems and an introduction to machine and assembly languages is given. Programs will be written in these low level languages. An introduction to several data structures is provided. Concepts in graphics and file handling will be extended. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 503.

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 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 Mathematics and Statistics.

CS 518 Introduction to Computer Modeling and Simulation 3 hrs.
This course provides an overview of both modal 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 is discussed. Several small programs and a simulation project will be assigned the student.

Prerequisite: CS 331 and a course in probability or statistics.

A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 230 and CS 331.

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, composed design, HDI, 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, deadlocks, 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 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 310.

CS 581 Compiler Design and Implementation 3 hrs.
Students are introduced to major aspects of compiler design. These include lexical analysis, parsing, and translation. Each student will implement a small compiler using modern compiler writing tools. Prerequisite: CS 485 or CS 580.

CS 582 Introduction to Artificial Intelligence Techniques 3 hrs.
Provides an overview of artificial intelligence and its major issues and application areas. Covers basic techniques and concepts used in A.I. applications, e.g., searching techniques, pruning, heuristics, production systems, predicate calculus, resolution, and planning. Generating systems. Prerequisite: CS 331.

CS 595 Advanced Topics in Computer and Information Science 1-3 hrs.
The content of this course varies. It is intended to introduce the student to advanced topics which are normally offered as separate courses. The course may be taken more than once with approval of the student’s adviser. Prerequisite: Approval of Department.

CS 599 Independent Study in Computer Science 1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Written approval of instructor.

CRIMINAL JUSTICE PROGRAM
See Sociology Department in the College of Arts and Sciences
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 major in economics consists of a minimum of 15 hours in the department. A major in economics consists of a minimum of 30 hours of work in the department. The following are required courses for majors:

- Principles of Economics (201, 202), Income Analysis and Policy (306), Price Theory (303), and Statistics (502). In addition majors should choose the remainder of their courses in consultation with the undergraduate adviser, 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, and ECON 509. The undergraduate adviser 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 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 Program" section of this catalog for a description of the minor requirements.

Courses By Topic

**PRINCIPLES AND GENERAL THEORY**

100 Contemporary Economic Problems
201 Principles of Economics
202 Principles of Economics
303 The Theory
306 Income Analysis and Policy
400 Managerial Economics

501 Studies in Economic Problems: Variable Topics
502 Economic Statistics
504 Introduction to Mathematical Economics
505 History of Economic Thought
509 Econometrics

**LABOR AND RESOURCE ECONOMICS**

313 Poverty and Economic Security
318 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—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, this course is designed to familiarize the student with the basic economic problems that exist in the field of health care. It introduces to the student some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the organization and delivery of medical care services is discussed. Prerequisites: ECON 201 and 202, or permission of instructor.

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

**ECON 400 Managerial Economics**
3 hrs. Fall, Winter, Spring, Summer
An introductory examination of the application of tools of economic analysis to management problems and decision making. The basic concepts include marginalism and cost analysis, demand pricing, capital budgeting, and selected optimality models. Prerequisites: ECON 201 and 202, MATH 116, and MGMT 200, or equivalent.

**ECON 404 The Structure and Performance of Industry**
3 hrs. Fall, Winter
This course deals with the ways in which the organization of sellers affects the performance of industrial markets and thus the nation’s economic welfare. The role of government in maintaining competition in American industry is examined. Each student is required to study a particular industry to determine its current structure, conduct and performance. Prerequisite: ECON 201.

**ECON 410 Labor Problems**
3 hrs. Fall, Winter
An examination 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, Summer
An analysis of the role of money and its impact on the economy—on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and 202.

**ECON 506 Income Analysis and Policy**
3 hrs. Fall, Winter, Spring, Summer
An examination of macroeconomic theory with particular emphasis on business cycles, economic growth, and price level instability. The interplay between the public and policy is analyzed. Prerequisites: ECON 201 and 202.

**ECON 313 Poverty and Economic Security**
3 hrs. Fall or Winter
The course relates such risks as old age and disability to the general problem of income, distribution and poverty in the United States. The welfare and social security systems are compared to proposed alternatives such as a negative income tax or guaranteed income.

**ECON 318 The Economics of Medical Care**
3 hrs. Fall or Winter
This course is designed to familiarize the student with the basic economic problems that exist in the field of health care. It introduces to the student some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the organization and delivery of medical care services is discussed. Prerequisites: ECON 201 and 202, or permission of instructor.
ECON 424 Federal Government Finance
3 hrs. Fall, Winter
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
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
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 or Winter
The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as a basis of comparison to the 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 selected topics of interest to students in Continuing Education courses and workshops. Topics will vary and course 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
4 hrs., Fall, Winter
An introduction to statistical methods used in the analysis of economic data. Topics include descriptive statistics, probability theory, regression analysis, and hypothesis testing (including parametric and nonparametric methods). Prerequisites: ECON 201 and 202; MATH 118 or consent of instructor.

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
The 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.

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 502 or equivalent.

ECON 512 Collective Bargaining
3 hrs. Fall or Winter
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 518 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 taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisites: ECON 201 and 202.

ECON 586 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.
Majors and Minors

1. The requirements for the English majors (listed below) are flexible enough to allow students to follow individualized courses of study. As soon as students decide to major in English they should confer with one of the English advisers, who can help plan the major. All major programs must be approved by an English adviser. Students should see the adviser early enough to leave at least 12 credits to complete after declaring the major. Minor slips are required for all minors. Students minoring in English should see the adviser as soon as possible after they begin work on the minor.

2. A minimum of 30 hours is required for a major in English, and 20 hours are required for a minor. Students are urged, however, to take as many additional hours as they can. In particular, students planning to teach or attend graduate school should consider taking additional work in preparation.

3. No more than four hours of "D" or "D-" credit may be applied to an English major or minor.

4. Foreign Language Requirement: English majors must have at least one college year of a foreign language or its equivalent (at least two years of the same language in high school). The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. should consider taking additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to do graduate work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to do graduate work in the language as students can manage.

5. Special Note to Transfer Students. All transfer students majoring or minoring in English should consult with one of the department’s undergraduate advisers (387-2575) about transferring credit in English courses from other colleges. An English adviser can help plan the major.

6. Plus electives to make 30 hours.

Majors

30 hours required

Arts and Sciences, Liberal Arts, Other Non-Teaching Curricula

110 Literary Interpretation: Entry to the program. Prerequisite to all required literature courses but does not count toward this major (may be counted in AREA I of the General Education Program)

1. Either 310 Literary History and Criticism or 340 Development of English Verse;

2. Two literature courses in addition to 110 and 282;

3. One 400 or 500 level course (other than 497, 597, or 589). This course may count as one of the literature courses required in No. 4.

4. Plus electives to make 30 hours.

No more than two of the following courses—282 Children’s Literature, 373 Reading as a Psycholinguistic Process, and 400 Teaching of Literature in the Secondary Schools—are required as part of the English major.

Middle School and Junior High School Education Curriculum

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 310 Literary History and Criticism or 340 Development of English Verse;

2. 282 Children’s Literature;

3. 369 Writing for Elementary Teachers;

4. Two literature courses in addition to 110 and 282;

5. 373 Reading as a Psycholinguistic Process;

6. Plus electives to make 30 hours.
English Major With Writing Emphasis

Major slips required. Transfer students who wish to enter these programs should see an adviser as soon as possible after admission.

English Major With Creative Writing Emphasis

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. 266 Writing Fiction and Poetry (prerequisite to all other writing courses);
2. 12 hours from the following courses: 366 Advanced Fiction Writing, 367 Advanced Poetry Writing, 368 Playwriting, 368 Creative Writing Workshop, (366, 367, and 368 may be taken concurrently. The prerequisite for 366 is 6 hours of creative writing courses);
3. 16 hours (four courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences English Major. See above;
4. Electives to make 30 hours.

CoGNATE OPTIONS

COMMUNITY JOURNALISM PROGRAM

COMMUNITY JOURNALISM PROGRAM Cognate Options
COM 359 Broadcast Journalism (3 cr. hr.)
COM 541 Mass Communications Law (3 cr. hr.)
COM 544 Mass Communication, News and Public Affairs (3 cr. hr.)
ED 550 Photography Workshop (3 cr. hr.)
GEOG 311 Geography of Michigan (3 cr. hr.)
GEHUM 316 Mass Media: Messages and Manipulation (4 cr. hr.; GE)
HIST 310 History of Michigan (3 cr. hr.)
PAPR 150 Graphic Arts (3 cr. hr.)
PSCI 202 State and Local Government (4 cr. hr.)

One English course to be selected in consultation with the department adviser.

English Major With Community Journalism Emphasis

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. 264 News Writing (prerequisite to other writing courses in this major);
2. 265 News Editing;
3. 363 Reporting;
4. 463 Reporting Community Affairs (prerequisite: 264 and 363);
5. 461 Form in Non-Fiction;
6. 12 hours (three courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences Major. See above;
7. Electives to make 30 hours.

The English Major with 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.

Minors

20 hours required

Arts and Sciences, Liberal Arts, Other Non-Teaching Curricula

Required: 110 Literary Interpretation; at least 8 hours of coursework in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

For English minors in non-teaching curricula, only one specific course (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 adviser (387-2575).

Secondary Education Curriculum

Required: 110 Literary Interpretation; either 371 Structures of Modern English or 372 Development of Modern English or 572 American Dialects or 574 Grammar for Teachers; an American literature course; at least 8 hours of course work in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

The course in the methods of teaching English (380) does not count toward the English minor, but it will strengthen a student's professional preparation.

The department strongly recommends that minors in secondary education see an English adviser before completion of the first twelve hours of the minor.

Elementary Education Curriculum

Required: 110 Literary Interpretation; 373 Reading as a Psychological Process; 369 Writing for Elementary Teachers; 282 Children's Literature, plus electives to complete the 20 hours.

No more than one of the following courses may be counted toward the 20 credits required in the minor: 282 Children's Literature, 283 Literature for Adolescents, 582 Studies in Children's Literature.

An alternative option for the 282, 369, 373 core listed above is the ILAM/ENGL 375-376 sequence plus one course selected from 282, 369, or 373. Both 375 and 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 adviser 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).

English Minor with Writing Emphasis

Students in the Arts and Sciences, Liberal Arts, or other non-teaching curricula may elect to take an English minor with writing emphasis. Required: twelve hours of advanced writing courses (to be selected, in consultation with an English adviser, from ENGL 264, 266, 364, 365, 366, 367, 368, 462, and 566), plus eight hours of coursework in English language and literature, also to be selected in consultation with an English department adviser. Minor slips are required for the writing emphasis minor.

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: 110 Literary Interpretation; 380 English for Business and Industry; 381 Advanced Writing (recommended as capstone), plus one other course in the minor, but it will strengthen a student's professional preparation. The department strongly recommends that minors in secondary education see an English adviser before completion of the first twelve hours of the minor.

The English Minor with Writing Emphasis

Students in the Arts and Sciences, Liberal Arts, or other non-teaching curricula may elect to take an English minor with writing emphasis. Required: twelve hours of advanced writing courses (to be selected, in consultation with an English adviser, from ENGL 264, 266, 364, 365, 366, 367, 368, 462, and 566), plus eight hours of coursework in English language and literature, also to be selected in consultation with an English department adviser. Minor slips are required for the writing emphasis minor.

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: 110 Literary Interpretation; 380 English for Business and Industry; 381 Advanced Writing (recommended as capstone), plus one other course in the minor, but it will strengthen a student's professional preparation. The department strongly recommends that minors in secondary education see an English adviser before completion of the first twelve hours of the minor.

The English Minor with Writing Emphasis

Students in the Arts and Sciences, Liberal Arts, or other non-teaching curricula may elect to take an English minor with writing emphasis. Required: twelve hours of advanced writing courses (to be selected, in consultation with an English adviser, from ENGL 264, 266, 364, 365, 366, 367, 368, 462, and 566), plus eight hours of coursework in English language and literature, also to be selected in consultation with an English department adviser. Minor slips are required for the writing emphasis minor.
Journalism Minor
This minor, which can include key courses outside this department, is useful preparation not only for prospective reporters and editors but also for people who plan careers in broadcasting and the media, advertising, marketing, public relations, business, industry, and government. Courses within the program may also be good choices for anyone who wants to understand a vital subject: the ways we communicate in our society.

The minor allows great flexibility in course selection so that students can combine the journalistic skills and insights of their minor with any of a wide variety of major programs—political science, engineering, economics, business, and history, for example. Some of the courses listed in Groups I, II, and III below have prerequisites. See course listings.

Minor slips are required: see an English adviser (387-2575).

BASIC REQUIREMENTS
1. 264 News Writing
2. 265 News Editing
3. 363 Reporting
4. Electives to complete the 20 hours, selected in consultation with the adviser, from at least two of the following three groups:
   GROUP I: SPECIALIZED COURSES IN JOURNALISTIC WRITING
   ENGL 364 Feature and Article Writing
   ENGL 365 Reviewing for the Press
   ENGL 463 Reporting Community Affairs
   COM 359 Broadcast Journalism

   GROUP II: RELATED COURSES IN WRITING
   ENGL 266 Writing Fiction and Poetry
   ENGL 305 Practical Writing (any option)
   ENGL 464 Advanced Writing
   ENGL 464 Professional Writing
   COM 358 TV and Film Scripting

   GROUP III: RELATED COURSES IN MEDIA AND COMMUNICATIONS
   COM 240 Broadcast Communication
   COM 540 Studies in Mass Communication (where topic is applicable and with permission of adviser)
   GHUM 316 Mass Media: Messages and Manipulation

World Literature Minor
The Department of English and the Department of Languages and Linguistics offer jointly a world literature minor (20) hours. For description and requirements see the "Interdisciplinary Programs" listing in the College of Arts and Sciences section of this catalog; or consult Dr. Combs, 721 Sprau (387-2903).

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 catalog 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 experiences 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.

ENGL 107 Good Books
4 hrs.
An exploration of good literature, selected from all times and countries experienced in a variety of ways—as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures.

A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

ENGL 110 Literary Interpretation
4 hrs.
An introduction to the study of literature, aimed at developing sensitivity and skill in the critical interpretation of poetry, drama, and prose fiction. Designed for entry to any English major program; does not count toward the 30 hours required in a major but may be counted in AREA I of the General Education Program.

ENGL 111 Contemporary Topics in Literature
4 hrs.
Exploration of fiction, poetry, drama, and film related to current concerns. Topics are: A. Myths and Folk Literature; B. Man, Woman and Marriage in Literature.

An exploratory course for the general student rather than the student who plans to specialize in the study of literature. Credit toward English major or minor by permission of the department only.

ENGL 112 Literary Classics
4 hrs.
Readings in selected literary masterpieces from Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors; does not, however, count for English major or minor.

ENGL 150 Literature and Other Arts
4 hrs.
Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representation in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting.

ENGL 210 Film Interpretation
4 hrs.
Studies in the motion picture as art form.

ENGL 222 American Literature and Culture
4 hrs.
A study of some of the recurrent themes in American life as seen in American literature.

ENGL 223 Black American Literature
4 hrs.
A survey of important black American writers and the historical development of the black image and experience in American literature and culture.

ENGL 252 Shakespeare
4 hrs.
A survey of Shakespeare's art through study of selected tragedies, historiest, and comedies.

ENGL 264 News Writing
4 hrs.
Introduction to journalistic principles with an emphasis on writing news stories and learning news style. Students should be able to type.

ENGL 265 News Editing
4 hrs.
Instruction and extensive practical experience in copy editing, rewrite, typography, headline writing, handling wire copy and photographs, and layout. Prerequisite: ENGL 264 News Writing.

ENGL 266 Writing Fiction and Poetry
4 hrs.
Study and practice in writing of fiction and poetry, intended to develop the student's understanding of formal techniques and skill in the use of these techniques.

ENGL 282 Children's Literature
4 hrs.
An exploration of the human and literary values in the best of children's books. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children's literature—folktale and fantasy, fiction and nonfiction, myth and poetry.

If this course is counted toward the English major or minor, 282 Literature for Adolescents may not be counted, except by middle school and junior high school education English majors.

ENGL 283 Literature for Adolescents
4 hrs.
Critical analysis of those genres read by youth from twelve to sixteen: fiction (especially that of maturation, adventure, history, and fantasy), drama, poetry, myth and legend, biography, and other non-fiction. If this course is counted toward the English major or minor, 282 Children's literature may not be counted, except by middle school and junior high school education English majors.

ENGL 305 Practical Writing
4 hrs.
A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports; personal writing, and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). Topics vary and will be announced each year. May be repeated for credit, but may be counted only once toward fulfillment of General Education requirements, and counted only once for major/minor credit, except for the practical writing minor.

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 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 toward 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 materials. 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 the 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 301 Teaching and Learning—Secondary. Students in the elementary education curriculum must obtain permission from a department adviser 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.
A literary analysis of the form and development of modern drama from Ibsen to the present. Prerequisite: ENGL 301.

ENGL 452 Shakespeare Seminar* 4 hrs.
Intensive study of selected aspects of Shakespeare’s poetic and dramatic art. Prerequisite: ENGL 110 or 252.

ENGL 461 Form in Non-Fiction 4 hrs.
A literary analysis of the form and development of non-fiction. Prerequisite: ENGL 110.

ENGL 462 Advanced Writing 4 hrs.
Practice in writing articles, essays, biographical and critical prose, with emphasis on development of the student’s individual style and elimination of obstacles to clear and vital expression.

ENGL 463 Reporting Community Affairs 4 hrs.
Practice in the covering and reporting of the police, the courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: ENGL 264 and 363.

ENGL 464 Professional Writing 4 hrs.
Practice in developing the forms and techniques of writing, editing, and researching required in business, industry, and government. Students should take this course as their capstone experience in practical writing. Prerequisite: two writing courses.
ENGL 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 566 Creative Writing Workshop 4 hrs.
A workshop and conference course in the writing of poetry, fiction, or drama, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Prerequisite: Six hours of creative writing, graduate standing, or permission of the department.

ENGL 572 American Dialects 4 hrs.
A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life.

ENGL 574 Grammar for Teachers 4 hrs.
Focuses on that aspect of linguistics known as "grammar," the grammar that we know intuitively, the descriptive grammars devised by modern linguists, and the "traditional" grammar which prescribes the rules of usage and mechanics. Emphasizes practical applications of these varied concepts in secondary and elementary English classrooms.

ENGL 582 Studies in Children's Literature 4 hrs.
A study in depth of significant themes, movements, types in children's literature. Prerequisite: ENGL 282 or permission of the department. Only one of the three courses 282, 283, 582 may be counted toward the elementary education English minor, and only one of these three courses may be counted toward the middle school and junior high school education English major.

ENGL 587 Studies in English: Variable Topics 1-3 hrs.
Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

ENGL 598 Readings in English 1-4 hrs.
Individual reading project available to majors working for honors in English, or by permission of the instructor. Three courses may be counted toward the major except with the approval of the department chairperson. An internship for variable credit (ENGL 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, junior colleges, or universities which have been approved through the departmental major, minor, or by approval of the department chairperson. An honors program is available for students so recommended by members of the faculty of the Department of English.

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.

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

**FRENCH**
See "Languages and Linguistics" in the College of Arts and Sciences.

**GEOGRAPHY**

32 hours credit
105 Physical Geography 4 hrs.
205 Human Geography 3 hrs.
265 Map, Chart and Air Photo Reading 3 hrs.
303 Geographic Inquiry 4 hrs.
Two courses from Group I at 200 level or above
One course from Group II
One course from Group III

**Geography Major**

**Geography Minor**

20 hours credit
105 Physical Geography 4 hrs.
or
205 Human Geography 3 hrs. and
One of the following: GEOG 265, 303, 375, 566, or 582
Remaining courses to be selected with consent of adviser.
Geography Major Specialization

32 hours credit

The areas of specialization are urban and regional planning, economic geography, geographic information processing, physical geography and environmental management, and regional geography. A program of courses is provided for each of these areas. This major is focused upon courses designed to meet a student's particular needs. An internship (GEOG 412) is available for those who wish to gain practical experience. This can be done by either assisting faculty in research or by working in an approved off-campus agency. It is recommended that 6 additional hours of work from complementary disciplines be taken in support of the area of specialization.

105 Physical Geography ................. 4 hrs.
205 Human Geography ................. 3 hrs.
265 Map, Chart and Air Photo Reading ..................... 3 hrs.
303 Geographic Inquiry ................. 4 hrs.

Remaining courses must be selected with consent of advisor.

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 Adviser, 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.
406 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 and with the approval of the program adviser, 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).

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, 558, 580, and 582 are acceptable for science credit in appropriate science sequences.

Courses by topic

SYSTEMATIC GEOGRAPHY

100 World Ecological Problems and Man
102 World Geography Through Media and Maps
105 Physical Geography
204 National Park Landscapes
205 Human Geography
225 Introduction to Meteorology and Climatology
237 Environmental Earth Science
244 Geographic Patterns of Economic Activity
306 The Atmosphere Environment and Society
350 Principles of Conservation and Environmental Management
356 Introduction to City and Regional Planning
361 Population: The Crowding World
408 Geography of Travel and Tourism
521 Studies in Climatology and Meteorology
544 Studies in Economic Geography
545 Studies in Human Geography
553 Water Resources Management
554 Outdoor Recreation: Resources and Planning
555 Contemporary Issues in Resources Management
556 Studies in Urban and Regional Planning

557 Environmental Impact Assessment
570 Cities and Urban Systems

REGIONAL GEOGRAPHY

309 Studies in Regional Geography
311 Geography of Michigan
360 United States and Canada
381 South America
382 Mexico and the Caribbean
383 Western and Southern Europe
384 Soviet Peoples and Landscape: Continuity and Change
385 The Pacific Realm
386 Sub-Saharan Africa: Man, Environments, Resources
387 The Middle East and North Africa
389 Monsoon Asia

GEOPHIC METHODOLOGY AND RESEARCH

265 Map, Chart, and Air Photo Reading
303 Geographic Inquiry
310 Research and Regulation in Tourism
375 Principles of Cartography
412 Professional Practice
460 Concepts and Strategies in the Teaching of Geography
566 Field Geography
567 Computerized Geodata Handling and Mapping
568 Quantitative Methodology
580 Advanced Cartography
582 Remote Sensing of the Environment
597 Readings in Geography

Geography Courses (GEOG)

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

GEOG 100 World Ecological Problems and Man
4 hrs.

(Science credit) Geographers have long been concerned with studying the interactions between human beings and the environment. The major focus of these investigations today is concerned with misuse of the environment, which has led to the present day environmental crisis. The introductory course combines scientific and non-technical appraisals of processes and problems dealing with the question of environmental quality. Therefore, humanity will be studied in the physical as well as the social setting. Though major issues may vary for developing and developed nations, topics concerned with population pressure, pollution and urbanization will be among those considered.

GEOG 102 World Geography Through Media and Maps
3 hrs.

This course presents an introduction to the geography of the earth. This includes the earth as the home of human beings, 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 understanding of the character of distant places.

GEOG 105 Physical Geography
4 hrs.

(Science credit) A study of the physical environmental systems of our Earth. The course examines the seasonal and latitudinal distribution of solar energy; analyzes the many elements of weather, climate, vegetation, and soils; and finally considers the Earth's major
and outdoor observation are utilized as primary systems. Maps, photos, reading, laboratory, and outdoor observation are utilized as primary systems. Laboratory work is an integral part of this course.

GEOG 204 National Park Landscapes
3 hrs. (Science credit) Introduction to the physical and human landscapes of the national park system. Consideration of those natural and human processes which have produced the distinctive features of the national parks. Evolution of the national park concept, policies, and problems.

GEOG 205 Human Geography
3 hrs. An introduction to those aspects of geography concerned with the efforts of humans to cope with the environment. Included are population and settlement forms, the utilization of resources, the impact of technology on human occupancy of the earth, and the origin and dispersal of cultural elements among the various world realms.

GEOG 225 Introduction to Meteorology and Climatology
4 hrs. (Science credit) A non-mathematical analysis of atmospheric behavior. The fundamental physical laws affecting the elements of weather—solar radiation, temperature, moisture, pressure, and winds—are examined during the first half of the course. Weather systems and forecasting, atmospheric optics, climatic change, and regional climates are examined during the second half of the course. Laboratory meetings dealing with instrumentation and weather map analysis are an integral part of the course. Prerequisite: GEOG 105 or equivalent.

GEOG 237 Environmental Earth Science
4 hrs. 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 4½ 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.

GEOG 244 Geographic Patterns of Economic Activity
3 hrs. A survey of locational economic patterns and their interrelationships, including the study of spatial variation in economic development, primary production, energy generation, manufacturing, transportation, service occupations, and trade.

GEOG 265 Map, Chart and Air Photo Reading
3 hrs. (Science credit) Introductions to the fundamental principles that link maps and nature: scale, surface transformations of earth relief and round planet; selection, simplification, and symbolization of data; reference grids and orientation. Methods of map reading, analysis, and interpretation are practiced on maps of different kinds and scales. Air photos and other remotely sensed images and their application are also introduced.

GEOG 303 Geographic Inquiry
4 hrs. Students will be introduced to geography as a field of study, research and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection and analysis, and graphic and written representation. The emphasis throughout will be on the application of inquiry models to geographic problems. For Geography majors and minors only. Course meets University Baccalaureate Writing Requirement. Prerequisite: CS 105 or equivalent.

GEOG 306 Atmospheric Environment and Society
3 hrs. (Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history; human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics.

GEOG 309 Studies in Regional Geography
2-3 hrs. An investigation of topics in physical and human geography of selected areas within major world regions. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment.

GEOG 310 Research and Regulation in Tourism
4 hrs. This course introduces the research methods and data sources for the analysis of tourism and travel. The use of flow patterns and the predictive modeling of spatial interaction as well as geographic theories related to diffusion and effects of regulations on flow patterns will be investigated.

GEOG 311 Geography of Michigan
3 hrs. An introduction to the physical and cultural patterns in Michigan, with emphasis on an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems.

GEOG 350 Conservation and Environmental Management
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, Environments, Resources
3 hrs.
Survey of the principal physical and political patterns of Africa south of the Sahara; followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and power resource development, transportation routes, regional development programs.

GEOG 387 The Middle East and North Africa
3 hrs.
Study of the diversity and uniformity—both physical and cultural—of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim World on the current political scene.

GEOG 389 Monsoon Asia
3 hrs.
Systematic survey of the physical and human (so-socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.

GEOG 408 Geography of Travel and Tourism
4 hrs.
The student studies global environments and transportation systems to analyze tourist and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined.

GEOG 412 Professional Practice
2-4 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 advisers 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. 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.

GEOG 511 Studies in Climatology and Geophysics
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 Studies in Urban 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 permission of instructor. Course may be repeated for credit.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of 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 territory, politically-organized territories within the administrative hierarchy, and electoral geography.

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 558 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 559 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.
Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Repeatable for credit. Prerequisite: Consent of department adviser and instructor.

GEOLOGY
W. Thomas Straw, Chair
David Barnes
Ronald B. Chase
Gerry W. Clarkson
John D. Grace
William B. Harrison, III
Duane Hampton
Alan Keheu
Richard N. Passero
Christopher J. Schmidt

Geology Major
Minimum 35 Hours

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 335</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336</td>
<td>Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 430</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 433</td>
<td>Invertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 440</td>
<td>Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 532</td>
<td>Surfacial Processes and Groundwater Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 535</td>
<td>Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 560</td>
<td>Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

A minimum of a "C" is required in each of the required Geology courses, and a "C" average in all cognate courses.

Supporting required courses

CHEM 101 or 102; PHYS 110 and 111, or 210 and 211; BIOS 101 or as arranged by counselor; and MATH 122 and 123 and CS 105 Introduction to Computers. Some modification of these requirements may be made in consultation with the student’s departmental counselor. A summer field course in geology is strongly recommended for all geology majors and is indispensable for students planning professional careers. In addition, at least one year of foreign language is recommended.

Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other supporting required courses. Students not electing one of the above minors may elect the group science minor for geology majors (see below).

Suggested four-year program of study for geology majors including all required supporting courses.

FRESHMAN YEAR
Fall
GEOL 130
MATH 122
(Students with insufficient high school mathematics may have to take MATH 118 prior to 122.)
Winter
GEOL 131
MATH 123
BIOS 101

SOPHOMORE YEAR
GEOL 335
CHEM 101 or 102
GEOL 433
CHEM 120

JUNIOR YEAR
GEOL 336
GEOL 430
PHYS 210 or 110
GEOL 440
PHYS 211 or 111
CS 105

Summer Field Course in Geology

SENIOR YEAR
GEOL 535
GEOL 532
GEOL 560

Geology Minor
Minimum 18 Hours
The geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a geology minor for his/her specific need.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 335</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336</td>
<td>Optical Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 440</td>
<td>Petrology/Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 433</td>
<td>Invertebrate Paleontology</td>
<td>4</td>
</tr>
</tbody>
</table>

6 additional hours in geology

Course substitution from other geology offerings can be made with the consent of counselor (e.g., a geography major/minor in geology might elect Surficial Processes and Groundwater Geology, or Glacial Geology).

Geophysics Major
The Geology and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geology Department as early as possible for advising.

Total Major Hours: 44-49
Major Core: 35-38
Geology (GEOL)(17 hours)
GEOL 130 Physical Geology | 4 |
GEOL 131 Earth History and Evolution | 4 |
GEOL 301 Minerals and Rocks | 4 |
GEOL 430 Structural Geology | 3 |
GEOL 560 Introduction to Geophysics | 3 |

Physics (PHYS)(15-16 hours)
PHYS 210 Mechanics and Heat | 4 |
PHYS 211 Electricity and Light | 4 |
PHYS 212 Introductory Modern Physics | 4 |
PHYS 342 Electronics | 3 |
PHYS 344 Microprocessor Electronics | 3 |

One of the following (3-4 hours)
PHYS 330 Thermodynamics and Kinetic Theory | 3 |
PHYS 352 Optics | 4 |
PHYS 540 Electricity and Magnetism I | 3 |
Electives (9-12 hours)
Three electives from upper-level geology, physics, and engineering courses to be chosen with consent of adviser (9-12 hours).

**MATHEMATICS MINOR (Required) (MATH)**
(21 hours)
MATH 122 Calculus I .......................... 4
MATH 123 Calculus II .......................... 4
MATH 272 Vector and Multivariate Calculus .......................... 4
CS 306 Introduction to Programming .......................... 2
MATH 374 Linear Algebra and Differential Equations .......................... 4
MATH/ICS 506 Scientific Programming .......................... 3

Required Supporting Course: CHEM 101 or 102 (4 hours)
Total Required Hours: 69-75
Strongly Recommended: Field course in geology, 6-8 hours.

**Group Science Minor For Geology Majors**

**Minimum 24 Hours**
The group science minor is designed for students not electing a mathematics, chemistry, physics, or biology minor. Some modification of these requirements may be made in consultation with the student's departmental adviser. This minor is not acceptable for education majors and minors.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOLOGICAL SCIENCES (BIO) (4 hours)</td>
<td></td>
</tr>
<tr>
<td>101 Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>CHEMISTRY (CHEM) (8 hours)</td>
<td></td>
</tr>
<tr>
<td>101 OR 102 General Chemistry I</td>
<td></td>
</tr>
<tr>
<td>120 General Chemistry II</td>
<td></td>
</tr>
<tr>
<td>PHYSICS (PHYS) (8 hours)</td>
<td></td>
</tr>
<tr>
<td>111 General Physics I</td>
<td></td>
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<tr>
<td>111 General Physics II</td>
<td></td>
</tr>
<tr>
<td>or 210 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>211 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
</tbody>
</table>

At least 4 credit hours selected from the physical or biological sciences with approval of student's adviser.

**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.

**MAJOR (30 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104 Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 225 Introduction to Meteorology and Climatology</td>
<td>4</td>
</tr>
<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 300 Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 307 Teaching of Earth Science</td>
<td>2</td>
</tr>
<tr>
<td>GEOL 539 Field Studies in Geology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
</tbody>
</table>

**MINOR (20 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104 Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 225 Introduction to Meteorology and Climatology</td>
<td>4</td>
</tr>
<tr>
<td>Required Supporting Courses</td>
<td></td>
</tr>
<tr>
<td>MATH 122 Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 123 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>Students who have taken Physics 110 and 111 or their equivalent will be required to take Physics 214 (1 hr.) and Physics 215 (1 hr.)</td>
<td></td>
</tr>
<tr>
<td>CHEM 102 General Chemistry I</td>
<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>3</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 598 Readings Chemistry (Instrumental Analysis of Water)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 274 Introduction to Mathematical 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, and a "C" average in all cognate courses.

**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>
<th>Hrs.</th>
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</thead>
<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 265 Map, Chart and Air Photo Reading</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 301 Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 375 Principles of Cartography</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 512 Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 586 Field Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 589 Remote Sensing of the Earth</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 591 Field Hydrogeology</td>
<td>4</td>
</tr>
</tbody>
</table>

**Elect 1 of the following pairs of courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 557 Environmental Impact Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 544 Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>CRT 365 Introduction to Soils</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 536 Glacial Geology</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>GEOL 560 Introduction to Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 564 Field Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>PAPR 353 Water Quality and Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 353 Wastewater Treatment Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

**Required Supporting Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 110 Introduction to Computer Programming Using BASIC</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 110 General Physics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101 102 or 103 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 122 Calculus I or</td>
<td>3</td>
</tr>
<tr>
<td>MATH 200 Calculus with Applications</td>
<td>4</td>
</tr>
<tr>
<td>MATH 260 Elementary Statistics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 306 Introductory Programming</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 305 Practical Writing</td>
<td>4</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>ET 121 Automotive Chassis</td>
<td>3</td>
</tr>
<tr>
<td>ET 124 Automotive Engines</td>
<td>3</td>
</tr>
</tbody>
</table>
Science and Mathematics Teaching Minor

The Department of Geology participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Geology Courses (GEOL)
(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 107 Planetary Science in Elementary Education 4 hrs. Fall, Winter
An interdisciplinary study of the earth, atmosphere, solar system and universe, and their relationships and interactions. Taught by cooperating faculty from four departments, the course will provide a survey of geology, meteorology and climatology, and astronomy. Students will study each of the three topics for five weeks with different instructors. Classes will be limited to 30 students in order that instructors may use techniques which emphasize the relevancy of their disciplines in elementary education and its significance in the present and future lives of children. (No prerequisites) Not recommended for science majors.

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 non-laboratory geology.

GEOL 130 Physical Geology 4 hrs. Fall, Winter, Spring
A study of the common rocks and minerals and the geologic processes acting upon these materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period.

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 237 Environmental Earth Science 4 hrs.
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 taught by cooperating faculty from Geography and Geology. Prerequisite: GEOL 107.

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 specimen mineralogy and petrology; includes introduction to crystallography, physical and chemical properties of minerals, and rock description and genesis. Will not count toward a major in geology. Prerequisite: GEOL 100 or 130.

GEOL 307 Teaching of Earth Science 2 hrs.
Methods, educational philosophy, objectives, activities, professionalism and problems related to teaching earth science in the junior and senior high school. Designed for Earth Science majors and minors. One hour lecture and two hours of lab. Prerequisites: 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 determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 100 or 130 and General Chemistry or consent of 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 3 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. Prerequisites: 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 Petrography 3 hrs. Winter
Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 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 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 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 tenants of plate tectonics. 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, deltatic, strand plain, lagoon, shelf, and slope denitrogenous depositional systems. Laboratory includes textural analysis, sedimentary structures, paleocurrent analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems and basin analysis. Course includes a 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 geography.

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 adviser in the Department of Geology. Prerequisite: Eight hours of geology, earth science, or consent of department.

GEOL 544 Environmental Geology 3 hrs.

Polarization, spontaneous potential, resistivity, and geophysical methods for glacial geology and ground-water problems in the Kalamazoo area. Prerequisite: GEOL 560.

GEOL 545 Carbonate and Evaporite Depositional Systems 3 hrs.

Processes, characteristics, and relationships of modern and ancient platform and basin 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 hr. laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560, CS 306, MATH 123, and PHYS 540 (recommended).

GEOL 564 Field Geophysics 3 hrs.

Field studies demonstrating the use of seismic refraction, gravity, and electrical resistivity methods for glacial geology and ground-water problems in the Kalamazoo area. Prerequisite: GEOL 560.

GERMAN

See "Languages and Linguistics" in the College of Arts and Sciences.

HISTORY

Ronald W. Davis, Chair
George T. Beech
Ernest A. Breisch
Alan S. Brown
Richard T. Burke
Albert E. Castel
Shenwood S. Cordier
George M. Dennison
Ross Gregory
Robert J. Hathe
H. Nicholas Hamner
Graham P. Hawks
John T. Houdek
Paul L. Maier
John Norman
Dale P. Pattison
Peter Schmitt
Judith Stone
Gunnu Xiong

The Department of History offers several professional and preprofessional programs with varying requirements. In addition to these programs, it provides a broad range of courses in the university general education program, as well as courses serving other specialized curricula. The department seeks to develop in all students a sense of historical awareness and a systematic approach to the vast human experience which no longer may be observed firsthand.

History majors should consult with the undergraduate adviser early and regularly in their undergraduate careers. Curriculum, major and minor program slips are required for graduation audits. HIST 201 (Historians in the Modern World) is an orientation course to the historical professions and should be taken as early as possible after declaring a major.

Transfer students must complete at least 18 hours of course work at Western Michigan applicable to a major, or at least 12 hours applicable toward a minor. Correspondence courses, or other types of self-instructional courses transferred from other institutions, may not be used to fulfill major or minor requirements. Students who earn advanced placement credit in history strengthen their majors or minors by substituting more advanced courses in lieu of those for which credit already has been earned. Only courses in which a grade of "C" or better is earned may be applied toward history major or minor requirements.

Each year the department faculty designates a small number of majors as honors graduates. To be eligible for consideration you must possess a minimum grade point average of 3.5 in history and overall. Membership in the Honors College is not required to be considered for honors in history.

Majors

Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall (387-4650)

History Major

PUBLIC HISTORY CURRICULUM (PUH)

This program is designed to prepare students for a wide variety of entry-level positions in fields of public history such as museum and archival administration, preservation and restoration work, interpretation, consulting, and applied research, in both private and public sectors.
Major Requirements:
1. Basic Courses: 100, 101, 201, 210, 211 .. 15
2. Advanced courses: at least 15 hours in courses numbered 300 through 563, including at least 9 hours in courses numbered 520 through 527 and at least one course in European history.
3. Theory and practice: 505, 511 .. 6
4. At least 36 hours of course work in history.

History majors in the public history curriculum must take an approved minor along with the above major. One option is to complete a minor in public history (see minor requirements below). A second option is to complete only the required courses in the public history major and take a minor in one of the following fields: anthropology, art history, communication, earth science, general industrial education, geography, interior design, or public administration. The public history curriculum requires certain emphases in some of these minors, and courses therein must be approved by the undergraduate adviser in the Department of History. (In special cases other minors may be permitted with prior approval.) Each student in the curriculum also must complete 6-9 hours of credit in an approved internship experience (HIST 599).

History Major
SECONDARY EDUCATION CURRICULUM (SED)
The secondary teacher preparation program conforms to the Guidelines for the Certification of Teachers of History established by the American Historical Association.

Major requirements:
1. Basic courses: 100, 101, 201, 210, 211 .. 15
2. Theory and practice: 390 or 591 .. 2-3
3. Advanced courses: at least 18 hours of additional course work numbered 300 through 591, including at least 9 hours numbered 520 through 563, distributed as follows:
   - North America (310-317, 375, 520-527) .. 6
   - Non-Western (370-372, 381-389) .. 3
   - Pre-Modern (349-354, 549-554) .. 3
   - Europe (361-369, 556-563) .. 3
   - Elective (any field) .. 3
4. At least 35 hours of course work in history.

To be approved for directed teaching, students must complete at least 6 hours of course work numbered 520-563 with grades of "B" or better.

In addition to the history major, students may also complete the following:
1. A group social science minor of at least 28 hours including:
   - ANTH 120 or 220 or 240 .. 3
   - ECON 201, 202 .. 6
   - GEOG 102 or 105 or 205 .. 3-4
   - PSCI 200 .. 3
   - one course on American Indian cultures or prehistory: ANTH 300, 322, 500, 501 .. 3
   - approved electives from above departments at 300-level or above .. 6-7
2. One approved literature course in the Department of English at the 200-level or above.
3. One approved course in philosophy or religion, or in the history of political, economic, or ethnic/gender theory, at the 200-level or above.

History Major
LIBERAL ARTS CURRICULUM (LA)
The history major and associated course work in the liberal arts curriculum is designed to prepare students for graduate studies leading to careers in higher education and research.

Major requirements:
1. HIST 201 .. 1
2. Two courses in theory and practice, one of which must be 309 or 591 .. 5-6
3. Advanced courses: 21 hours of course work at the 300 level and above, including at least 12 hours numbered 520 through 563.
4. HIST 470 Senior Thesis .. 3
5. At least 30 hours of course work included in the major.

In addition to the major, students in the liberal arts curriculum pursue a course of study providing a knowledge base in the social sciences and humanities, as well as foreign languages and research skills appropriate to graduate work. The general requirements for the liberal arts curriculum may be found elsewhere in this catalog in the section describing the programs of the College of Arts and Sciences. Specific cognate sequences for the curriculum are included in the department's undergraduate handbook.

History Major
ARTS AND SCIENCES (ASC) and OTHER CURRICULA

Major requirements:
1. Basic courses: 100, 101, 201, 210, 211 .. 15
2. Advanced courses: at least 15 hours in course work numbered 300 through 563, including at least 9 hours numbered 500 through 563. At least one course each from any three of the following areas:
   - North America (310-317, 375, 520-527)
   - Europe (349-354, 549-563)
   - Non-Western (370-372, 381-389)
   - General (301-325, 420)
3. Theory and practice: two courses, chosen from:
   - 390, 470, 505, 511 .. 5-6
   - At least 34 hours of course work in history.

Minors
Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall (383-1731)

Public History Minor
PUBLIC HISTORY CURRICULUM (PHU)

1. HIST 315, 512, 513 .. 9
2. ANTH 210, 250 .. 7
3. Electives approved by advisor .. 12
4. Minor must include at least 28 hours of course work, with all grades "C" or better.

Public History Minor
OTHER CURRICULA

1. HIST 201, 315, 512, 513; ANTH 210 .. 13
2. HIST 505 or 511 .. 3
3. One course in United States history (520-527) .. 3
4. Electives approved by advisor .. 9
5. Minor must include at least 28 hours of course work, with all grades "C" or better.

History Minor
SECONDARY EDUCATION CURRICULUM (SED)

1. Basic courses: 100, 101, 201, 210, 211 .. 14
2. Advanced courses: at least 9 hours in courses numbered 300 through 591, including at least 3 hours numbered 500 through 591. One course each in at least two of the following areas:
   - North American (310-317, 375, 520-527)
   - Europe (349-354, 549-563)
   - Non-Western (370-372, 381-389)
   - General (301-325, 420)
3. At least 23 hours of course work in history.
4. To be approved for directed teaching, students must complete at least 6 hours of course work at the 300-level or above with grades of "B" or better, including at least 3 hours numbered 505 through 591.

History Minor
ARTS AND SCIENCES (ASC) and OTHER CURRICULA

1. Basic courses: 100, 101, 201, 210, 211 .. 14
2. Advanced courses: at least 9 hours in courses numbered 300 through 591, including at least 3 hours numbered 500 through 591. One course each in at least two of the following areas:
   - North American (310-317, 375, 520-527)
   - Europe (349-354, 549-563)
   - Non-Western (370-372, 381-389)
   - General (301-325, 420)
3. At least 23 hours of course work in history.
4. To be approved for directed teaching, students must complete at least 6 hours of course work at the 300-level or above with grades of "B" or better, including at least 3 hours numbered 505 through 591.

Courses By Topic

BASIC COURSES
100 The Early Western World
101 The Modern Western World
102 History Through Literature
103 History and Current events
106 Historical Writing
201 Historians in the Modern World
204 Business History
210 United States to 1877
211 United States Since 1877
275 Introduction to Canadian Studies
298 Directed Reading in History

NORTH AMERICA
310 History of Michigan
313 History of United States Foreign Relations
314 Black American History
315 Popular Art and Architecture in America
317 The History of the United States Constitution
375 Canadian History
520 Colonial America
## History Courses (HIST)

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

### HIST 100 The Early Western World

4 hrs.

Throughout the centuries western man has constantly adjusted his life style in response to the challenge of his times. In the process he has created many government forms, social structures, interpretations of man, ideological systems, and modes of artistic expression. The course examines these creations and shows how the historian analyzes the patterns of persistence and change which they reflect. Periods covered: Ancient Greece, Ancient Rome, Middle Ages, Renaissance, Reformation.

### HIST 101 The Modern Western World

4 hrs.

Throughout the centuries western man has constantly adjusted his life style in response to the challenge of his times. In the process he has created many government forms, social structures, interpretations of man, ideological systems, and modes of artistic expression. The course examines these creations and shows how the historian analyzes the patterns of persistence and change which they reflect. Periods covered: 1648 to the present.

### HIST 102 History Through Literature

3 hrs.

The written works of any age reveal the moods, tensions, interests, outlook, tastes, and problems of that period. This course shows specifically how the effects of wars, revolutions, depressions, machines, and social conditions are reflected in novels and other writings. How people have reacted to their problems in the past will suggest how we may deal with those of the present.

### HIST 103 History and Current events

3 hrs.

The mass media supply modern man with such a wealth of information on current social, political, and economic developments that confusion often results. Nevertheless the citizen of a democratic state is expected to make well-considered choices. This course will show how history can contribute to a clearer and deeper understanding of great contemporary problems such as the relationship between the West and the Third World, the balance of power between the U.S., the U.S.S.R., and China, the stabilization of Europe, and the new ecological situation.

### HIST 106 Historical Writing

3 hrs.

This course teaches writing in the context of studying historical material. Although it considers in a general manner some of the problems historians face in writing about the past, its primary purpose is to teach good writing. Hence, all work and all discussion are directed to the preparation, execution, and analysis of writing assignments. Fulfills the University Intellectual Skills college-level writing course requirement.

### HIST 201 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.

This course will focus on business and business leaders as an integral part of society. Extensive use will be made of the case study method and business biography to explore questions of production, distribution, finance, management, and industrial and public relations in a variety of historical settings. The case study topics will cover the whole range of Western history with a special emphasis on the American experience, one which cannot be properly understood without taking business and its development into account.

### HIST 210 United States to 1877

3 hrs.

This is an introductory course, but not the traditional, narrative survey. Emphasis is placed upon basic influences--political, economic, and social influences that have shaped American life. Selected themes that reveal continuities in the American experience are used to demonstrate the American heritage.

### HIST 211 United States Since 1877

3 hrs.

The story of how modern America was shaped with an emphasis upon the emergence of the United States as a world power and the consequences of this development. The focus is upon selected themes such as urbanization, industrialization, and reform that reveal continuities in the American experience. Particular attention is given to various attempts to interpret twentieth century American development.

### HIST 275 Introduction to Canadian Studies

3 hrs.

An interdisciplinary survey of contemporary Canada taught by a faculty team from various departments of the University.

### HIST 298 Directed Reading in History

1-3 hrs.

Designed for students with special interests. Registration requires a minimum 2.8 GPA, sophomore standing, approval of the supervising faculty member and the Department Chair. May be repeated to a maximum of 3 semester hours.

### HIST 300 Issues in History

1-3 hrs.

Selected topics in historical studies. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

### HIST 301 Law and Justice in Western History

3 hrs.

The theorist who devises the ritual of the law, the advocate who argues it, and the judge who pronounces it; the philosopher who examines ethical principle and the moral who expresses it; the investigator of crime, the criminal, and the punisher; the ordinary person who is sustained, ennobled, abandoned or oppressed by the moral customs of his fellows. All are familiar figures in any organized society, and their activities and the manner in which they interact help establish the tone and quality of life that society. The course observes and analyzes these activities on a comparative basis over the centuries of Western history.

### HIST 302 History of Medicine and Medical Care

3 hrs.

A study of the development of medicine throughout history. Medicine will be covered as (1) a science, (2) a healing agency, and (3) a social institution. Topics under (1) will include Near Eastern medicine, Hippocratic medicine, medical science at Alexandria, Galen and Greek medicine at Rome, the transmission of Greek medicine through the Arab and Byzantine cultures, medical theory and practice in the Middle Ages, the Renaissance recovery of ancient Greek medical writing, emergence of modern medical concepts, specifically the emergence of the cell theory and cellular pathology, the germ theory of disease, the rise of bacteriology and immunology. (2) will deal with the development of methods of diagnosis, of treatment, and of hospitals, and the evolution of the nursing profession. (3) will show the changing role of medical experts in different cultures, the types of medical education in the past, the development of medical social work as well as of organization and social role of medical research.

### HIST 303 Women in the Western World

3 hrs.

This course is designed to explore the condition of women in various periods of European and American history from ancient Greece to America of the 80's. Attention will be given to women's roles and status in each period in order to come to some conclusions about women's contributions to Western history and culture.

### HIST 310 History of Michigan

3 hrs.

The development of Michigan from a primitive wilderness to an industrial state, with emphasis
HISTORY 111

on the relation of the history of the state to that of the nation.

HIST 313 History of United States Foreign Relations 3 hrs.
While this course traces the full scope of American foreign relations, from the American Revolution to the present, it emphasizes diplomacy of the twentieth century. The course gives attention to major diplomatic problems, but it also considers such themes as the effect of personality and politics on foreign policy, and the various "schools" of diplomatic thought.

HIST 314 Black American History 3 hrs.
A survey of the Black American experience from African origins to the contemporary American scene. Although the changing cultural and historical framework will be ignored, attention will center on what Black Americans did, said, and thought. Individual reading assignments on the lives of outstanding figures from Phillis Wheatley to Eldridge Cleaver will be utilized.

HIST 315 Popular Art and Architecture in America 3 hrs.
Introduction to popular themes in American history as shown in paintings, buildings, cartoons, and commercial art. While issues will vary, the topics will include the Middle Americans, the Environment, the Frontier, the City, and industrialization. Extensive use will be made of local illustrations which could be adapted to elementary and secondary teaching.

HIST 317 The History of the United States Constitution 3 hrs.
A study of the nature of the United States Constitution, of constitutional issues in American history, and of the role of the Supreme Court and its major decisions.

HIST 321 Topics in the History of War 3 hrs.
Selected topics in the history of modern war such as America and war, military technology, impact of war on society, etc. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 325 Jewish History 3 hrs.
The tale of the Jews in the Moslem and Christian worlds; the French Revolution and the emancipation of Western European Jewry; the history of Russian, Polish, and Rumanian Jewry; rise of Zionism and the beginnings of Jewish colonization in Palestine; post-World War I: Europe and the fragmentation of European Jewry; spread of Fascism and Nazism; World War II, the Holocaust; the emergence of Israel and her struggle for survival in the Arab world; World Jewry since 1945.

HIST 349 The Ancient Near East 3 hrs.
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 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. The course concludes with Alexander the Great and the Hellenistic world.

HIST 351 Ancient Rome 3 hrs.
The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the founding of Rome; rise of the Roman republic and conquest of the Mediterranean; civil wars and emergence of the Roman Empire. Cultural achievements and ultimate decline and fall of Rome.

HIST 354 Medieval History 3 hrs.
History of medieval Europe from the fall of Rome to the 14th and 15th centuries. Attention will be given to the following themes: the development of the European nations and political systems; the agricultural and commercial foundations of medieval civilization; social classes, especially the aristocracy; the formation of the medieval world view as reflected in the rise of the church, monasticism, the schools and universities and in medieval art and architecture.

HIST 361 British History 3 hrs.
A survey of the history of Great Britain from the 16th century to the present with emphasis on the development of constitutional government; emergence of the empire and commonwealth; the economic and socialist revolutions and their consequences in the 20th century.

HIST 369 The Soviet Union 3 hrs.
This survey course is designed to give the student a knowledge and appreciation of the various facets of the history of the Union of Soviet Socialist Republics from 1917 to the present. Aspects of the U.S.S.R. that are studied include Marxism-Leninism, the Communist Party, the Government, foreign policy, planned economy, the systems of health and education; and contemporary art, literature, and music.

HIST 370 History of Latin America 3 hrs.
A survey is undertaken of the historical development of the Latin American region from its pre-Columbian and Iberian ancestry to its contemporary expression in national entities. Attention is given to people and motives as well as institutions and attitudes insofar as each of them determined the character of a given epoch and contributed to the pattern of overall development.

HIST 371 Modern Latin America 3 hrs.
There is undertaken here an analysis of contemporary Latin America, a world area of immediate and future critical import in the affairs of humanity. An effort is made to gauge the origins, depth, and intensity of the dynamic forces and impulses which are inexorably wrenching Latin America out of a tradition-encrusted mold and forming it anew.

HIST 372 History of Mexico and the Caribbean 3 hrs.
Two of the three most profound social revolutions in Latin American history have occurred in Middle America. The Mexican and Cuban revolutions demand our understanding as do the present developments in Central America. The course surveys the history of the area in order to further that understanding.

HIST 375 Canadian History 3 hrs.
A survey of Canada from the 16th century to the present. Special attention to the sources of Anglo-French discord and Canada's changing relationship with the United States.

HIST 381 The Modern Far East 3 hrs.
A survey of the international relations of China, Japan, and Korea; reform and revolutionary movements in East Asia; aims and techniques of modernization and Westernization; the rise and fall of militaristic Japan; political and social upheavals, and the emergence of communism in China; and the rise of two Koreas.

HIST 386 Introduction to African History and Civilization 3 hrs.
An overview of the major aspects of African civilization in the context of the development from pre-colonial times to the present. Emphasis upon those elements which contribute to the cultural and historical unity and uniqueness of the African experience.

HIST 389 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 390 Introduction to the Study of History 2 hrs.
Through the ages man has asked why heroes, dynasties, and empires rise and fall, revolutions occur, populations grow and recede, and ever new ways have been devised to "make a living." Man has tried hard to find order and meaning in the maze of events. This course deals with the many human attempts first to reconstruct what happened and then with the interpretations given to make sense of the past.

HIST 420 War in the Modern World 3 hrs.
Select topics in modern war and current military developments. Topics for each semester will appear in the Schedule of Classes. The course may be repeated for separate credit as long as the topic varies.

HIST 470 Senior Thesis 2-3 hrs.
Written preparation and defense of a supervised research project. The thesis must be supervised and approved by at least two faculty members. Two copies of the final draft must be filed with the Department of History. Registration requires junior standing, a declared major in History, and approval of the supervising faculty members and the Undergraduate Adviser.

HIST 490 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; selection and preparation of instructional materials; experience in oral presentation; methods of evaluating cognition of historical facts and concepts; applications of audio-visual and interactive media; course organization and learning activities for students of varying backgrounds and abilities; examination of the role of history in social science and humanities education in secondary schools, and of history as a curriculum leader. Prerequisite: ED 301.

HIST 500 Studies in History 3 hrs.
Selected topics in historical studies. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 505 Local and Regional History 3 hrs.
Studies of small areas in great detail frequently precede, modify, or augment historical studies
of wider scope. Local historians rely heavily on primary sources such as archives, manuscript collections, genealogy, oral history, archaeological and ethnographic data. This course is an introduction to the sources and techniques of local historians and their application to a variety of research objectives.

**HIST 511 Introduction to Archives**
3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

**HIST 512 Introduction to Museum Studies**
3 hrs.
A survey course dealing with the history, philosophy, organization, and practice of museums. The course will examine the organization and structure of various types of museums, and will cover such topics as: collecting theory, conservations and security, care of collections, display techniques, historic preservation, registration and cataloguing, and museum ethics.

**HIST 513 Historic Preservation**
3 hrs.
Examination of problems in developing historic sites and districts. Topics include documenting historic sites, registration procedures, preservation law, funding sources, history of the preservation movement, social issues in urban revitalization, public, private and citizen interaction.

**HIST 520 Colonial America**
3 hrs.
The American colonies as part of the British empire: their founding, and their political social, and economic growth to the eve of the American Revolution.

**HIST 521 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 522 The Age of Democracy and Expansion, 1789-1848**
3 hrs.
Deals with the establishment of the Federal Government, the origin and development of political parties, the causes and consequences of the War of 1812, territorial expansion and the westward movement, and the increasing sectional conflict between North and South.

**HIST 523 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 524 The Civil War and Reconstruction**
3 hrs.
Examines the causes 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 525 The Emergence of Modern America, 1877-1914**
3 hrs.
This course will focus on the causes and consequences of industrialization, urbanization, progressivism, and the concurrent revolutions in agriculture, transportation, and communications. Attention will also be given to changing attitudes towards the environment, and the problems of generalization, and the anonymous American.

**HIST 526 United States, 1914-1945**
3 hrs.
This course deals with four periods of recent American history: the Great War and Peace Conference of 1914-1919, the 1920s, the Depression, and American participation in World War II. Focus is on major social, political and economic trends, problems and personalities of the era, and the vastly changed position of the United States in world affairs.

**HIST 527 United States Since 1945**
3 hrs.
This course deals with the efforts of the nation, and groups within the nation, to cope with the enormous social, political, and economic problems of the decades after World War II. It traces the growth of American involvement in foreign affairs as a world power.

**HIST 549 Topics in Ancient History**
3 hrs.
Selected topics in ancient history such as ancient archaeology, and the Roman republic, Imperial Rome, primitive Christianity, and the like. The specific topic is announced in the Schedule of Classes. Course may be repeated under different topics.

**HIST 550 Topics in Medieval History**
3 hrs.
Selected topics in medieval history such as the History of the Medieval Church, Daily Life in the Middle Ages, etc. Topic to be announced in the Schedule of Classes. Course may be repeated under different topics.

**HIST 554 Renaissance and Reformation**
3 hrs.
Major developments in the period: activities of merchant venturers; rise of the modern state; cultural achievements of the Italian Renaissance; religious thoughts of Luther, Calvin and Zwingli; renewal of the Roman Catholic Church, Anglicanism; the Radical Reformation; religious wars, and cultural activities in the Reformation.

**HIST 556 Studies in Modern European History**
3 hrs.
The topics will be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics will be chosen from those areas of European history which are not adequately covered by regularly scheduled courses.

**HIST 559 Topics in Theory and Practice**
3 hrs.
Selected topics in modern history such as World War II: arts and culture of the Western world and the public. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

**HIST 561 Victorian England: The Era of the Middle Class**
3 hrs.
A look at the years of Victoria's long reign as Great Britain attempted to solve the problems caused by the French and Economic Revolutions through parliamentary reform and additional democracy, resulting in the transition from a rural to an urban society; the rise of the middle class to a position of dominance; and the emergence of Britain as the greatest industrial nation and the most powerful empire in the world.

**HIST 562 Hitler's Europe, 1914-1945**
3 hrs.
Major developments in European history from the beginning of World War I to the conclusion of World War II. The new structure of postwar Europe in the 1920s; the assault on ethnic and religious minorities and on democratic government; the collapse of international order and World War II; arts and culture of the era.

**HIST 563 Europe since 1945**
3 hrs.
Major developments in European history since the end of World War II. Recovery and reconstruction; the movement toward European unity; the East-West conflict; roles and objectives of major European states and blocks in international affairs.

**HIST 564 Europe since 1945**
3 hrs.
Major developments in European history since the end of World War II. Recovery and reconstruction; the movement toward European unity; the East-West conflict; roles and objectives of major European states and blocks in international affairs.

**HIST 565 Topics in European History**
3 hrs.
Selected theoretical, technical, and interpretive issues in the field of history. Topics include philosophy of history, computers in historical research, interaction between history and such disciplines as archaeology, psychology, and climatology, new forms and techniques of historical documentation, and major historical interpretations current before the academic world and the public. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

**HIST 599 Internship**
Variable hours
Professional internship experiences in museums, historical administration, historic preservation, editing, etc. Normally restricted to students enrolled in the Public History curriculum. Registration requires junior standing, a minimum 2.7 GPA, prior completion of theory and practice courses appropriate to the internship experience, and approval of the undergraduate adviser and the Department Chair. Graded on a credit/no credit basis.

**HIST 598 Independent Reading in History**
3 hrs.
Research supervised by a faculty member. Registration requires a minimum of 3.0 GPA, junior standing, a declared major in History, and a research proposal developed by the student and the supervising faculty member. Registration also requires approval by the Undergraduate Adviser and the Department Chair.

**HIST 591 Topics in Modern European History**
3 hrs.
Examinations of problems in developing historic sites and districts. Topics include documenting historic sites, registration procedures, preservation law, funding sources, history of the preservation movement, social issues in urban revitalization, public, private and citizen interaction.

**HIST 592 Colonial America**
3 hrs.
The American colonies as part of the British empire: their founding, and their political social, and economic growth to the eve of the American Revolution.

**HIST 593 The Age of Democracy and Expansion, 1789-1848**
3 hrs.
Deals with the establishment of the Federal Government, the origin and development of political parties, the causes and consequences of the War of 1812, territorial expansion and the westward movement, and the increasing sectional conflict between North and South.

**HIST 594 Renaissance and Reformation**
3 hrs.
Major developments in the period: activities of merchant venturers; rise of the modern state; cultural achievements of the Italian Renaissance; religious thoughts of Luther, Calvin and Zwingli; renewal of the Roman Catholic Church, Anglicanism; the Radical Reformation; religious wars, and cultural activities in the Reformation.

**HIST 596 Studies in Modern European History**
3 hrs.
The topics will be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics will be chosen from those areas of European history which are not adequately covered by regularly scheduled courses.

**HIST 597 The French Revolution and Napoleon**
3 hrs.
The nature of revolution and revolutionary psychology; 18th century background to the French Revolution; major events and phases; Napoleon and the French empire; impact of the revolution on Europe and the rest of the world.

**HIST 598 Independent Reading in History**
3 hrs.
Research supervised by a faculty member. Registration requires a minimum of 3.0 GPA, junior standing, a declared major in History, and a research proposal developed by the student and the supervising faculty member. Registration also requires approval by the Undergraduate Adviser and the Department Chair.

**HIST 599 Internship**
Variable hours
Professional internship experiences in museums, historical administration, historic preservation, editing, etc. Normally restricted to students enrolled in the Public History curriculum. Registration requires junior standing, a minimum 2.7 GPA, prior completion of theory and practice courses appropriate to the internship experience, and approval of the undergraduate adviser and the Department Chair. Graded on a credit/no credit basis.

**INTEGRATED LANGUAGE ARTS MINOR**
See “Interdisciplinary Programs” in the College of Arts and Sciences.

**INTERNATIONAL AND AREA STUDIES PROGRAM**
See “Interdisciplinary Programs” in the College of Arts and Sciences.
Modern and Classical Languages

For students majoring or minoring in a modern foreign language a course in modern European history is desirable. For Latin majors and minors a course in Roman history is recommended. A student in the Arts and Sciences curriculum (ASC) may apply four (4) credits toward a Latin major by taking both GREK 100 and 101. A student in the Secondary Education curriculum (SED) may apply four (4) credits toward a Latin major by taking both GREK 100 and 101. English majors are encouraged to take as much beyond the minimum in a foreign language as they can handle.

All students (either entering or advanced) who wish to continue in a language they have studied in high school must take a placement examination. It may be used as a qualifying examination to exempt students for specific language requirements. The examination 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 8 hours of University credit and no more than 4 hours credit toward a major or 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 or to continue. 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 adviser 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.

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.

GERMAN MAJOR
Thirty hours beyond the 100 level to include German 316, 317, 322, 325, and at least two 500-level courses other than 558. Students in the secondary education curriculum are required to take Modern Language Instruction 558.

LATIN MAJOR
Thirty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series which may include LANG 250, 252, 350, 375, 450 and GREK 100 and 101. Teaching majors must include LAT 201, 301, 302, 550, 557, and 560.

LATVIAN MAJOR
Thirty-seven hours beyond LATV 200 competency, to include; 201, 316, 317, 320, 322, 325, 551, 560, and 597; and PSCI 549.

SPANISH MAJOR
Thirty hours beyond the 200-level to include SPAN 316, 317, 322, or 323, 325, and three 500-level courses (to include 3 hrs. of 526, 527, 528, 529, or 560). Students in the secondary 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 the 100-level to include 6 hrs. of 322, 323 or 325. Modern Language Instruction 558 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.

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 insight into their treatment by representative native writers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various literary works and the social-historical background for each of the selections.

This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. The course may be taken in more than one language area.

LANGUAGES AND LINGUISTICS 113
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 Stendhal, Balzac, Flaubert and Proust.

German Literature in English Translation
A comparative study of literary themes and techniques of major German writers from Hauptmann to the present, including Mann, Brecht, Kafka, and Becher.

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, Dostoevski, 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 Hispanic America.

Spanish Literature in English Translation
Selected Spanish prose and poetry from the Middle Ages to the twentieth century. The course will include, but will not be restricted to, works by Lope de Vega, Cervantes, St. Teresa, Calderon de la Barca, Unamuno, and Garcia Lorca, as well as the Anonymous Poem of the Cid and Lazarillo de Torre.

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-Medieval 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 rebirth of civilization, 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 350 Classical Art and Architecture of the Aegean World
3 hrs.
A course dealing with the classic forms of art and architecture as they developed from the Cretan civilization to the height of Greek culture and as they were reflected in later Roman civilization. No prerequisite.

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. Preferably, students should 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 audiovisual emphasis. French cultural readings.

FREN 101 Basic French II
4 hrs.
Continuation of 100. Prerequisite: FREN 100 or equivalent.

FREN 104 Mini-French for Fashion Merchandising Majors
1 hr.
This course is specifically designed for students with careers in fashion merchandising and will include exposure to relevant fashion terminology, cultural images, and practice in written and spoken French.

FREN 200 Intermediate French I
4 hrs.
The development of spoken and written expression in the French language with an emphasis on grammar review. Prerequisite: FREN 101 or two years of high school French, or equivalent.

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

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

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

FREN 320 French Phonetics
3 hrs.
Study and practice to correct typical difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns. Prerequisite: FREN 200 or equivalent. (FREN 320 may be taken concurrently with FREN 201.)

FREN 322 French Civilization
3 hrs.
This course will emphasize the contributions of France to the Western World from the medieval period to the present day and will explore both historical and artistic accomplishments. Prerequisite: FREN 201 or permission of Department.

FREN 323 Contemporary Francophone Society
3 hrs.
An introduction to today's multifaceted French-speaking world. Geographical locations may range from continental France to francophone Africa. Particular emphasis will be placed on societal structures, such as the family, religion, and education. Prerequisite: FREN 201 or permission of Department.

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

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

FREN 400 Elementary French for Reading Proficiency
4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure 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 adviser and chairperson.

FREN 550 Independent Study in French
1-3 hrs.
Directed individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.

FREN 551 Advanced French Grammar and Composition
3 hrs.
Intensive review of French structure and practice in composition. Prerequisite: FREN 316 and 317 or equivalent.

FREN 552 Advanced French Conversation
3 hrs.
Intensive practice with spoken French. Prerequisite: FREN 316 and 317 or equivalent.

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

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

GER 100 Basic German I
4 hrs.
Fundamentals of German with audiolingual emphasis. German cultural readings. Does not count toward a major or a minor.

GER 101 Basic German II
4 hrs.
Continuation of 100. Prerequisite: GER 100 or equivalent. Does not count toward a major or a minor.

GER 200 Intermediate German I
4 hrs.
The development of spoken and written expression in the German language with an emphasis on grammar review. Prerequisite: GER 101 or two years of high school German, or equivalent.

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

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

GER 317 German Conversation
3 hrs.
Emphasis upon increasing the student's command of spoken German. Prerequisite: GER 201 or equivalent.

GER 322 German Life and Culture
3 hrs.
Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. Prerequisite: GER 201 or equivalent.

GER 325 Introduction to the Study of German Literature
3 hrs.
An appreciation of German literature through reading and critical interpretation of selected works of various literary types. Prerequisite: GER 201 or equivalent.

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

GER 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 adviser and chairperson.

GER 550 Independent Study in German
1-3 hrs.
Directed individual study of a specific topic in a German literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 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 in 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 (GREK)
(Courses described in italics are approved for General Education.)

GREK 100 Basic Greek I
4 hrs.
Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.

GREK 101 Basic Greek II
4 hrs.
Continuation of 100. Prerequisite: GREK 100 or equivalent.

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 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 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, prosody, literary style and appreciation. Prerequisite: LAT 324 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
1-16 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 adviser and chairperson.

LAT 550 Independent Study in Latin
1-3 hrs.
Directed individual study of a specific topic in a Latin literary or linguistic area, e.g. biography, bucolic poetry, comedy, history, or satire. Departmental approval required for admission. Repeatable for credit. Prerequisite: A minimum grade point average of 3.0 in the major.

LAT 557 Teaching of Latin
3 hrs.
The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical context and as it relates to the modern world. Required of Latin teaching majors and minors.

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.
Introduction to the structure of the Latvian language on various levels. Programmed and individual exercises in phonetics and spoken Latvian. Prerequisites: LATV 100 or equivalent. Continuation of LATV 100.

**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, its vocabulary building and uses of idioms; exercises in spoken and written Latvian; reading selections in various topics; short compositions in Latvian. Prerequisite: LATV 100 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 himself 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 320 Latvian Phonology**
1 hr.
Study of the phonological system of Modern Latvian, including study and practice to correct typical difficulties encountered by students of Latvian with Anglo-American patterns of pronunciation. Prerequisite: LATV 200 or equivalent, or instructor's permission.

**LATV 322 Latvian Life and Culture**
3 hrs.
Study of selected aspects of Latvian life and culture and their historical settings. Prerequisite: LATV 200 or equivalent, or instructor's permission.

**LATV 325 Introduction to the Study of Latvian Literature**
4 hrs.
Variable topics: various genres of Latvian folk literature and various periods of 19th and 20th century Latvian literature. Topics will be announced in the Schedule of Classes. Course may be repeated for credit under different topics. Prerequisite: LATV 201 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 adviser 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.
Topics vary 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 567 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.

**Russian (RUSS)**

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

**RUSS 100 Basic Russian I**
4 hrs.
Fundamentals of Russian with audiolingual emphasis. 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 visiting students and interested faculty and staff. Prerequisite: RUSS 101 or equivalent.

**RUSS 200 Intermediate Russian I**
4 hrs.
Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises. Prerequisite: RUSS 101 or equivalent.

**RUSS 201 Intermediate Russian II**
4 hrs.
Continuation of RUSS 200 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and cultural materials. Prerequisite: RUSS 200 or equivalent.

**RUSS 310 Russian Civilization**
3 hrs.
A study of selected aspects of Russian life and culture and their historical settings. Course taught in English and open to all students.

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

**SPAN 101 Basic Spanish II**
4 hrs.
Continuation of 100. Prerequisite: SPAN 100 or equivalent.

**SPAN 200 Intermediate Spanish I**
4 hrs.
The development of spoken and written expression in the Spanish language with an emphasis on grammar review. Prerequisite: SPAN 101 or two years of high school Spanish, or equivalent.

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

**SPAN 316 Spanish Composition**
3 hrs.
Emphasis upon increasing the student's command of written Spanish. Prerequisite: SPAN 201 or equivalent. SPAN 316 may be taken concurrently with SPAN 201.)
SPAN 317 Spanish Conversation 3 hrs. Emphasis upon increasing the student's command of spoken Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 317 may be taken concurrently with SPAN 201.)

SPAN 322 Life and Culture of Spain 3 hrs. A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. Prerequisite: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 322 with permission of Spanish adviser).

SPAN 323 Life and Culture of Latin America 3 hrs. Emphasis upon increasing the student's knowledge of the Spanish people. Prerequisite: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 323 with permission of Spanish adviser).

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 adviser 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 eighteenth 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 of 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 of 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 of 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.
- Nineteenth Century—The Romantic Movement.
- Nineteenth Century Novel—Development of the regional novel from Fermin Caballero through Bisso Ibanez.
- Generation of '98—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.
- Contemporary Theater—Evolution and analysis of the characteristics.
- Spanish-American Short Story—Significant short stories along with the cultural and social background.
- Contemporary Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

**Linguistics and Critical Languages**

Linguistics is the scientific study of language—its diversified structures and their dialectal variants, its acquisition by children and non-native speakers, its systems of writing and transcription, its cultural role in the speech community, and its application to other areas of human knowledge. The Linguistics program at Western Michigan University is responsible for maintaining an undergraduate major and minor program in general linguistics, for teaching English as a second language to foreign students at the University, and for offering up to six semesters of study in a number of "critical" (neglected) languages.

The linguistics major is intended either as a "second" major for undergraduates with a major in another department or as a "first" major for those who expect to pursue a career in linguistics. The major program requires 24 hours of credit in Linguistics courses and up to 6 hours in "cognate" courses. One college year of a foreign language, or its equivalent, is required. The linguistics minor is intended as a supporting minor for undergraduates with a major in another related department. Its purpose is to complement and strengthen the program that the student has chosen for his/her major concentration. The minor program requires completion of 20 hours of credit in the five undergraduate "core" courses: 105, 321, 331, 421, 587.

Both majors and minors are required to consult with the adviser, 411 Sprau Tower, to receive a signed recommendation for their program. The adviser is authorized to grant a limited number of substitutions for "core" requirements. Only those linguistics courses in which a "C" or better is obtained may be counted toward a major or minor.

Linguistics is suggested as a supporting major or minor for majors in anthropology, communication, English, French, German, philosophy, psychology, sociology, Spanish, and speech pathology and audiology.

Linguistics has been approved by the State Board of Education as a minor or second major in the secondary education curriculum, as a second major in the junior high school curriculum, and as a minor in the elementary curriculum.

A critical language minor is available for those undergraduates who wish to specialize in one of a limited number of neglected languages. This minor is open only to those persons who are not in an Education curriculum. Interested students must consult with the critical languages supervisor to determine which languages are eligible and to receive a signed recommendation for their program.

**Linguistics Programs**

**Linguistics Major and Minor**

**I. CORE COURSES IN LINGUISTICS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>105 The Nature of Language</td>
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<tr>
<td>321 Phonology and Morphology</td>
<td>4</td>
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<tr>
<td>331 Syntax and Semantics</td>
<td>4</td>
</tr>
<tr>
<td>421 Development of Language: History and Dialects</td>
<td>4</td>
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**II. ELECTIVE COURSES IN LINGUISTICS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tr>
<td>512 Principles of TESL</td>
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<tr>
<td>515 Methods of Teaching Critical Languages</td>
<td>4</td>
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<tr>
<td>540 Generative Grammar</td>
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<tr>
<td>551 Psycholinguistics</td>
<td>4</td>
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<td>552 Sociolinguistics</td>
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**III. COGNATE COURSES IN OTHER DEPARTMENTS**

<table>
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<th>Course</th>
<th>Hrs.</th>
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<tr>
<td>370 Culture and Communication</td>
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<tr>
<td>371 Structures of Modern English</td>
<td>4</td>
</tr>
<tr>
<td>372 Development of Modern English</td>
<td>4</td>
</tr>
<tr>
<td>373 Reading as Psycholinguistic Processes</td>
<td>4</td>
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<tr>
<td>572 American Dialects</td>
<td>4</td>
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<tr>
<td>574 Grammar for Teachers</td>
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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
559 History of the German Language
558 Modern Language Instruction
557 History of the German Language
555 Modern Language Instruction
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415 Introduction to Linguistics
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100 Modern Language Instruction

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

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.

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.

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 511 Methods of Teaching English as a Second Language 4 hrs.
Study of the application of linguistics and other disciplines to the teaching of Standard American English to speakers of other languages, with emphasis on current methods and materials for instruction and testing. Course work will include tutorial experience.
LING 512 Principles of Teaching English as a Second Language
4 hrs.
Study of the linguistic theory and historical development of the teaching of English to speakers of other languages, as well as an examination of second language acquisition and the various aspects of bilingualism. Prerequisite: an introductory course in linguistics.

LING 515 Methods of Teaching Critical Languages
3 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 597 Seminar in Linguistics—Variable Topics
2-4 hrs.
Each seminar will deal with a selected topic relating to language and/or linguistics. Since content will vary from semester to semester, students are advised to check course descriptions in the Department office. The Department will welcome suggestions for seminar topics from students. Prerequisite: major or minor status or permission of instructor.

LING 598 Readings in Linguistics
1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics program. Repeatable for credit. Prerequisite: Permission of instructor and chairperson.

Translation Program
Minor in Translation

ADMISSION TO THE PROGRAM AND PREREQUISITES
1. The minor in translation requires the completion of the courses or their equivalents in one of the following languages as prerequisites at specific levels of the program:
   In French:
   316 French Composition
   317 French Conversation
   325 Introduction to French Prose
   551 Advanced French Grammar and Composition
   In German:
   316 German Composition
   317 German Conversation
   325 Introduction to the Study of German Literature

2. Translation courses (TRNS) may not be counted toward a major or minor in Foreign Languages.
3. Students with a strong background in one foreign language will be encouraged to begin study of a second foreign language.
4. Students will be expected to demonstrate the ability to type at a reasonable speed.

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, 551, 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 adviser, 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 adviser. On-campus projects will be evaluated by a panel of faculty members. Specific assignments will be arranged in consultation with the adviser 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 credit 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.
MATH 567 4
MATH 572 4
MATH 574 4
MATH 580 3

Secondary Teaching Option
The Secondary Teaching Option, which combines theoretical mathematics with teaching techniques, is designed for students planning to teach in a junior or senior high school. With the current national focus on the improvement of mathematics and science education, this program offers a timely and attractive option.

Mathematics Major

Graduate Students interested in the General Mathematics Minor Option may plan their program using the General Mathematics Option.

Statistics
The field of statistics is concerned with collection of numerical 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, pharmaceuticals, demography, economics, and the health sciences. Shortages of qualified statisticians are anticipated through the next decade.

Mathematics Minor Options

General Mathematics Minor Option
Students interested in the General Mathematics Minor Option may plan their program using the General Mathematics Option.
Electives 6-8

MATH 230 or 374 4
MATH 122 4
MATH 111, 306 1-3

Students in a 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 courses. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Mathematics and Statistics Courses (MATH)

Students who fail to earn a "C" or better grade in a prerequisite course will not be permitted to enroll in the next sequence course. (Courses described in italics are approved for General Education.)

MATH 101 Trigonometry

Basic introductory course in trigonometry. Topics include angles and their measurement; trigonometric functions and their graphs; triangle computations; identities; solution of equations and inequalities; inverse trig. function. Students cannot receive full credit for MATH 101 and 118. Prerequisite: Three years of college preparatory mathematics and satisfactory score on placement test, or MATH 111.

MATH 109 Computational Skills

A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, signed numbers and simple geometric figures. These skills are used in solving word problems. All entering students must take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation. Full credit for MATH 109 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 I

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 112 Calculus I

4 hrs.

The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, logarithmic and exponential 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 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
discourse of sets, relations, and properties of natural numbers, integers, rational numbers 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 related topics, including symmetry, symmetry groups and measurement. Emphasis will be on the active participation of the student in the process of discovering and communicating mathematical ideas. Prerequisite: MATH 150.

MATH 190 Survey of Mathematical Ideas
4 hrs.
A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability, 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 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 are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, regression and time series. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. Students can receive credit for only one of MATH 216, 260, 364, or 366. Prerequisite: MATH 116, BIS 102.

MATH 230 Elementary Linear Algebra
4 hrs.
Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in R^n and R^p, generalizations to the vector spaces R^p, inner products, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

MATH 250 Use of Computers in Secondary School Mathematics
3 hrs.
An introduction to ways in which computers and microcomputers can be used to enhance and extend the learning of mathematical topics in grades 7-12. Emphasis will be on the use of computers as a problem-solving tool. Prerequisite: Satisfactionary completion of the University Computer Literacy Requirement and MATH 123.

MATH 260 Elementary Statistics
4 hrs.
The purpose of this course is to introduce students to the rudiments of statistics. Basic concepts, rather than detailed derivation, are stressed. Topics include: probability, discrete random variables, means and variances; binomial, hypergeometric, 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 285 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. Students will learn a programming language and subsequently use computer techniques to assist in data analysis. The problems of teaching probability and statistics to elementary school children will be considered. Prerequisite: MATH 151.

MATH 272 Vector and Multivariable 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.
A critical re-examination of plane and solid euclidean geometry followed by euclidean geometry of four dimensions and noneuclidean geometry. Prerequisite: MATH 314.

MATH 350 Teaching of Junior High Mathematics
2 hrs.
In this course consideration is given to curriculum problems and trends in junior high school mathematics and to specific problems of teaching mathematics effectively to junior high school pupils. Activity and laboratory approaches for teaching mathematics will be 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 not count toward a mathematics major. Students can receive credit for only one of MATH 216, 260, 364, or 366.

MATH 374 Introduction to Linear Algebra and Differential Equations
4 hrs.
This course covers elementary linear algebra and differential equations, applying techniques of linear algebra to the solution of differential equations. Topics chosen from: first order equations and applications, matrices, vector spaces, linear transformations, linear differential equations, systems of differential equations, and series solutions. Students 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 361 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
MATH 452 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. Prerequisite: MATH 145 or MATH 314 or consent of instructor.

MATH 445 Algorithmic and Applied Combinatorics 3 hrs.
An algorithmic approach to combinatorics including graph theory, enumeration, and applications. Prerequisites: MATH 145 or MATH 314 (CS 111 recommended).

MATH 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 component of the course. 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, sampling distributions, asymptotic theory, theory of estimation, and likelihood methods. 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 adviser. 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/CIS 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 with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Prerequisites: either MATH 230 and MATH 272, or MATH 374.

MATH 530 Linear Algebra 3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

MATH 540 Advanced Geometry 3 hrs.
Topics to be selected from projective geometry, algebraic geometry, differential geometry, or non-euclidean geometry. Prerequisite: Consent of instructor.

MATH 550 Teaching of Secondary Mathematics 3 hrs.
In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. This course may be taken in conjunction with ED 301 through participating in the Cooperative Mathematics Program conducted during winter semester. Contact the departmental office at least one semester in advance for additional information. Prerequisite: MATH 330 and 350.

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 553 Participation in Elementary Mathematics Teaching 2 hrs.
Students will work cooperatively with an elementary school teacher in an elementary classroom in various aspects of helping children learn mathematics. The course will provide the prospective elementary teacher with an opportunity to work with small groups of young children and to observe them in mathematics learning. The student will be required to maintain a journal and meet weekly with a staff member supervising the course. Can be elected on Credit/No Credit basis only. Prerequisite: MATH 552.

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, factor analysis, and factor correlation. Emphasis will be placed on the multivariate Normal distribution. Prerequisite: MATH 552.

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 analysis of variance; and fixed effects models. Prerequisite: MATH 560 or 362.

MATH 563 Sample Survey Methods 3 hrs.
This course is an introduction to the use of statistical software for data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage and 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: MATH 506 or 362.

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 software packages discussed will include MINITAB, SAS, SPSS, and BMDP. Statistical work treated will include: data entry, editing, statistical analysis of the one and two sample problems, analysis of variance, and regression analysis. Prerequisites: WMU's computer literacy requirement and an introductory statistics course.

MATH 566 Nonparametric Statistical Methods 3 hrs.
This course presents a broad overview of nonparametric statistical methods commonly referred to as nonparametric or distribution free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing for 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; step-wise 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 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 599 Independent Study in Mathematics**
1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of chairperson of Department.

### MEDIEVAL INSTITUTE PROGRAM

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

### PHILOSOPHY

Arthur Falk, Chair
John Dilworth
Joseph Ellin
Michael Pritchard
Richard Pulsaki
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.

Appropriate courses and/or independent studies in philosophy can serve the purpose of helping to unify or "cap off" a wide variety of concentrations for those students who select the university's "student planned curriculum," described in the General Information section of this catalog. The Philosophy Department encourages these concentrations and members of the staff will be happy to serve as advisers to students wishing to construct concentrations that involve philosophy.

The Philosophy Department offices are located on the fifth floor of Friedmann Hall. Students are invited to visit the department office and the offices of faculty at any time. Office hours are posted beside each instructor's door.

Before preregistration each term, the faculty prepare brief written descriptions of the courses to be offered. These descriptions are posted on the department bulletin board outside the department office and additional copies may be obtained in the office. The department also announces its tentative course offerings a year in advance. Hence before preregistration for the semester, the student can know which courses will probably be offered in the following fall, winter, spring, and summer.

**Robert Friedmann Philosophy Prize**

A prize named in honor of Dr. Friedmann, the first person to teach philosophy at Western, is awarded annually to an outstanding senior philosophy student.

### Honors Program

Applications to the departmental honors program are invited from qualified students. A student wishing to enter the program must submit a proposal for independent research to a faculty committee.

Normally, the honors candidate works in close association with a professor of his/her choice and submits a paper (or other project of philosophic merit) to the department. To achieve honors in philosophy the candidate's academic record must be of high quality and the project must be outstanding.

Interdisciplinary work involving faculty from other departments is encouraged.

Normally, but not necessarily, the honors student is a senior major; in exceptional cases non-seniors or non-majors may be considered.
Philosophy Major

Because the Department of Philosophy believes that there is no single correct approach to the study of philosophy, but that, as much as possible, each student under the guidance of a faculty member should design a program in accordance with his/her interests, ability, and intellectual maturity, there are no required courses in philosophy. Instead, students majoring in philosophy must plan their program with a faculty adviser. Every faculty member serves as a student adviser and normally students may select any adviser they prefer. The adviser works closely with the student in planning a program of studies and helps the student make an informed and intelligent choice of courses.

The student should select an adviser as soon as he/she is fairly certain that he/she intends to major in philosophy. Normally this would not occur until after he/she has taken at least one, and possibly two philosophy courses. Every major must choose and consult with an adviser no later than the completion of 12 hours of philosophy courses; no hours beyond the 12th will be credited towards a Philosophy major unless the approval of an adviser has been obtained. Students are encouraged to see their advisers frequently, but consultation should occur at least once every academic year. A major consists of a minimum of 28 hours in philosophy. PHIL 100 and 200 cannot both be taken towards a major or minor. 

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours. Consult with the department chairperson.

Professional and Applied Ethics Concentration

Philosophy majors who have a special interest in the study of ethics may have their major identified as a Professional and Applied Ethics Concentration, provided that the following course requirements are met:

1. A minimum of 28 hours in Philosophy
2. One of the following (4 hrs.): PHIL 200, 220, 300, 301
3. Two of the following (8 hrs.): PHIL 201, 303, 310, 311, 313, 314, 534
4. PHIL 510 Professional Ethics (4 credit hours)

The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 498: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to approval of the Department of Philosophy.

Students Not Majoring or Minoring in Philosophy

Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to their major field of study. Philosophy by its nature touches on many areas of life and thought, frequently from a perspective that students find valuable and exciting. Non-majors often consider their philosophy courses an essential element in their general intellectual growth.

In recognition of this, the department offers a wide range of courses for non-majors/minors. Students interested in a general introduction to philosophy should consider PHIL 100 or 200; students interested in a philosophical approach to a more specialized area should consider PHIL 201, 220, or some upper-level cognate. Students interested in a more technical appreciation of the central problems of philosophy should consider such courses as PHIL 332 (Theory of Knowledge) and PHIL 333 (Metaphysics). Many students will find it advisable to begin with either PHIL 100, 200 or 201, and then continue on the upper level.

Repeating Courses for Credit

Since philosophy courses may vary widely in content from year to year, a student may be occasionally justified in repeating a course for credit. Students who wish to do so must obtain permission of the instructor before they register. If the student requests, the department will have the student's record indicate that the course when repeated differed substantially in content from the identical numbered course previously completed.

Philosophy Minor

A minor consists of at least 16 hours in philosophy. Minors may choose any courses they find suitable. Minors are strongly urged to consult with advisers (preferably after completing 8 hours), but this is not required. For further information, students should read the Philosophy Department Student Handbook or see any faculty member. The handbook is available in the department office, 5011 Friedmann Hall.

Minor in Professional and Applied Ethics

Minimum of 18 credit hours. Minor Slip required. Required Philosophy courses:

1. ONE of the following (4 credit hours): PHIL 200, 220, 300, 301
2. TWO of the following (8 credit hours): PHIL 201, 303, 310, 311, 313, 314, 534
3. PHIL 510: Professional Ethics (4 credit hours)

The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 498: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to approval of the Department of Philosophy.

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Philosophy Courses (PHIL)

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

INTRODUCTORY COURSES

PHIL 100 Critical Thinking and Writing 4 hrs.
A seminar for students who wish to improve their ability to think analytically, argue logically, and express a train of thought carefully and cogently in writing. There will be frequent writing assignments which will focus on issues raised by readings of broad philosophical interest. Class time will be about equally divided between discussion of the readings and critical analysis of the student's own writings. Fulfills the University Intellectual Skills college-level writing requirement.

PHIL 200 Introduction to Philosophy 4 hrs.
An introduction to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define key questions and to present typical answers.

PHIL 201 Introduction to Ethics 4 hrs.
An introduction to the philosophical study of morality. Deals with questions such as: What is the good life? Why should I be moral? What is the meaning of right and wrong?

PHIL 220 Elementary Logic 4 hrs.
A study of the rules and techniques of deductive reasoning and the sources of some common fallacies. Topics include a study of syllogisms and the logic of propositions. Open to first-year students.

300-LEVEL COURSES

Each semester detailed course descriptions are posted outside room 5011 Friedmann 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 ideas 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, Marleau-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 arms of political institutions; law and morality.
ADVANCED COURSES

PHIL 470 Seminar in Philosophy—Variable Topics

Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester's length.

PHIL 498 Independent Study

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.

PHIL 510 Professional Ethics

A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of the professions, professional/client relationships, regulation of the professions, and codes of ethics.

PHIL 520 Mathematical Logic

This course covers the basic ideas in modern mathematical logic. First the fundamentals of the propositional and quantificational calculi (including the symbolization of English sentences) are discussed. Next comes a study of the basic features of formal languages and axiomatic theories with special emphasis on the consistency and completeness of the propositional and quantificational calculi. Finally, the course includes an introduction to the metamathematics of formal systems. Prerequisite: MATH 310 or MATH 314, or permission of instructor.

PHIL 525 Decision Theory

Can there be a formal theory of what it is to be rational in one's beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. No prerequisite. A working knowledge of high school algebra is assumed.

PHIL 534 Moral and Philosophical Foundations of Health Care

In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aims of the health sciences; the interplay of fact and value in health care; competing images of humankind embedded in health science; patient autonomy, dignity, and medical paternalism. This is a cross-college interdisciplinary course which is team taught with faculty from the General Studies Science Area.
PHYSICS

John Tanis, Chair
Larry Oppinger, Associate Chair
Eugene Kamber
Sung Chung
Dean Halderson
Gerald Hardic
Emmanuel Kamber
Dean Kauf
Arthur McGurn
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) 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 study. Students will want to contact the undergraduate adviser 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 adviser 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 210 Mechanics and Heat 4
PHYS 211 Electricity and Light 4
PHYS 330 Thermodynamics and Kinetic Theory 3
PHYS 342 Electronics 4
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
PHYS 566 Advanced Laboratory 3

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. A suggested course of study for the ASC physics major is as follows:

FIRST SEMESTER (16-17 hours)
MATH 122 ........................................... 4
PHYS 210 ........................................... 4
CHEM 101 or 102 ................................. 4
General Education ......................... 3-4
Physical Education ....................... 1
Elective ......................................... 4

SECOND SEMESTER (16-17 hours)
MATH 123 ........................................... 4
PHYS 211 ........................................... 4
General Education ......................... 4
Elective ......................................... 4

FOURTH SEMESTER (15 hours)
MATH 274 or 374 ................................. 3
PHYS 342 ........................................... 4
General Education ......................... 4
Elective ......................................... 4

FIFTH SEMESTER (17 hours)
MATH 574 ........................................... 3
PHYS 330 ........................................... 3
PHYS 520 ........................................... 4
General Education ......................... 3
Elective ......................................... 3

SEVENTH SEMESTER (15-16 hours)
CS 306 or 506 ........................................ 2-3
PHYS 562 ........................................... 3
PHYS 563 ........................................... 3
General Education ......................... 4
Elective ......................................... 3

EIGHTH SEMESTER (15 hours)
PHYS 564 ........................................... 3
PHYS 566 ........................................... 3
Electives ..................................... 9

ASC Physics Major with Electrical Engineering Option

The courses required for the ASC Physics major with electrical engineering option program are:

PHYS 210 ........................................... 4
PHYS 211 ........................................... 4
PHYS 212 ........................................... 4
PHYS 330 ........................................... 3
PHYS 520 ........................................... 3
PHYS 540 ........................................... 3
PHYS 560 ........................................... 3
PHYS 563 ........................................... 3
PHYS 566 ........................................... 3
EE 210 ........................................... 4
EE 221 ........................................... 4
EE 310 ........................................... 3

In addition to the above courses the student is required to take a minimum of three Electives from the following. The courses must include at least four hours of EE and be approved by the adviser.

PHYS 344 ........................................... 3
PHYS 352 ........................................... 3
PHYS 562 ........................................... 3
PHYS 564 ........................................... 3

EE 320 ........................................... 4
EE 330 ........................................... 4
EE 371 ........................................... 3
EE 380 ........................................... 3
EE 420 ........................................... 4
EE 430 ........................................... 3
EE 451 ........................................... 3
EE 455 ........................................... 3
EE 460 ........................................... 3
EE 470 ........................................... 3

Second Year

SECOND SEMESTER (16 hrs.)
MATH 122 ........................................... 4
CHEM 101 or 102 ................................. 4
General Education ......................... 3
Physical Education ....................... 3
Elective ......................................... 3
CS 106 ........................................... 1

SECOND SEMESTER (16 hrs.)
MATH 123 ........................................... 4
PHYS 210 ........................................... 4
CHEM 120 ........................................... 4
General Education ......................... 3
Physical Education ....................... 1

THIRD SEMESTER (16 hrs.)
MATH 272 ........................................... 4
PHYS 211 ........................................... 4
General Education ......................... 4
Elective ......................................... 4

FOURTH SEMESTER (15-16 hrs.)
MATH 274 or 374 ................................. 3
EE 210 ........................................... 4
PHYS 212 ........................................... 4
General Education ......................... 4

FIFTH SEMESTER (15-16 hrs.)
MATH 574 ........................................... 3
PHYS 330 ........................................... 3
PHYS 520 ........................................... 3
CS 306 or 506 ........................................ 2-3
EE 221 ........................................... 4

SIXTH SEMESTER (16 hrs.)
MATH 572 ........................................... 4
PHYS 540 ........................................... 3
PHYS 560 ........................................... 3
General Education ......................... 4
Elective ......................................... 4

SEVENTH SEMESTER (15-16 hrs.)
PHYS/EE Electives ....................... 6-7
PHYS 563 ........................................... 3
Electives ..................................... 6

EIGHTH SEMESTER (15-16 hrs.)
PHYS 566 ........................................... 3
PHYS/EE Electives ....................... 6-7
Electives ..................................... 6

Secondary Education Physics Major

The courses required for the SED Physics major are:

PHYS 104 Introductory Astronomy ............... 3
PHYS 103 Astronomy Laboratory ............... 1
PHYS 210 Mechanics and Heat ................... 4
PHYS 211 Electricity and Light .................. 4
PHYS 212 Introductory Modern Physics ......... 4
PHYS 342 Electronics .......................... 4
PHYS 352 Optics ............................... 3
Two additional physics courses numbered above 300 are also required. PHYS 308 does not carry credit toward the major but is a required course for those in secondary education. At the College of Education, the section of the bulletin for additional curriculum requirements for this program.

A suggested course of study for the SEEK physics major is as follows:

**FIRST SEMESTER (16-17 hours)**
- MATH 122
- PHYS 105
- CHEM 101 or 102
- General Education
- Physical Education

**SECOND SEMESTER (16-17 hours)**
- MATH 123
- PHYS 210
- CHEM 120
- General Education
- Physical Education

**THIRD SEMESTER (15-16 hours)**
- MATH 272
- PHYS 211
- General Education
- Elective

**FOURTH SEMESTER (15 hours)**
- MATH 274 or 374
- PHYS 212
- General Education
- ED 250

**FIFTH SEMESTER (15-16 hours)**
- Physics Elective
- CS 306
- ED 301
- General Education
- Elective

**SIXTH SEMESTER (15 hours)**
- PHYS 308
- PHYS 342
- General Education
- Elective

**SEVENTH SEMESTER (17 hours)**
- PHYS 352
- PHYS Elective
- ED 322
- General Education
- Electives

**EIGHTH SEMESTER (14 hours)**
- ED 395
- ED 410
- ED 475 Directed Teaching

### Geophysics Major

The required courses for a geophysics major are:

- PHYS 210
- PHYS 211
- PHYS 212
- PHYS 342 or 344

Plus the following:

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>GEOL 130</td>
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<td>GEOL 131</td>
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<td>GEOL 301</td>
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<td>GEOL 430</td>
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<td>GEOL 560</td>
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<td>CHEM 101 or 102</td>
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<td>MATH 272</td>
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<td>MATH 374</td>
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<tr>
<td>CS 306</td>
<td>3</td>
</tr>
<tr>
<td>MATH/CHEM 506</td>
<td>3</td>
</tr>
</tbody>
</table>

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 adviser. A field course in geology (6-8 hrs.) is strongly recommended.

### ASC Physics Minor

The courses required for the ASC physics minor are:

- PHYS 210 Mechanics and Heat
- PHYS 211 Electricity and Light
- PHYS 212 Introductory Modern Physics

In addition, three physics courses numbered above 300 are required.

### Secondary Education Physics Minor

The courses required for the SEEK physics minor are:

- PHYS 210 Mechanics and Heat
- PHYS 211 Electricity and Light
- PHYS 212 Introductory Modern Physics
- PHYS 342 Electrons
- PHYS 352 Optics

With consent of the department, PHYS 110 and 111 may be substituted for 210 and 211 in the ASC and SEEK minor programs.

### 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. Fall

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 toward 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. Fall, Winter

The aim of this 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 the simplest aspects of arithmetic and 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 106 Elementary Physics**
4 hrs. Fall, Winter

This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring four credit hours at the level of general college physics. The course consists of four lectures and one two-hour laboratory per week. A student may not receive credit for both 106 and either 110 or 210.

**PHYS 110 General Physics I**
4 hrs. Fall, Winter, and Spring

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 lectures and a two-hour laboratory per week. Many schools of engineering will not accept PHYS 110-111 for transfer credit.

**PHYS 111 General Physics II**
4 hrs. Fall, Winter, and Summer

This course follows 110 and consists of studies in electricity, magnetism, light and atomic and nuclear physics. Prerequisite: PHYS 110.

**PHYS 130 Social Issues and Physical Science (see General Studies)**

**PHYS 210 Mechanics and Heat**
4 hrs. Fall, Winter, and Spring

This first course of a sequence of three in general college physics employing calculus deals with mechanics and heat. It is required of physics majors, engineering students, and future physics teachers. Recommended for students desiring a calculus course in physics. The course consists of four lectures and a two-hour laboratory 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 110 and PHYS 210.

**PHYS 211 Electricity and Light**
4 hrs. Fall, Winter, and Summer

This course follows 210 and consists of studies in electricity, magnetism, and light. Prerequisite: PHYS 210 or consent of instructor. A student may not receive credit for both PHYS 111 and PHYS 211.

**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

**PHYS 215 Electricity and Light Problems**
1 hr. Fall

This course is intended for those who have had General Physics I, or its equivalent at another school, and who need to show credit in 210 Mechanics and Heat. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 210. This course plus PHYS 110 is equivalent to PHYS 210. Prerequisite: PHYS 110 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 11 General Physics II, or its equivalent at another school, and who need to show credit in 211 Electricity and Light. The emphasis is on problem solving using calculus with the mathematical rigor required in PHYS 211. This course plus PHYS 111 is equivalent to PHYS 211. Prerequisites: PHYS 111 General Physics II or equivalent, MATH 123, or consent of instructor.

PHYS 208 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 toward physics major or minor but is a required course for those in secondary education.

PHYS 312 Recent Developments in Physics
3 hrs. Winter
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 systems of interest in physics and chemistry. Introductory kinetic theory with selected topics is also included, as an introduction to quantum statistics. Prerequisite: PHYS 211.

PHYS 340 Biomedical Instrumentation
3 hrs. Winter
This course is an applied physics course designed for students mapping in biomedical sciences, especially medical technology. The major emphasis is placed on electronics and its applications in the biomedical sciences. Two lectures and one two-hour lab per week. Prerequisite: PHYS 106 or equivalent.

PHYS 342 Electronics
4 hrs. Winter
This course deals with analysis of the more important transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. Prerequisites: PHYS 211.

PHYS 344 Microprocessor Electronics
3 hrs. Fall
This introductory course explores the use of modern instrumentation in physics; the use of computers, computer circuits, and basic techniques for physical measurement are included. One lecture and four hours of laboratory weekly. Prerequisite: PHYS 211.

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 211.

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 520 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 211 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 211 and either MATH 274 or 374, or consent of instructor.

PHYS 541 Electricity and Magnetism II
3 hrs. Winter
This course is a continuation of PHYS 540 and is 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 the principal topics of the course. Prerequisite: PHYS 540.

PHYS 550 Quantum Mechanics
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, the uncertainty principle, the Schrodinger equation with solutions, the coupling of angular momenta, and perturbation theory. Prerequisite: PHYS 211 and 520 or consent of instructor.

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 Raman, Zeeman, 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 used 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 565 Advanced Laboratory
3 hrs. Winter
The objectives of this course are to provide the student with experience in the use of modern laboratory equipment and with a better understanding of several important physical phenomena. The student will perform experiments from a list covering three areas: atomic, solid state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of three three-hour laboratory periods each week. Prerequisites: PHYS 342 and PHYS 560, 561. (560 or 561 may be elected concurrently with 566.)

PHYS 570 Relativity
3 hrs.
This course is primarily devoted to the special theory of relativity. Topics include the Lorentz transformation, space-time diagrams, mechanics of systems of point masses, collisions, electromagnetism, and conservation laws. An introduction to the general theory of relativity will also be given. Prerequisite: PHYS 520 (may be taken concurrently).

PHYS 588 Selected Topics
1-4 hrs.
This course affords an opportunity for advanced students with good scholastic records in Physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor.
**POLITICAL SCIENCE**

Ernest E. Rossi, Chair  
John T. Bernhard  
James M. Butterfield  
Ralph C. Chandler  
Kenneth A. Dahlberg  
Richard A. Enslen  
Susan B. Hannah  
David C. Houghton  
Alan C. Isaak  
Robert W. Kaufman  
Peter Kobrak  
Richard L. McAnaw  
James E. Nadonley  
Peter G. Renstrom  
William A. Ritchie  
Helenan S. Robin  
Chester B. Rogers  
David G. Houghton  
Peter Kobrak  
Richard L. McAnaw  
James E. Nadonley  
Peter G. Renstrom  
William A. Ritchie  
Helenan S. Robin  
Chester B. Rogers  
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 civic duties; (3) become a governmental employee or officer; (4) understand the part government plays in everyday business or other activities; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public service to public affairs and 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 adviser.

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.

**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, 562, 563, 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 the concentration should see the Public Policy Adviser 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

- B. Complete 320 American Judicial Process (4 hrs.)

**C. Complete THREE of the following courses (8 hrs.)**

- PSCI 325 Criminal Justice Policy
- PSCI 520 Constitutional Law
- PSCI 522 Civil and Constitutional Rights
- PSCI 526 Administrative Law and Public Regulation
- PSCI 555 International Law

**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 card in consultation with a public administration adviser in the Department of Political Science. The student must consult with an adviser upon entering the program.

The political science major program in public administration (Curriculum PAP) requires 40 semester credit hours divided between (1) a 34-semester-hour core of required courses; and (2) 6 hours of electives.

**MAJOR**

**Required Core**

- PSCI 200 National Government
- PSCI 202 State and Local Government
- PSCI 300 Introduction to Political Science
- PSCI 320 American Judicial Process
- PSCI 34- Comparative Politics (to be chosen from 340, 341, 342, 343, or 344)
- PSCI 362 Contemporary Political Theory
- PSCI 363 American Political Theory
- PSCI 562 Modern Democratic Theory

**B. Complete PSCI 320 American Judicial Process (4 hrs.)

**C. Complete THREE of the following courses (8 hrs.)**

- PSCI 325 Criminal Justice Policy
- PSCI 520 Constitutional Law
- PSCI 522 Civil and Constitutional Rights
- PSCI 526 Administrative Law and Public Regulation
- PSCI 555 International Law

**D. Complete at least one additional course (minimum of 3 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
- HIST 301 Law and Justice in Western Civilization
- PHIL 313 Philosophy of Law
- SOC 262 Criminology
- SOC 462 Criminal Justice Process
- SOC 566 Advanced Criminology

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The political science major program in public administration (Curriculum PAP) requires 40 semester credit hours divided between (1) a 34-semester-hour core of required courses; and (2) 6 hours of electives.
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
3. Choose TWO from the following:
   PSCI 390 Field Work in Pol. Sci.
   PSCI 504 Making of Public Policy
   PSCI 505 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.

4. Majors must choose one directed minor (15-24 hrs.) in consultation with a public administration adviser—contact departmental office for details.

MINOR
The minor in public administration requires 22 hours, listed in section 3, and one course (3 hrs.) drawn from section 3. Many political science majors choose to minor in public administration.

RELATED MAJOR
The Department of Political Science also cooperates with the Haworth College of Business in offering a major in public administration (PAB) designed for students planning careers in the private sector involving contact with governmental agencies and activities. The student receives a Bachelor of Business Administration with a business administration major plus the political science minor in public administration. For further details, see Business Administration: Related majors. For counseling see the general business adviser and the public administration coordinator.

Secondary Education Curriculum

MAJOR
The teaching major consists of a minimum of 30 semester hours of work in Political Science. It is expected that transfer students will take at least one-half of the minimum required 30 hours during the department. The following are required courses for teaching majors:

PSCI 200 National Government
PSCI 202 State and Local Government
PSCI 250 International Relations
PSCI 34- One course in Comparative Politics (340, 341, 342, 343, or 344)

PSCL 5- One course in Political Theory (360, 361, 362, 363, 562, 563, or 564)

Students who may become teaching majors are encouraged to take PSCI 100 Introduction to Political Science as their first course in the department during their freshman year.

Students planning to use this major to meet teacher certification requirements are required to complete SSCI 307 Teaching of Social Studies in the Secondary Schools, or GEOG 460 Concepts and Strategies in the Teaching of Geography, or HIST 490 Teaching of History in Secondary Schools.

Teaching majors must also complete the secondary education minor in group social science.

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 Program" 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 department honors adviser, Dr. Alan C. Isaak.

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 goals 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 center, and the world. 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 270 Political Topics

AMERICAN POLITICAL SYSTEM
200 National Government
202 State and Local Government
210 Citizen Politics
300 Urban Politics in the United States
304 Introduction to Public Policy
306 Environmental Politics
310 Political Parties and Elections
314 The Presidency
315 The Politics of Congress
320 The American Judicial Process
325 Criminal Justice Policy
504 Making of Public Policy in the U.S.
505 National Public Policy
506 Problems of American Government
516 Political Campaigning
520 Constitutional Law
522 Civil Liberties and Civil Rights
526 Administrative Law and Public Regulation

PUBLIC ADMINISTRATION
330 Introduction to Public Administration
530 Problems in Public Administration
531 Administration in Local and Regional Governments
532 The Bureaucracy
533 Public Personnel Administration
534 Administrative Theory
535 The Politics of Governmental Budgeting and Finance
536 Comparative Public Administration

FOREIGN AND COMPARATIVE POLITICAL SYSTEMS
340 West European Political Systems
341 African Political Systems
342 The People and Politics of Asia
343 Latin American Political Systems
344 Soviet and East European Political Systems
541 Comparative Political Systems
542 Administration in Developing Countries
549 Problems of Foreign Political Systems

INTERNATIONAL RELATIONS
250 International Relations
350 American Foreign Policy
552 Studies in International Relations
553 United Nations
555 International Law
557 Studies in Foreign Policy

POLITICAL THEORY AND METHODOLOGY
360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes
361 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx
362 Theoretical and Ideological Bases of Contemporary Politics
363 American Political Theory
562 Modern Democratic Theory
563 Theories of Revolution and Violence
564 Introduction to Political Analysis
590 Research Methods
591 Statistics for Political Scientists

SPECIAL STUDIES
370 Issues in Contemporary Politics
390 Field Work in Political Science
391 Internship Seminar
490 Political Science Honors Seminar
492 Political Science Honors Research
572 Computer Applications for Political Scientists
598 Studies in Political Science

Political Science Courses (PSCI)

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

PSCI 100 Introduction to Political Science 3 hrs.
An introduction to those concepts useful for an understanding of politics. These concepts and the interrelationships will be explored in the context of contemporary political systems.

PSCI 200 National Government 3 hrs.
An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure, and illustrates its functions.

PSCI 202 State and Local Government 4 hrs.
A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and
PSCI 210 Citizen Politics 3 hrs.
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.

PSCI 250 International Relations 4 hrs.
A study of the nature of the international community and the forces that produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.

PSCI 270 Political Topics 1-3 hrs.
A specifically focused course dealing with a political topic of general student interest. The course will be primarily substantive rather than theoretical to accommodate students with no previous training in political science. The topic will be announced in advance, and the course may be repeated for credit with a different topic.

PSCI 300 Urban Politics in the United States 3 hrs.
A study of those factors having an impact on the governing of American cities, including social and economic conditions in the cities, the organization of local political systems, and the actions of the state and federal governments. The city will be viewed as a center of economic and social problems that necessitate political activity and as a laboratory for the advancement of general knowledge of politics.

PSCI 304 Introduction to Public Policy 3 hrs.
An introduction to the U.S. public policy process through the use of general models and case studies. Various inputs of power and influence are analyzed as proposals are considered in policy-making institutions. The roles of public officials, interest groups, lobbyists, opinion leaders, experts and others are analyzed. Evaluations of policies are made with respect to their perceived need, appropriateness and effectiveness. Prerequisite: PSCI 200.

PSCI 306 Environmental Politics 3 hrs.
An examination of the major legal, political, and bureaucratic forces influencing the development and implementation of environmental policy. Interactions between levels and units of government are analyzed. Effective modes of citizen participation and action, especially at the local level, are discussed throughout.

PSCI 310 Political Parties and Elections 3 hrs.
A study of the nature of political parties, the organization and function of political parties and elections, and the elective process in the U.S.

PSCI 314 The Presidency 3 hrs.
A study of the presidency, including the White House staff and cabinet, the institutional and policy leadership of the president, and the politics of presidential selection.

PSCI 315 The Politics of Congress 3 hrs.
A study of the internal arrangements and the outside forces that impact upon the operations of the legislative process. Emphasis is placed on explaining why Congress behaves as it does.

PSCI 320 The American Judicial Process 4 hrs.
An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention on the decisional processes, processes participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.

PSCI 325 Criminal Justice Policy 3 hrs.
An examination of various judicial, legislative and executive policy decisions which govern the criminal justice processes. The course will include extensive discussion of the political dynamics of the policy making processes.

PSCI 330 Introduction to Public Administration 3 hrs.
An introductory course in the administrative process in the public service. Special attention given to the environment and politics of administration, the role of the chief executive and the legislature. Detailed consideration of personnel and financial problems of administration.

PSCI 340 West European Political Systems 4 hrs.
Considers the organization, political behavior and decision-making processes of the major countries of West Europe, including Britain, France and Germany. Political trends and forces challenging and reshaping democratic institutions are examined.

PSCI 341 African Political Systems 4 hrs.
A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems dealing with political modernization are analyzed.

PSCI 342 The People and Politics of Asia 4 hrs.
A systematic survey of the social, economic and political characteristics of the area. Political culture, institutions and processes, including both traditional and modern forms, are examined in detail. Major political problems, country differences, and various paths to modernization, are analyzed.

PSCI 343 Latin American Political Systems 4 hrs.
A systematic survey of the social, economic, and political characteristics of the area. Political culture, institutions and processes are examined in detail. Intra-regional differences and major political problems are analyzed.

PSCI 344 Soviet and East European Political Systems 4 hrs.
The governmental organization and political structure of the Soviet Union and the states of Eastern Europe. Special attention is directed to the Communist Party and its relationship to the organization of the state. The social and economic bases of the current system are stressed.

PSCI 350 American Foreign Policy 4 hrs.
An analysis of the institutions and processes by which the American president and government determine and seek to achieve the national interest of the United States in the international community.

PSCI 360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes 3 hrs.
A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Reformations and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods. No prerequisite.

PSCI 361 Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx 3 hrs.
A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems of the modern period: conservatism, liberalism and socialism. No prerequisites.

PSCI 362 Theoretical and Ideological Bases of Contemporary Politics 3 hrs.
A survey of the more significant developments beginning with the confrontation between socialism and liberalism and concluding with an analysis of those theories and ideologies that have emerged in our own times. No prerequisites.

PSCI 363 American Political Theory 3 hrs.
An exposition and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism.

PSCI 370 Issues in Contemporary Politics 3 hrs.
This course is designed for the study of contemporary political problems. It is intended to provide opportunity for the study of political phenomena normally beyond the scope of regular departmental offerings. Essentially the course relates the theory and principles of political science to practical politics. The course may be applied to the appropriate field distribution requirement. Topics will vary from semester to semester. Students may repeat the course for credit.

PSCI 390 Field Work in Political Science 1-12 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 490 Political Science Honors Seminar 3 hrs.
An undergraduate seminar for honor students and others admitted by consent of the Department Honors Committee. The content of the seminar varies and will be announced in advance. May be repeated. Admission by permission of the Department Honors committee.

PSCI 492 Political Science Honors Research 2-3 hrs.
Honors students, with the guidance of a faculty adviser, conduct research and write the Honors Paper on a topic of individual interest. Prerequisite: Membership in the Political
PSCI 504 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 505 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 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 516 Political Campaigning 4 hrs.
How are elections won? This course provides a practical guide on how to organize and conduct a political campaign. For the potential candidate or campaign worker, it tells how to do it. For others it describes how campaigns are trying to affect your vote.

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 535 The Politics of Governmental Budgeting and Finance 3 hrs.
A survey of the political process of governmental budgeting and finance. Budget Systems, including program planning and budgeting systems, are studied. The politics of taxation and other governmental revenues, including intergovernmental transfers, are studied for their impact on public policy choices.

PSCI 536 Comparative Public Administration 3 hrs.
This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. 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 558 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 559 Theories of Revolution 4 hrs.
Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

PSCI 561 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 mathematic prerequisite is required.
PSYCHOLOGY

David O. Lyon, Chair
Galen J. Alesi
Eston J. Asher
Dale M. Brethower
M. Michele Burnette
Alyce M. Dickinson
Howard E. Farris
R. Wayne Fugua
Frederick P. Gault
Bradley E. Hultena
Neil D. Kent
Chris Koronakos
Mari~n K. Malott
Richard W. Malott
Jack L. Michael
John E. Nangle
Alan Poling
William K. Redmon
Malcolm H. Robertson
Richard C. Tsegaye-Spates
Roger E. Ulrich

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 adviser 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 adviser. 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.

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 Concepts ............ 3
PSY 360 Concept and Principles of Behavior Analysis ........... 3
PSY 460 Survey of Behavior Analysis Research ................. 3

Practicum and Laboratory Experience (3-6 hrs.)
Take one of the 3 hr. practicum courses or take one of the 6 hr. lecture-laboratory combinations.

Practicum courses:
PSY 267 Practicum: Child Psychology .............. 3
PSY 347 Practicum: Learning and Self-Management ............ 3
PSY 357 Practicum: Special Populations ................. 3
PSY 367 Practicum: Child Care ............. 3

Also, any of the courses listed under Practicum and Laboratory Experience that were not taken to fulfill that requirement may be taken as electives. This includes any of the practicum courses as well as PSY 570 which can be taken without taking the related laboratory course, 578 (but 578 cannot be taken without having taken 570). Note that 362 and 372 can not be taken without simultaneous enrollment in the related laboratory course.

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, sociology, social work, and others approved by the department adviser.

PSYCHOLOGY MAJOR, SECONDARY EDUCATION OPTION

Students who plan to obtain a secondary school teaching certificate must complete the required courses in the Arts and Sciences Psychology Major (which must include one of the practicum courses—267, 347, 357, 367, 387, or 397) and must also complete Psychology 517. These students are urged to complete teachable minors in one of the sciences or mathematics although other teachable minors may be approved by the department adviser.

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
or
PSY 150 Introduction to Human Behavior .............. 3
and in addition
PSY 160 Child Psychology .............. 3
PSY 250 Abnormal Psychology ............. 3

PSY 387 Practicum: Direct Instruction .............. 3
PSY 397 Practicum in Psychology ............. 3

Lecture-Laboratory Combinations

PSY 362 and
PSY 368 Conditioning and Learning .................. 3/3
PSY 372 and
PSY 378 Physiological Psychology ............. 3/3
PSY 570 and
PSY 578 Mental Retardation .................. 3/3

Electives (9-12 hrs.)
PSY 344 Organizational Psychology ............. 3
PSY 464 Systems and Theories ............. 3
PSY 374 Toward Experimental Living ............. 3
PSY 512 Behavioral Pharmacology and Toxicology ............. 3
PSY 513 Animal Behavior ............. 3
PSY 517 Psychology of Learning for Teachers ............. 3
PSY 518 Research in Stimulus Control and Perceptual Processes ............. 3
PSY 524 Human Sexuality ............. 3
PSY 535 Instrumentation and Computer Use in Psychology ............. 3
PSY 560 Behavioral Medicine ............. 3
PSY 562 Management of Health Related Behaviors ............. 3
PSY 574 Experimental Social Psychology ............. 3

Also, any of the courses listed under Practicum and Laboratory Experience that were not taken to fulfill that requirement may be taken as electives. This includes any of the practicum courses as well as PSY 570 which can be taken without taking the related laboratory course, 578 (but 578 cannot be taken without having taken 570). Note that 362 and 372 can not be taken without simultaneous enrollment in the related laboratory course.

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, sociology, social work, and others approved by the department adviser.
Approved electives: 300, 330, 344, 360, 460, 464, 3 hours of practicum (267, 347, 357, 367, 387, 397), 6 hours from lecture-laboratory combinations (362/368, 372/378, 570/578).

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 must include one of the practicum courses—267, 347, 357, 367, 387, or 397) but in addition must take PSY 517.

Honors Program in Psychology
The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:
1. The completion of a major in Psychology.
2. A University grade point average of 3.5, and a department grade point average of 3.8.
3. Completion of PSY 499, Honors Project in Psychology (6 credit hours) and the preparation of an Honors Thesis.
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Psychology Courses (PSY)
(Course described in italics is approved for General Education.)

PSY 100 General Psychology
3 hrs.
An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. Approved for General Education.

PSY 150 Introduction to Human Behavior
3 hrs. Fall, Winter.
An introduction to general psychology from the point of view of humanistic behaviorism: the use of the science of behavior to help people achieve their full potential as human beings. Emphasizes how the environment has a major influence on the way we are and how the environment can be changed so that we can become the kind of people we wish. Open to first year students.

PSY 155 Teaching Apprenticeship in Introductory Psychology
2-4 hrs. Fall, Winter.
A laboratory course in the instructional methods of teaching introductory psychology. Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 160 Child Psychology
3 hrs. Fall, Winter.
An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for 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. Fall, Winter.
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 may be supervised by advanced students enrolled in a practicum course.

PSY 250 Abnormal Psychology
3 hrs. Fall, Winter.
An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis 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. Fall, Winter.
A laboratory course in the instructional methods of teaching abnormal psychology. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 267 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 100 or 150.

PSY 300 Statistics for the Behavioral Sciences
3 hrs. Fall, Winter.
Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include: measures of central tendency and variability, frequency distribution 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 of the methodologies utilized in applications of behavior analysis. Extensive readings in the recent literature of applied behavior analysis introduce the student to current issues in the field. Prerequisite: PSY 300 or consent of instructor.

PSY 344 Organizational Psychology
3 hrs.
This course focuses on performance management and improvement techniques that are based on the principles of behavioral psychology. Environmental change strategies are emphasized. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics 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. Fall, Winter.
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. Fall, Winter.
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 habitation, 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, 150, 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. Fall, Winter.
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. Fall.
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. Winter.
An introduction to physiology and its relationship to behavior, including brain behavior interactions, the effects of 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 upon social ethics and the design of communities. Visits to experimental communities may be included. Prerequisite: 6 hours of psychology or permission of instructor.
PSY 378 Laboratory in Physiological Psychology
3 hrs. Winter
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. Fall
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 388 Practicum in Psychology
3 hrs. Fall
Supervised experience at a community based mental health site as announced in the schedule of classes or as approved by the undergraduate adviser. 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. Fall, Winter
This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. Written permission must be obtained on forms available in the department office. May be repeated for credit up to 12 hours.

PSY 480 Survey of Behavior Analysis Research
3 hrs. Fall
An overview of diverse topics of behavior analysis research and applications. Topics include clinical psychology, child psychology, behavioral medicine, environmental quality, mental retardation, education and geriatrics. Prerequisite: PSY 380.

PSY 464 Systems and Theories in Psychology
3 hrs. Fall
A critical examination of the assumptions, methods and problems of several major schools of psychology: Structuralism, Functionalism, Associationism, Behaviorism, Gestalt Psychology and Psychoanalysis. Prerequisite: 9 hours of psychology.

PSY 498 Honors Projects in Psychology
1-6 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. Winter
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. Winter
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 I
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 materials, classroom management and incentive motivation, behavior change, performance contracting and program evaluation. Practical application is stressed.

PSY 518 Stimulus Control and Perceptual Processes
3 hrs.
An examination of the literature surveying sensory and perceptual processes with an emphasis upon the research methodology 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 on academic skill content, sequencing of skill hierarchies, devising short term educational plans to teach specific skills and evaluating the effectiveness of such plans. Prerequisite: Graduate standing in psychology, education or permission of instructor.

PSY 524 Human Sexuality
3 hrs. Fall
Discussion of those human behaviors concerned with sex, sexuality and reproduction. Consideration is given to the anatomical and psychological properties of sexual functioning in male and female. Emphasis is placed upon the sexual response cycle as described by Masters and Johnson. The course is not intended to provide therapy training.

PSY 526 Human Drug Use and Abuse
3 hrs.
This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate.

PSY 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. Fall, Winter
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 regimens 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. Fall
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 designing, conducting, 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. Fall
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 adviser. Courses may include the following: Parent Training, Studies in Industrial Psychology.
Computer Assisted Instruction
Theory of Direct Instruction

PSY 598 Special Projects in Psychology
1-5 hrs.
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit, although the total number of hours in a degree program may not exceed 5 hours.

PSY 599 Practicum in Psychology
2-4 hrs.
In depth training in the application of the principles of behavior to a specific and restricted problem area in the discipline. The practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Classes. Each hour of credit requires 100 clock hours. May be repeated for credit although number of credits may be limited by program requirements. Written permission must be obtained from the department.

PUBLIC AFFAIRS AND ADMINISTRATION

Fredric J. Mortimore, Director
Ralph C. Chandler
Drew A. Dotan
William F. Grinnshaw
Peter Kobrak
Michael R. Payne
Thomas L. Thompson

The School of Public Affairs and Administration offers courses, seminars, and workshops designed to prepare Master of Public Administration (MPA) and Doctor of Public Administration (DPA) degree candidates for leadership positions with public and independent sector agencies.

Public Affairs and Administration (PADM)

Most courses are open to graduate students only, but the following may be taken by undergraduate students whom the School Director deems to be qualified by academic background and/or practical experience.

PADM 530 Supervisory Skills for Administrators
3 hrs.
This course includes a consideration of the five most important functions of middle level managers and first line supervisors: decision-making, planning, organizing, leading, and controlling. In order to assist participants develop their supervisory skills, this course utilizes case studies, small group discussions, role playing, simulations, and other practical skill building exercises.

PADM 531 Policy Leadership in Administration
3 hrs.
The professional administrator, whether occupying a line or staff position, is increasingly called upon to play a leadership role in formulating policy options. Successful administrators therefore frequently serve as entrepreneurs. In this role they are responsible for designing new and innovative solutions to policy problems. This course is designed to review policy leadership and to analyze the role of entrepreneurship in bringing policy options to the arena of organizational and public debate.

PADM 532 Program Planning and Proposal Writing
3 hrs.
This course seeks to build skill in program planning, program management, and proposal writing. The first part of this course will be devoted to the grantmanship process, including how to: formulate and promote a project concept; prepare the project proposal; submit the project proposal; and follow-up after acceptance or rejection of the proposal. Emphasis will be placed upon the project proposal as an integral component of agency planning, program management, and assessment activities, from both grantor and grantee perspectives. In the second part of this course each participant will prepare a project proposal.

PADM 572 Computer Applications in Administration
3 hrs.
Administrators at all levels increasingly rely upon computers to perform the tasks for which they are responsible. Whether to prepare reports, access data, or communicate with others, administrators at all levels of the organizational hierarchy are expected to possess a certain minimum facility with this technology. In this introductory technical core course, MPA degree candidates will become proficient in the administrative uses of computers. For graduate students only.

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. For graduate students only.

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
Otto Grundler
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.

Requirements for Majors and Minors

A major in religion consists of a minimum of 32 hours and includes REL 200 (Introduction to Religion), two courses in the field of Historical Studies, and at least one course from each of the remaining three fields (Comparative Studies, Methodological Studies, Constructive Studies). 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 24 semester hours, totaling 22 semester hours, and 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 Christian, Jewish, or Islamic religions, other than those specified above under (2) and (3), within the category of Historical Studies, or one course in Constructive 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 by mutual consent between the student and the advisor.

Courses By Topic

INTRODUCTORY STUDIES
100 Religions of the World
107 Writing About Religion
200 Introduction to Religion

HISTORICAL STUDIES
302 Religion in the Indian Tradition
303 Chinese Religion
304 African Religions
305 The Christian Tradition
306 The Jewish Tradition
307 The Islamic Tradition
308 Japanese Religion
500 Historical Studies in Religion

COMPARATIVE STUDIES IN RELIGION
311 Myth and Ritual
313 Religion in America
510 Morphological and Phenomenological Studies in Religion

METHODOLOGICAL STUDIES IN RELIGION
320 The Philosophy of Religion
323 Religion and Revolution
324 Psychological Elements in Religion
520 Methodological Studies in Religion
521 The Teaching of Religion in the Public School

CONSTRUCTIVE STUDIES IN RELIGION
332 Religion and Social Ethics
333 Religion and Ecological Awareness
354 Religion in Modern Society
496 Independent Study in Religion
530 Constructive Studies in Religion
598 Readings in Religion

Religion Courses (REL)

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

REL 100 Religions of the World 4 hrs.
An approach to the religions of the world which surveys themes in various religious traditions (such as Judaism, Christianity, Islam, Hinduism, Buddhism and primitive religions). The course studies how these religious traditions conceive of gods and god 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 toward major or minor in Religion.

REL 107 Writing About Religion 3 hrs.
Course develops and improves writing skills in the context of reading and discussing selected materials on religion. Emphasis is on the process of writing, with writing assignments in class and outside class. Reading selections focus on issues of contemporary interest. Fulfills the University Intellectual Skills college-level writing requirement.

REL 200 Introduction to Religion 4 hrs.
An introduction to the study of religion intended to be universal in scope, theoretical and scientific in intent, and humanistic in orientation, of the nature and history of religion wherever it may be found, whatever its context, no matter what its forms, and attempting to raise whatever questions are necessary to illuminate its character. This will involve attention to more than one religious tradition, a discussion of the problems of definition, theory and method, an acknowledgement of the interdisciplinary aspects of much of the inquiry, and an examination of the consequences of this inquiry for problems of self-understanding in the context of Western culture in general, and American society in particular.

REL 302 Religion in the Indian Tradition 4 hrs.
This course draws its materials primarily from the great religions traditions native to India—i.e., 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 religions forms and the religious forms of other cultures.

REL 303 Chinese Religion 4 hrs.
A study of the historical continuity and overall unity in the Chinese religious tradition. The formal religions of Confucianism, Taoism, and Chinese Buddhism, as well as the informal religious movements of "ancestor worship," family religion, and state religion will be discussed. An attempt is made to assess the meaning of religion in Chinese culture.

REL 304 African Religions 4 hrs.
This course is designed to introduce the student to the complexity and varieties of the religions of Africa. This is done by focusing on the myriad religious forms, e.g., ideas of the soul, cosmology, initiation rites, etc., which have emerged during the long history of Africa. The course pays attention to religious forms which either came into being with or define a specific cultural stratum: for example, the religious forms of hunters and food-gathers, horticulturalists, agriculturists, 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 structure. In an effort to elucidate the all-pervasive influence Christianity has had on Western Culture, the course focuses on such problems as the questions of the origin and identity of Christianity, the most important stages in its development, the interaction of Christian experience and current world view of the host cultures, and particularly the phenomenon of secularization which is examined in the light of the astronomical, biological, historical, psychological and sociological "attacks" by modernity upon Christianity.

REL 306 The Jewish Tradition 4 hrs.
The 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 problems 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'an, 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 this important something is and how it is actualized in human ritual. Myths and rituals will be taken from a variety of historical traditions in order to reflect the cultural milieu of the communities whose lives are governed by them. Special problems to be considered will be the relationship between myth and cult, the problem of time and myth, the logic of mythic forms, etc.

REL 313 Religion in America
4 hrs.
An introduction to the full range of religious phenomena in today's North American culture and societies. The course attempts to isolate the specifically religious elements in concepts, values, and institutions and relate them to other elements of the socio-cultural fabric. While attention is directed to historical background, the rise, institutionalization and decline of movements, developing traditions, changing concepts, etc., the emphasis of the course is on contemporary experience and special attention is given to content analysis of the mass media, such as TV, radio, newspapers and magazines, advertising, popular music, comics, films, etc.

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

REL 323 Religion and Revolution
4 hrs.
In this course, religion will be looked upon as a driving force of social and cultural evolution. The historical and contemporary record shows religion capable of exhibiting profound revolutionary tendencies as, for instance, in the Peasant Wars in 16th century Germany or in the present South American situation. The course will be concerned with religion's capability to promote fundamental change. It will explore the following main issues: The utopian and prophetic elements in Eastern, Mid-Eastern, Western religious traditions; comparison of contemporary religious and secular political hopes and aspirations; the correlation of political exodus utopias and religious eschatologies; the mutual reproduction of religious theory and social and political practice.

REL 324 Psychological Elements in Religion
4 hrs.
This course is concerned with the correlation between religion and the human subject—the religious or a religious individual. The central interest of the course is with religious propensities, feelings, impulses, passions, attitudes, motivations, values, ideas, prejudices. Critical questions such as the following will be asked: What is the function of religious faith for the nervous stability, mental health and wholesomeness of the subject? Does religion reinforce or hinder the maturation process of the individual? Is the need for religion just a derivation from the child's feeling of helplessness and of the longing it evokes for a sublime father figure?

REL 332 Religion and Social Ethics
4 hrs.
This course will be a study of different styles of religious and secular social ethics and the creative ideas, problems, and attitudes toward the social world they contain. The course will discuss a variety of special contemporary socio-ethical problems: The new sexual morality, abortion, divorce, guaranteed income, thermonuclear and chemical warfare, artificial insemination, euthanasia, and drug addiction. Particular attention will be paid to how different styles of social and secular ethics have led to fundamental changes in contemporary marriage and family life as well as in the economic, political, and cultural sphere.

REL 333 Religion and Ecological Awareness
4 hrs.
A study of our society's attitudes toward the natural environment with special attention given to the sanctions which undergird these attitudes, a consideration of the various religious responses to the environmental crisis, and an inquiry into the possibility of reappropriating a sense for the sacrality of nature through the emerging ecological awareness.

REL 334 Religion in Modern Society
4 hrs.
Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood in more than historical terms it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

REL 406 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
4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

REL 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.

SOCIOMETRY
Lewis Walker, Chair
Lloyd Braithwaite
Milton J. Brawer
Susan Carlingella-MacDonald
David Chaplin
Paul C. Friday
Ronald C. Kramer
David M. Lewis
Richard R. MacDonald
Gerald Markle
Ellen Page-Robin
James C. Petersen
Judith A. Riley
Stanley S. Robin
Martin H. Ross
Herbert L. Smith
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. The purpose of this program is to stimulate and reward outstanding student work in sociology or criminal justice. Requirements include: sociology or criminal justice major, overall average of 3.0 or better, and whose criminal justice average is at least 3.2.
2. Membership in Alpha Kappa Delta, the national sociology honorary society. AKD is open to all students who have completed at least ten hours in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0.
3. Leonard C. Kercher Fund Awards are made each year for outstanding student achievement. Dr. Kercher was head of the department from 1940 to 1972.
4. Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice students who have completed at least one third of the credit hours required for graduation with an overall grade point average of 3.0 or better, and whose criminal justice average is at least 3.2.

Further information and application forms may be obtained at the Sociology Office, 2404 Sangren Hall.

Advising
DEPARTMENT ADVISER
2407 Sangren Hall, 387-5286. Students must consult the department advisor for major/minor slips in Sociology, Criminal Justice, and the Social Psychology Concentration and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships
Students interested in becoming 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 adviser.

Sociology Major
A major in sociology consists of a minimum of 30 hours in sociology courses. SOC 200, 300, 320, 382, 383, and 556 are required. Two (6 hours) of the following are required, except for students in the social psychology concentration: SOC 210, 250, 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 course at the 100-level may be included. Transfer students should see the department adviser, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor. Students in secondary education must take one of the following: SSCI 300 (Teaching of Social Studies in Secondary School), GEOG 460 (Concepts and Strategies in Teaching of Geography, or HIST 490 (Secondary Teaching Methods) to meet the state certification requirement for a teaching methods course. This course may not be included in the hours required for a sociology major or minor. A major slip is required.

GROUP SOCIAL SCIENCE
Students in the secondary education curriculum who major in sociology must also complete a minor in group social science. Refer to the "Interdisciplinary Program" section of this catalog for a description of the minor requirements.

Sociology Major, Accelerated BA/MA Program
This program is intended for the exceptional sociology major who intends to pursue a disciplinary masters degree in sociology at Western Michigan University. It is designed to accelerate progress toward the attainment of the disciplinary masters degree in sociology.
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 620, 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, from the following areas: (1) A minimum of 9 hours transferred from a two-year institution may be included; (2) at least 6 hours must be 200-level or above; (3) no more than one 100-level course may be included. Minor slips are required.

Sociology/Anthropology Major
A combined major in sociology and anthropology consists of a minimum of 30 hours, with at least 12 hours in each department. SOC 200, 300, 382, and ANTH 210, 240, and 250 are required. Additional courses in either department may be selected by the student.

Criminal Justice Curriculum
This program is designed to provide perspective on the entire criminal justice system: crime as a social problem and society's reaction 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.

CRIMINAL JUSTICE MAJOR (36 hours)
Required Prerequisites
The following courses are required before taking any of the core courses:
SOC 141 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 361 Writing/Research in Criminal Justice.

Core Courses
All of the following courses (19 hours) are required. It is important to check with the adviser so courses are taken in proper sequence.
SOC 462 Criminal Justice Process
SOC 484 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 is required: SOC 382 Methods of Sociological Inquiry I (3) or SOC 383 Methods of Sociological Inquiry II (3)

Special Area of Concentration
Completion of one of the following areas is required:
CORRECTIONS (6 hours)
SOC 586 Community Corrections
SWRK 567 Advanced Institutional Treatment of Offenders
SWRK 568 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
JUVENILE JUSTICE (6 hours)
SOC 521 Childhood Socialization
SOC 522 Adolescent Socialization
SWRK 568 Non-Institutional Treatment of Offenders
SWRK 569 Organizational Perspectives on Juvenile Justice

LAW ENFORCEMENT ADMINISTRATION (6 hours)
SOC 467 Police and Community Dynamics
SOC 468 Police and Crime Prevention
SOC 469 Private and Industrial Security

LAW ENFORCEMENT 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 adviser for further information.

Electives
To complete the required total of 36 hours, students may select any courses listed under 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
HIST 301 Law and Justice in Western History
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
SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology

SOC 495 Special Topics-Sociology (when applicable)
SOC 497 Juvenile Court Intervention Internship (with permission)
SOC 498 Criminal Justice Internship (with permission)
SOC 512 Child Abuse
SOC 556 Social Stratification
SOC 559 Corporate and White Collar Crime
SOC 561 Violence and the Violent Offender
SOC 562 Vicemotology
SOC 563 Organized Crime
SOC 598 Directed Independent Study (2-6 hours) with permission.

Note: All WMU classes are 3 credit hours unless otherwise noted.

CRIMINAL JUSTICE MINOR
A 24 hour-criminal justice minor is available, patterned after the major. Information on courses required may be secured from the department adviser. Minor slips are required.

CORRECTIONS MAJOR (33 hours)
Prerequisites
SOC 260 Introduction to Criminal Justice
SOC 262 Criminology

Pre-service Courses Required (15 hours)
SOC 285 Introduction to Corrections
SOC 286 Client Growth and Development
SOC 267 Correctional Institutions and Facilities
SOC 268 Client Relations in Corrections
SOC 269 Legal Issues in Corrections

Writing Expectation (not required, but recommended)
SOC 361 Writing and Research in Criminal Justice

NOTE: Students are expected to write at the college level before enrolling in core courses. Students should have satisfied the University requirement for a college level writing course before taking this course.

Core Courses Required (15 hours)
SWRK 465 Correctional Process and Techniques
SWRK 567 Institutional Treatment of Offenders
SWRK 568 Non-Institutional Treatment of Offenders

Electives (any 6 hours)
SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology
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 Vicemotology
SOC 563 Community Corrections
SOC 598 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 more applied fields such as social work, counseling, public administration and criminology.
MAJOR REQUIREMENTS
SOC 200, 300, 320, 382 and 556 are required.
Three (3) hours of the following electives are required: SOC 512, 520, 521, 522, 524, 528, and 579. Students must take at least four (4) hours of other electives within the sociology department with no more than one 100-level course included.

MINOR REQUIREMENTS
SOC 200, 310, and 320. Two (6) hours of the following electives are required: SOC 512, 520, 521, 522, 524, 528, and 579. The student may include any other sociology course to complete the required eighteen (18) hours.

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

SOC 100 American Society
3 hrs.
An analysis of contemporary American society, including change and stability, 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 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, SOS, MINITAB, plus introducing students to microcomputers. This course meets the University’s computer literacy requirement. Not for sociology or criminal justice major or minor credit.

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 195 Contemporary Social Issues: Variable Topics
1-3 hrs.
This course is designed to explore topics of current sociological and general student interest in a substantive fashion at an introductory level. May be repeated for credit with a different topic.

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 250 Rural Communities
3 hrs.
Rural American society is a complex social situation involving the classic social institutions and problems, including social class, religion, poverty, and diverse racial and ethnic groups. This course attempts to examine these institutions and problems through current literature and by means of a series of field trips to visit examples of these social structures in southwestern Michigan. Contrasting rural communities in other countries may also be considered.

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 the effects of culture and discrimination on the attitudes of individuals and assist students in identifying various professional responses to influence, attitude. 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 their developmental problems and processes. Topics may include rural-urban migration, land reform, and governmental development policies in the urban industrial sector.

SOC 336 Modern Japanese Society
3 hrs.
An introduction to Japanese society, focusing upon current developments in the process of industrialization and urbanization. Examines the impact of these processes on Japanese population, family life, village organization, urban community, class structure, and personality.
SOC 337 Modern Arab Societies 3 hrs.
An introduction to the Arab societies of the Middle East and North Africa, focusing on current tribalism and ethnic group tension. The course examines the influences of the three major western religions and the religious, social, political, and economic tensions that have ensued in intergroup relations.

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—Criminal Justice 3 hrs.
This is an overview of the various forms of writing expected in criminal justice: essays, term papers, book reviews, research reports, and narratives. Specifically, the course will emphasize style, word usage, organization, and referencing as required in the preparation of police, court, 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 systems and the systems of medical care. Prerequisite: SOC 200.

SOC 375 Sociology of Work 3 hrs.
An introduction to the problems arising from employment, such as worker morale and productivity, and the integration of women, racial and ethnic minorities, and handicapped workers. The course also involves a survey of various attempts at solving these problems from unions and collective bargaining and other forms of worker participation to government manpower programs and other employment policies.

SOC 382 Methods of Sociological Inquiry I 3 hrs.
An introduction to the quantitative and qualitative methods of empirical research in the social sciences. Topics include experimental and survey designs, utilization of available data, field studies, evaluation procedures, statistical inference, association and non-parametric statistics, and an introduction to multivariate analysis. Computer-assisted projects and exercises are conducted in laboratory sessions. A continuation of SOC 382. Prerequisite: SOC 382.

SOC 390 Marriage and Family Relations 3 hrs.
A sociological analysis of the structural and interactional aspects of marriage and family groups in contemporary society, with emphasis on the American middle class. Consideration is given to change and diversity in family patterns, norms, and values, and to factors contributing to family unity or disorganization. Prerequisite: SOC 200.

SOC 430 Sociology of Development 3 hrs.
An examination of the social factors which influence the development of currently developing areas in Africa, Asia, and Latin America. These factors include such phenomena as urbanization, nationalism, the population explosion, welfare institutions and practices, industrialization and the acculturation of ethnic minorities. Prerequisite: SOC 200.

SOC 482 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 484 Sociology of Law Enforcement 3 hrs.
A sociological analysis of the process of law enforcement as it involves municipal, state, and federal agencies. Includes analysis of the police "working personality," social role, isolation from other social groups, vulnerability to corruption through politics and/or organized crime, and abuses of authority. The development and comparison of the police role will be traced from its roots in England to the present American position. Prerequisite: SOC 262.

SOC 485 Correctional Process and Techniques 3 hrs.
This course is scheduled as SWRK 465. An overview of the correctional process as it can operate in probation, prison and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminology theory and accumulated knowledge of the phenomena of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviance in terms of both etiology and rehabilitation. Prerequisite: SOC 262.

SOC 487 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 patrol, police of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

SOC 488 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 ecology of criminal behavior. The utility of general and specific prevention is discussed, looking at techniques and programs geared to 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 489 Private and Industrial Security 3 hrs.
This course is a review of the historical, philosophical, and legal basis of private security; a discussion of the role of security and the security professional in modern society and the concept of professionalism. A survey is made of the various administrative, management, and technical aspects of the security field. Included is a comparison and contrast of private security organizations to public law enforcement agencies and the relationship of private security to the criminal justice system.

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 immediate and potential effects and consequences both for individuals and couples, and also for society. Prerequisite: SOC 200.

SOC 495 Special Topics in Sociology or Criminal Justice: Variable Topics 1-3 hrs.
A specialized course dealing, each time it is scheduled, with some particular aspect of sociology or criminal justice not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: SOC 200.

SOC 497 Juvenile Court 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 cordial calls, prepare reports, and attend court. 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. Opportunities are 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 2-8 hrs.
Investigation of selected topics in seminar sessions by advanced undergraduates. May be repeated for credit with a different topic.
SOC 501 Social Systems Theory and Analysis
3 hrs.
An investigation and critique of social systems theory, general systems analysis, and specific system consequences which have been used in social organizations. Each student will be required to conduct a systems analysis during the course. Prerequisite: SOC 200.
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, alcoholism, aging, and intergroup relations. 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 care 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.
SOC 523 Contemporary Social Movements
3 hrs.
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.
An examination of the processes of social learning and personality development from late adolescence through middle age. The course will focus on selection and performance of adult roles, issues of stability and change in adult identity, and the effects of role transitions and personal crises on adult development. Prerequisite: SOC 320.
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.
A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373.
SOC 552 Sociology of Aging
3 hrs.
An examination of the process of aging in American society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: 6 hours of sociology including SOC 200.
SOC 556 Sociology of Crime
3 hrs.
An analysis of the current and historical roles of corrections in society, with particular emphasis on the evolution of corrections and the role of the criminal justice system. Prerequisite: SOC 320.
SOC 557 Corporate and White-Collar Crime
3 hrs.
An examination of the current and historical roles of corrections in society, with particular emphasis on the evolution of corrections and the role of the criminal justice system. Prerequisite: SOC 320.
SOC 560 Corporate and White-Collar Crime
3 hrs.
A comprehensive analysis of the nature and pattern of corporate and white-collar crime from a sociological perspective. Topics covered include the problems involved in defining corporate and white-collar crime, an assessment of the costs of these crimes, a description of the nature, extent, and distribution of these forms of criminal behavior, the etiology of corporate and white-collar crimes, and societal and legal reactions to these types of crime. Prerequisite: SOC 262.
SOC 562 Victimology
3 hrs.
The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system, and the economic, social, and psychological impact of victimization. An analysis of coping strategies is discussed and the role of the victim in the criminal justice system is analyzed.
SOC 563 Organized Crime
3 hrs.
Review of the history and development of organized crime, the nature of its organized structure, the basis for its persistence in American society, its impact and pervasiveness, and the implications for the criminal justice system and society.
SOC 564 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 568 Community Corrections
3 hrs.
This course reviews the role of corrections in communities and the impact community based programs, like half-way houses and work release, have on society and offenders. Organizational and management structures are reviewed and policy perspectives are discussed. Prerequisite: SOC 465.
SOC 569 Advanced Criminal Justice
3 hrs.
Advanced Criminal Justice is a theoretically oriented course. Looking historically at the philosophical belief systems, classical and modern theories of crime are reviewed. Specific types of crimes such as property crime, violent personal crime and corporate crime are discussed and interpreted within the theoretical paradigms reviewed. Prerequisite: SOC 262.
SOC 567 Corporate and White-Collar Crime
3 hrs.
An intensive analysis of corporate and white-collar crime from a sociological perspective. Topics covered include the problems involved in defining corporate and white-collar crime, an assessment of the costs of these crimes, a description of the nature, extent, and distribution of these forms of criminal behavior, the etiology of corporate and white-collar crimes, and societal and legal reactions to these types of crime. Prerequisite: SOC 262.
SOC 570 Studies in Social Institutions: Variable
Topics
1-4 hrs.
An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics to include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology, arts, and others. May be repeated for credit with a different topic. Prerequisite: SOC 200 or equivalent.
SOC 573 Sociology of Political Behavior
3 hrs.
Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: SOC 200.
SOC 574 Sociology of Religious Institutions
3 hrs.
A study of the social role of religious institutions and beliefs, with particular reference to the United States. The course considers social factors affecting the development of different types of religious institutions and the influence of religion on American society. Prerequisite: SOC 200 or equivalent.

SOC 575 Industrial Sociology
3 hrs.
The sociological study of industrial organizations and of the process of industrialization. The impact of technology and related factors on work organizations, the structure and operation of labor unions, and the changes occurring in industrial society are discussed. Prerequisite: SOC 200 or equivalent.

SOC 576 Sociology of School Organization
3 hrs.
Advanced studies of education as an institution, emphasizing interaction with other social institutions and analysis of internal organization. Attention is focused on the school and social change, schooling and the control of society, and schooling and stratification, as well as impediments to change, power and authority structures and the schools, the teaching profession, and student social structures. Prerequisite: 6 hours of sociology.

SOC 577 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 inferential statistics for social sciences. Prerequisite: graduate standing or SOC 382 and 383.

SOC 585 Research Methodology: Variable Topics
1-4 hrs.
This course concentrates on specialized research techniques and topics such as sampling and survey design, interviewing, and the use of sociological computer software. It may be repeated for credit with a different topic. Prerequisite: Consent of department.

SOC 590 The Family as a Social Institution
3 hrs.
The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure of society and the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or equivalent.

SOC 592 Family Life Education and Counseling
3 hrs.
Provides the student with working knowledge of the methods and materials appropriate in the school, the church and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200.

SOC 593 Marriage and Family in Middle and Later Years
3 hrs.
A systematic analysis of the marital and family system and interpersonal relationships of husbands and wives, and parents and children during middle age and the later years of married life. Prerequisite: SOC 390 or equivalent.

SOC 598 Directed Individual Study
2-6 hrs.
A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: Consent of instructor and the department chairperson.

SPANISH
See “Languages and Linguistics” in the College of Arts and Sciences.

WOMEN’S STUDIES MINOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.

WORLD LITERATURE MINOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.
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.

Business Administration Curriculum (BBA Degree)

I. Pre-Business Curriculum

Any entering or transfer student planning to pursue business administration as a curriculum will be admitted to a pre-business curriculum and will work with a business adviser in the development of a planned program.

The pre-business curriculum requirements are:

1. Completion of a minimum of 60 semester hours.
2. An acceptable overall grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following pre-business courses or approved alternatives:
   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. ECON 201 and 202, Principles of Economics .................. 6 hrs.
   F. ACTY 210 and 211, Principles of Accounting .................. 6 hrs.
   G. BIS 242, Business Communications .......................... 3 hrs.
   H. MATH 216, Business Statistics ............................... 3 hrs.
II. Professional BBA Curriculum

In order to graduate from the professional BBA curriculum, a student must have a minimum of 122 non-repeated semester hours. In addition to the University requirements of general education, physical education and the first two years of study as outlined in the pre-business curriculum, students must complete the following:

1. Upper Class Requirements:
   A. BIS 350 Management Information Systems 3 hrs.
   B. FCL 320 Business Finance 3 hrs.
   C. FCL 340 Legal Environment 3 hrs.
   D. MGMT 300 Fundamentals of Management 3 hrs.
   E. MGMT 463 Production and Operations Management 3 hrs.
   F. MKTG 370 Marketing 3 hrs.
   G. Advanced Quantitative 3 hrs. (choose one: BIS 464, FCL 420, ECON 400, MGMT 360, MKTG 471)
   I. MGMT 499 Management Problems 3 hrs. (This capstone course must be taken during a student's final semester/session)

2. Major courses (minimum) 21 hrs.
   A. "C" or above grade point is required in all courses applied toward a major.
   B. Electives 6-9 hrs.

3. General Education/Electives
   A. General Education Distribution Program: Area I Humanities and Fine Arts, 6 hrs; Area III Natural Science, 3 hrs.
   B. Physical Education, 2 hrs
   C. Non-business electives, 19 hrs

4. Transfer work towards upper division courses must meet the following criteria:
   A. Approval by the Office of Academic Advising and the department.
   B. Minimum grade of "C".
   C. Course work from WMU with less than a "C" may not be completed by transfer work from another institution.

Advising

For questions regarding BBA curriculum requirements and transfer credit equivalencies, contact the Haworth College of Business Advising Office, North Hall.

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.
2. The last 30 hours of work for those in the B.B.A. curriculum must be taken on campus. Exceptions may be granted only by approval of the department head and the Dean of the Haworth College of Business.
3. Transfer examination may not be used to fulfill the final 30-hour requirement.
4. Students not meeting admission requirements and transfer credit equivalencies, should also be aware of coursework acceptable by transfer on the basis of the university's MACRAO agreement and acceptable validation procedures.
5. 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.
6. With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from community colleges) may be included 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.

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:

ACTY 210, 211, Principles of Accounting 9
ACTY 310, 311, 511, Financial Accounting 8 hrs.
ACTY 313 Accounting Information Systems 3
ACTY 322 Managerial Accounting 3
ACTY 324 Income Tax Accounting 3

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, 211, and 310, are required plus 6 additional hours selected with the students' professional objectives in mind. The remaining 6 hours must be selected from the following courses: FCL 320 and 340, MGMT 300, and MKTG 370.

Advising

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6. With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from community colleges) may be included 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.
BIS 556 Topics in Business Communication (Business Communication Media, Business Communication Systems, Business Publications, etc.)

3. COMPUTER INFORMATION SYSTEMS (CIS) 30 hours

CIS 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 Project ..................3
CS 443 Data Base Management Systems ..................3

Plus 9 hours, as advised, from ..................9

A minor, consisting of 21 hours, may be chosen from any of the majors listed above.

5. 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 must begin 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; the minors include either VE 342 or VE 344. These courses may not be taken by correspondence.

A. Accounting and Related Business Subjects

ACTY 210 Principles of Accounting .............3
ACTY 211 Principles of Accounting .............3
ACTY 310 Financial Accounting I .............3
ACTY 311 Financial Accounting II .............3
OR
ACTY 322 Managerial Accounting .............3
OR
ACTY 324 Income Tax Accounting .............3
CS 223 Computer Organization ..................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 350 Business Law .....................3

B. Business Administration

BIS 260 Programming and Applications with Microcomputers .............3
BIS 261 COBOL Programming ..................3
OR
BIS 264 Report Program Generator .............3
OR
CS 111 Computer Programming I .............3
BIS 360 Information Systems Analysis and Design ..................3
BIS 182 Keyboarding .....................2
BIS 183 Formatting .....................2
BIS 244 Organizational Communication .............3
OR
BIS 343 Report Writing

BIS 386 Advanced Office Systems .............3
OR
BIS 556 Office Management ..................
BIS 388 Records Management .............3
ACTY 210 Principles of Accounting .............3
ACTY 211 Principles of Accounting .............3
FCL 350 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 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.

A. General Business Teaching Minor

BIS 102 Introduction to Information Systems Processing .............3
BIS 182 Keyboarding .....................2
ACTY 210 Principles of Accounting .............3
ACTY 211 Principles of Accounting .............3
ACTY 310 Financial Accounting I .............3
OR
ACTY 322 Managerial Accounting .............3
OR
ACTY 324 Income Tax Accounting .............3
BIS 260 Programming and Applications with Microcomputers .............3
BIS 261 COBOL Programming ..................3
OR
BIS 264 Report Program Generator .............3
OR
CS 111 Computer Programming I .............3

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)

Advisers: Report to department office, 260 North Hall, for assignment to an adviser.

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 420 as their upper class advanced quantitative course plus 21 hours of finance and commercial law course study. Of the 21 hours, the following nine hours are required:

FCL 330 Real Estate Fundamentals .............3
FCL 331 Real Estate Finance .............3
FCL 332 Real Estate Investments .............3

The remaining 12 hours are to be at the 300 level or above and are to be selected in consultation with an adviser.

Option 2: General Business Major (GBS)

Advisers: Report to department office, 260 North Hall, for assignment to an adviser.

In addition to the upper class requirements of FCL 300 and 499, FCL 320, 321, 324, 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.

Option 3: Insurance Major (INS)

In addition to completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FCL 320 is required, all insurance majors must complete FCL 420 as their upper class advanced quantitative course plus 21 hours of Insurance, Finance, and Law courses. Of the 21 hours, 12 are required, as shown below:

FCL 321 Risk and Insurance .............3
FCL 322 Life and Health Insurance .............3
FCL 323 Property and Liability Insurance .............3
FCL 340 Tort Law and Liability .............3

The additional nine hours are to be selected in consultation with an adviser.

Option 4: Real Estate Major (REA)

Adviser: Scheu

In addition to the completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FCL 320 is required, all real estate majors must complete FCL 420 as their upper class advanced quantitative course plus 21 hours of finance and commercial law course study. Of the 21 hours, the following nine hours are required:

FCL 330 Real Estate Fundamentals .............3
FCL 331 Real Estate Finance .............3
FCL 332 Real Estate Investments .............3

The remaining 12 hours are to be at the 300 level or above and are to be selected in consultation with an adviser.

2. FINANCE AND COMMERCIAL LAW MINORS

Option 1: Finance Minor (FIN)

Advisers: 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 320 Business Finance .............3
FCL 325 Introduction to Financial Markets .............3
FCL 326 Investment Analysis .............3
ACTY 210 Principles of Accounting .............3

Nine (9) additional hours from .........3

available finance courses at the

300 level or above (other than Personal Finance 305) selected in consultation with an adviser and with the student's professional objectives in mind.

Option 2: General Business Minor (GBS)

Advisers: 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
Management (MGMT)

Advisors: Report to the Department of Management, 175 East Hall, for assignment to an adviser.

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 300, 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
MGMT 301 Management Analysis and Behavior (I)
MGMT 302 Management Analysis and Behavior (II)
Fifteen additional hours of Management courses at the 300 level or above (excluding 360 and 499).

MINOR IN MANAGEMENT (21 hours)
The minor in management requires twenty-one credit hours consisting of the following courses:

MGMT 300 Fundamentals of Management
MGMT 301 Management Analysis and Behavior (I)
MGMT 302 Management Analysis and Behavior (II)
Electives from the Management Department approved by a Departmental advisor

Two additional courses selected from the following:

ACTY 210 Principles of Accounting
ACTY 211 Principles of Accounting (required of Non-BBA majors)
FCL 320 Business Finance
FCL 341 Legal Environment
MGMT 370 Marketing

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. Legal Environment 340 and Business Law 350 or Commercial Law 352 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 taken from the following courses:

ACTY 210 Principles of Accounting
MGMT 300 Fundamentals of Management
MGMT 451 Administrative Behavior
MGKT 370 Marketing

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:

Six (6) hours in required FCL courses:
FCL 320 Business Finance
FCL 330 Real Estate Fundamentals

Six (6) hours in required Haworth College of Business courses from the following list:
ACTY 210 Principles of Accounting
MGKT 270 Salesmanship
MGKT 370 Marketing

Nine (9) hours in elective Real Estate courses in the Finance and Commercial Law Department.

AREAS OF CONCENTRATION

3. INDUSTRIAL MARKETING (IDM)
27 hours
Adviser: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.

MGKT 370 Marketing
MGKT 371 Marketing Research
MGKT 372 Purchasing Management
MGKT 374 Advertising
MGKT 375 Advanced Problems in Retailing
MGKT 379 Retail Promotion
MGKT 471 Quantitative Marketing Applications
MGKT 475 International Marketing
MGKT 576 Marketing Strategy

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
Advisers: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.

MGKT 370 Marketing
MGKT 371 Marketing Research
MGKT 374 Advertising
MGKT 376 Sales Administration
MGKT 470 Industrial Marketing
MGKT 471 Quantitative Marketing Applications
MGKT 475 International Marketing
MGKT 576 Marketing Strategy

Elective from Marketing Department

5. MARKETING MINOR (MKT)
A marketing minor requires 21 credit hours consisting of the following courses:

MGKT 370 Marketing
MGKT 374 Advertising

One of the following:
MGKT 376 Sales Administration
MGKT 470 Industrial Marketing
MGKT 477 Consumer Behavior
Electives from the Department of Marketing approved by Department Adviser

Two (2) elective courses from the following:
ACTY 210 Principles of Accounting
ACTY 211 Principles of Accounting
FCL 320 Business Finance

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 their coursework in business and upper division economics courses, in addition to the 40 percent in non-business requirement.

1. ECONOMICS (ECO)
Adviser: Caruso
Elect an additional 21 semester hours of advanced courses (300-500 level) from the Department of Economics.

2. RETAILING (RET)
27 hours
Adviser: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.

MGKT 370 Marketing
MGKT 371 Marketing Research
MGKT 372 Purchasing Management
MGKT 374 Advertising
MGKT 375 Advanced Problems in Retailing
MGKT 377 Retail Promotion
MGKT 471 Quantitative Marketing Applications
MGKT 476 Retail Merchandising
MGKT 479 Marketing Internship

OR
Approved Marketing Department Elective
MGKT 570 Problems in Retailing
2. PUBLIC ADMINISTRATION (PAB)
Adviser: McCarty

Major Requirements: 24 hours
In addition to the curriculum 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 340 Legal Environment
- FCL 320 Business Finance

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
- ACTY 516 Financial Accounting
- ACTY 516 Managerial Accounting
- ACTY 516 International Accounting
- ACTY 516 Federal Taxation
- ACTY 516 Corporation Taxation
- ACTY 516 International Taxation

Minor Requirements: 21 hours
- PSCI 200 National Government
- PSCI 202 State and Local Government
- PSCI 330 Introduction to Public Administration
- PSCI 535 The Politics of Governmental Relations and Labor

Plus one of the following:
- PSCI 535 The Politics of Governmental Relations and Labor
- PSCI 535 The Politics of Governmental Relations and Labor

3. STATISTICS (STB)
Adviser: Sievers

The following courses from the Department of Mathematics plus one business elective comprise the major in statistics. All students electing the statistics option must make sure they meet the minimum requirement of 40 percent of their coursework in business and upper division economics courses.

- CS 306 Introductory Programming/ FORTRAN
- 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)

4. AGRI-BUSINESS (AGB)
Adviser: Benne

The Agri-Business major requires the completion of B.B.A. requirements and a 24-hour major in the Department of Consumer Resources and Technology. An example follows:

- CRT 161 Animal Industry
- CRT 261 Agronomy (Crop Production)
- CRT 262 Principles of Horticulture
- CRT 361 Introduction to Soils
- CRT 366 Agriculture Marketing and Management

Related Minor

1. INTERNATIONAL BUSINESS MINOR (INT)
Adviser: Sievers

The following courses from the Department of Business Courses (BUS)

- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance
- FCL 320 Business Finance

- MGMT 352 Personnel Management
- MGMT 510 Multinational Management
- MGMT 575 International Marketing
- MKTG 370 Marketing

Four courses from the following list:

- FCL 521 International Finance
- FCL 532 International Finance

- MKTG 370 International Marketing
- MATH 566 Multinational Management
- MATH 567 International Marketing

One course from one of the following areas chosen in consultation with minor adviser:

- Foreign Language
- Cultural and Regional Area Study
- Skill Specialization

Haworth College of Business Courses (BUS)

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

BUS 399 Field Experience (Community Participation)

2-8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, and approval from the office of the dean.

BUS 504 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 first-hand knowledge of business operations abroad through on-site inspection of foreign governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the Haworth College of Business.
ACCOUNTANCY

William R. Welke, Chair
John T. Burke
Hans J. Dykhooorn
J. Patrick Forrest
Charles E. Hines, Jr.
Richard L. Hodges
Jerry G. Kreuze
Sheldon A. Langsam
William C. Morris
Robert D. Neubig
Gale E. Newell
David Rozelle
F.W. Schaebner
John D. Sheppard
Kathleen E. Siring
Roger Y. W. Tang

The Department of Accountancy prepares its majors for positions as accountants in industrial, governmental, and public accounting enterprises. Accountancy majors must complete the business administration curriculum.

Accountancy Courses (ACTY)

ACTY 201 Accounting Concepts and Applications
3 hrs.
A study of the fundamental concepts and applications of accounting. Especially designed for the non-business student. This course does not serve as a prerequisite for any other accounting course and cannot be used for a major or minor in business. Not open to students with credit in accounting.

ACTY 210 Principles of Accounting
3 hrs.
An introductory course in accounting which includes the recording and reporting of business transactions, and the measuring, planning and controlling of business income, assets and equities.

ACTY 211 Principles of Accounting
3 hrs.
A continuation of course 210 with emphasis on managerial and 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.

ACTY 322 Managerial Accounting—Concepts and Practices
3 hrs.
A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. Includes budgeting, standard cost analysis, 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 511 Advanced Accounting
3 hrs.
The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, 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 notfor-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 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: 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.
Systems offers five undergraduate programs of study: (1) Administrative Systems (ADS), (2) Business Education (BED), (3) Business Communication (BCM), (4) Computer Information Systems (CIS), and (5) Consumer Relations (CRL).

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 continued 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 242 Business Communication 3 hrs.
Business communication is a general introduction to the use of communication in modern organizations. Organization theory, behavior, and communication channels form the basis for special emphasis on using written communication to solve typical business problems. Prerequisite: BIS 142 or its equivalent.

BIS 244 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 242.

BIS 260 Programming and Applications with Microcomputers 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, CS 111.

BIS 261 COBOL Programming 3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in time-sharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 260.

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 292 Consumer Principles and Practices 3 hrs.
This course examines the sociological, psychological, and economic aspects of the American consumer movement. Students review the function of the marketplace and examine its contributions and failings. Analysis is made of the changes and problems facing the consumer and the role of private and governmental protection agencies. Legal rights and responsibilities are reviewed, especially those involving warranties, guarantees, and landlord and tenant relationships.

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 242.

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 242.

BIS 350 Management Information Systems 3 hrs.
Provides an understanding of and experience with the management process. Incorporates the tools, techniques, and applications 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 260.

BIS 382 Advanced COBOL 3 hrs.
Continuation of BIS 261, including advanced treatment of sequential access; plus index sequential and random access, report writer, library routines, precollators, 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, work stations and environments, and productivity. An examination of the planning, integration, and management technology and ergonomics in the information (white-collar) environment. Prerequisite: BIS 260.

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 adviser, qualified students may engage in a variety of professional experiences. Scheduled meetings with adviser and written experience reports required. May be repeated for a maximum of 4 hours credit. Prerequisite: Approved application required.

BIS 442 Advanced Business Writing 3 hrs.
Emphasis on the written communication problems of business, including message design, style, and editing. Students apply skills through work with forms, brochures or handbooks, and articles. There will be some field work outside of class.

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.
An analysis of the highest level of information support systems which serve the manager/user. A study of systems providing quantitative-based information derived from one or more data bases within and/or external to the organization and used to aid managers in the decision-making process. Theoretical concepts are applied to real world applications with an analysis of examples from specific organizations. Prerequisite: BIS 362.
FINANCE AND COMMERCIAL LAW

FINANCE AND COMMERCIAL LAW

Majors may be obtained in general business, finance, insurance, and real estate. Minors are available in general business, finance, insurance, law, and real estate. The general business major and minor require students to select a logical sequence of courses from the several departments within the Haworth College of Business. All majors and minors (except the general business minor when completed by a student having a business major) in this department must be approved by the assigned advisor.

Finance and Commercial Law Courses (FCL)

FINANCE AREA—FINANCE, INSURANCE, AND REAL ESTATE COURSES

F. William McCarty, Chair

Robert Balik
David Burnie
James D'Mello
Adrian Edwards
A.D. Issa
Robert Jones
Kenneth Kennedy
C. R. Krishna Swamy
Inayat Mangla
Tim F. Scheu

FCL 305 Personal Finance

3 hrs.

Deals with various concepts inherent in personal financial management. This is a survey course designed to enable the student to better understand the considerations involved in the management of income, savings, investments and debt planning. A lecture-discussion approach will include consideration of insurance planning, investment management, consumer and mortgage credit, real estate, tax planning and financial planning in the area of wills and estates. (Cannot be used for any major or minor.)

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: MGMT 200 and ACTY 210.

FCL 321 Risk and Insurance

3 hrs.

A comprehensive course which considers the nature and orientation of insurance risks and their management. Major business and personal risks are analyzed and their insurance treatment evaluated, as are the functional aspects of insurer operations. The impact of insurance on public policy is also considered.

FCL 322 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 321.

FCL 323 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 these policies.
aspects of property and liability company operations. Prerequisite: FCL 321.

FCL 325 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 326 Investment Analysis 3 hrs.
A survey of the securities markets from the viewpoint of the novice investor. This course includes a study of market operations, trading techniques, special investment vehicles such as options and warrants, and a consideration of the investment objectives and practices of institutional investors. Prerequisite: FCL 320 or consent of instructor.

FCL 327 Internship in Insurance 1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with an insurance company or with a firm with an insurance division or department. Students are required to file periodic reports to the faculty adviser. In addition, they are evaluated by the firm's executives. Available only to students majoring in insurance. No more than 3 hrs. can be used as credit toward a minor.

FCL 328 Internship in Finance 1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with industrial, commercial, and financial enterprises (commercial banks, brokerage firms, etc.) and students are required to file periodic reports to the adviser. In addition, they are evaluated by the firm's executives. Available only to students majoring in finance. No more than 3 hrs. can be used as credit toward a major or minor.

FCL 329 Internship in Real Estate 1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with a real estate firm or enterprises with a real estate department or division. Students are required to file periodic reports to the faculty adviser; in addition, they are evaluated by the firm's executives. Available only to students majoring in real estate. No more than 3 hrs. can be used as credit toward a major or minor.

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 420 Quantitative Applications in Finance 3 hrs.
The applications of quantitative analysis to finance. Emphasis will be placed on the techniques available in financial decision making, determination of financial relationships, and financial forecasting. Applications in corporate financial management, investment analysis, and financial institutions. Prerequisite: FCL 320.

FCL 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 427 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 325.

FCL 428 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 325.

FCL 429 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 in providing funds to the primary and secondary mortgage markets. Prerequisites: FCL 325.

FCL 434 Real Estate Land Development 3 hrs.
Neighborhood and city growth, municipal planning and zoning, development of residential, commercial, industrial and special purpose properties are analyzed. Prerequisite: FCL 330 or consent of instructor.

FCL 437 Real Estate Management 3 hrs.
Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance.

FCL 519 Security 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 326.

FCL 521 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 526 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 322.

FCL 527 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 321 or consent of instructor.

FCL 528 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 323.

FCL 598 Readings in Finance and Commercial Law (Finance) 1-4 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

LAW COURSES
F. William McCarty, Chair
Nicholas C. Batch
Thomas Gossman
Stephen Schanz
Leo Stevenson
Carol VanAuken-Haig

FCL 311 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 340 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 350 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
FCL 598 Readings in Finance and Commercial Law (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 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 majors or minors.

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: junior standing.
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 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 451 Administrative Behavior 3 hrs.
A course designed to integrate the contributions and implications of the behavioral sciences to modern business practice to promote and maintain effective human relations for the individual and the group. Extensive use of cases and conference methods is made.

MGMT 453 Organizational Behavior 3 hrs.
A study of current theory, research, and practice regarding variables that influence human behavior in complex organizations. Emphasis is placed on models relevant to human productivity, satisfaction, retention, and learning in organizational settings.

MGMT 454 Employment Relations 3 hrs.
This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor within the United States are examined. Maintenance of the quality of relationships between employees and organizations is explored. Prerequisite: MGMT 300, MGMT 352.

MGMT 460 Decision Analysis 3 hrs.
This course is designed to present methods and concepts of decision making in uncertain business environments. It will address both the philosophy, and the methodology of scientific decision processes to supplement intuitive decision making. The objective of the course is to provide a clear understanding of both the limitations and potential benefits of formal analysis and information gathering. Some of the topics covered include: utility functions, values of perfect and imperfect information, and preference assessment. Prerequisite: MGMT 360.

MGMT 463 Production and Operations Management 3 hrs.
Economic and socio-technical characteristics of the major types of production systems. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisites: MGMT 360 or equivalent (BIS 464, FCL 420, ECON 400, MKTG 471).

MGMT 464 Production Management and Control 3 hrs.
Quantitative and computer-based methods of planning and controlling operations in manufacturing industries and service organizations. Areas covered in depth include scheduling, aggregate planning, and inventory control. This course is intended for students interested in quantitative applications in business as well as management majors concentrating in production and operations management. Prerequisite: MGMT 360.

MGMT 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 510 Multinational Management 3 hrs.
An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.

MGMT 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 514 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 350, MKTG 370 or department consent.

MGMT 540 Advanced Statistics 3 hrs.
A second course in statistics. Includes probability distributions, hypothesis testing with sampling theory, Type I and Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and nonparametrics tests. Prerequisite: MATH 216.
MARKETING Courses (MKTG)

MKTG 270 Professional Selling
3 hrs. Fall, Winter
An introduction to the principles of selling. Includes study of selling in our present economy, analysis of the steps in a sales demonstration, and a classroom demonstration.

MKTG 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 MKTG 300 as a substitute for MKTG 370 requires a "C" or better grade in MKTG 371 for students who qualify and elect additional courses.)

MKTG 370 Marketing
3 hrs. Fall, Winter, Spring, Summer
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. Fall, Winter, Spring
An introduction to the research process as it aids decision making in marketing management. The focus is on the stages of research process from the planning of the research to gathering, analysis, and interpretation of data as it relates to marketing management. Prerequisites: MKTG 370, MGMT 200.

MKTG 372 Purchasing Management
3 hrs. Fall, Winter
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. Fall, Winter, Spring, Summer
A comprehensive survey of basic principles and practices of advertising in their relationship to the economy, society, and the system of mass communication. Prerequisite: MKTG 370.

MKTG 375 Principles of Retailing
3 hrs. Fall, Winter
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. Fall, Winter, Spring, Summer
Topics include the role of personal selling in the firm; determination of market and sales potential; selling training; sales communication; territories and quotas; motivation, measuring selling effectiveness. Prerequisite: MKTG 370.

MKTG 377 Retail Promotion
3 hrs. Fall, Winter
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 470 Industrial Marketing
3 hrs. Fall, Winter, Spring
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. Fall, Winter, Spring
Provides marketing student with a basic understanding of certain selected quantitative techniques and shows how these techniques will assist the decision maker in solving marketing problems. A term project applying the research process, concepts, and quantitative methods is required. Prerequisites: MKTG 370, 371.

MKTG 472 Advertising Media and Campaigns
3 hrs. Examine 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; MKTG 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, MKTG 374.

Advertising Majors only.

MKTG 475 International Marketing
3 hrs. Fall, Winter, Spring
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. Fall, Winter
Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both 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. Arranged Fall, Winter, Spring, Summer
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 adviser. 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 570 Problems in Retailing
3 hrs. Designed to analyze current retailing problems; market segmentation, planning and control, vendor evaluation, store services, traffic patterns, and warehousing. Report required. Prerequisite: Permission of the instructor and senior level.

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 agencies and medical group services.

MKTG 574 Marketing Logistics
3 hrs. Fall, Winter, Spring
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 576 Marketing Strategy
3 hrs. Fall, Winter, Spring
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 finding and strategies emphasized. Cases and computer games used. Senior level, MKTG 371 (573), plus 6 additional MKTG hrs.

MKTG 577 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 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.
COLLEGE OF EDUCATION

Arnold M. Gallegos
Dean

Floyd L. McKinney
Associate Dean

Departments:
Counselor Education and Counseling Psychology
Education and Professional Development
Educational Leadership
Health, Physical Education and Recreation
Special Education

Centers and Offices:
Office of Admissions and Advising
Office of Directed Teaching
Certification Office
Counseling and Psychological Services Center
Evaluation Center
Merze Tate Center for Research and Information Processing
Reading Center and Clinic

In general, the College of Education performs seven 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.

Curricula for Teachers

The program for prospective teachers consists of three parts: (1) general education, designed to develop an intellectual foundation of appropriate depth and breadth in liberal arts and general studies; (2) advanced specialized study, in a major and minor field structured to develop a high level of academic competence and understanding; and (3) professional education study organized to prepare teacher candidates to work effectively in schools. Prospective teachers choose to work for the Michigan Elementary Provisional Certificate (valid for teaching all subjects in grades K-12 by completing classroom experiences 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, Special Education, Secondary Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2504 Sangren Hall.

Students electing to major in Art, Music, Physical Education, Health Education, Business Education, Industrial Arts, or Home Economics may be certified to teach in their specialized area in grades K-12 by completing the curriculum and certification requirements. Students seeking admission to one of the following curricula must see the appropriate college or department adviser as well as the Office of Admissions and Advising:
- Art (see Department of Art adviser)
- Music (see School of Music for audition)
- Business Education (see Haworth College of Business adviser)
- Special Education (see Department of Special Education adviser)
- Speech Pathology and Audiology (see Department of Speech Pathology and Audiology adviser)

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
Advisers:
Joyce DeRight, Director
Wendy Asmus
Maxine Gilling

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 freshmen, 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 Pre-Professional Skills Test (PPST).
- 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.

In general, the College of Education performs seven functions:
1. Supervises the selection, admission, and retention of students in advanced teacher education curricula;
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- 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 Pre-Professional Skills Test (PPST).
- 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 Fall Semester, 1987, all students entering a teacher education curriculum will be required to pass the Pre-Professional Skills Test (PPST) prior to admission to Professional Education. Effective Fall Semester, 1990, 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 Feltz, Certification Officer
2504 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
Jeanne L. Williams, 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 by the Office of Directed Teaching has the right to appeal such action by filing an appeal form in the Office of Directed Teaching within fourteen (14) 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 Directed Teaching.

HEALTH AND LIABILITY INSURANCE
Students engaged in field experiences or directed teaching must give evidence of having both health and liability insurance at the time of course enrollment.

Elementary Education Curriculum
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 (EED), 28 hrs., the Science and Mathematics Teaching Minor (SCM, 27 hrs.) and one additional minor selected from the following:

Art (ATE), 24 hrs.
Integrated Creative Arts (CPA), 24 hrs.
English Elementary Education (ENG), 20 hrs.
French (FRE), 20 hrs.
German (GER), 20 hrs.
Group Social Science (SOS), 24 hrs.
Integrated Language Arts (ILAM), 24 hrs.
Physical Education Elementary (PEP), 22 hrs.
Physical Education Exceptional Child (PEC), 23 hrs.
Spanish (SPA), 20 hrs.

Or they may elect one of the following major and minor combinations:

Art major (61 hrs.) with Elementary Education minor.
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, 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.

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 adviser.

General Education Foundations 23/27 hours

*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:
*GHUM 409 Women: Past, Present, and Future .........4 hrs.

*GSSC 444 Female and Male: Psychological Perspectives .............4 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.

Professional Education: 14 hrs.
ED 370 Educational Psychology: Young Children/Elementary . . . . 3 hrs.
Prerequisite: ED 250
ED 347 Technology in Learning . . . . 1 hr.
SPED 527 Educational Provisions for Exceptional Learners/Regular Elementary Programs . . . . 3 hrs.**
ED 371 Classroom Organization and Management: Young Children/Elementary . . . . 3 hrs.
Prerequisites: ED 370, SPED 527
ED 348 Technology for Teachers . . . . 1 hr.
ED 395 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 . . . . 5/10 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.**
** Students majoring in SPPA and SPED are required to enroll for one six-hour experience.

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 one course from the following:

*GEOG 105 Physical Geography . . . . 4 hrs.
*GSCI 131 Physical Science in Elementary Education . . . . 4 hrs.

Select courses to meet one course from the following:
ART 200 The Creative Process Through Art . . . . 3 hrs.
MUS 140 Music for the Classroom Teacher . . . . 3 hrs.
COM 564 Creative Drama for Children . . . . 4 hrs.
* Approved for General Education credit. See advisor in Integrated Language Arts for requirements in minor.

Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of English
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.

Select one course from the following:
ART 200 The Creative Process Through Art . . . . 3 hrs.
MUS 140 Music for the Classroom Teacher . . . . 3 hrs.
COM 564 Creative Drama for Children . . . . 4 hrs.
Select one course from the following:
COM 365 Oral Communication and the Primary Grades . . . . 3 hrs.
COM 366 Oral Communication and the Upper Grades . . . . 3 hrs.
ED 307 Teaching Elementary Social Studies . . . . 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 307 Teaching Elementary Social Studies . . . . 3 hrs.
Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSY 200; (d) ED 370

Required courses—to be taken in this sequence:
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 307 Teaching Elementary Social Studies . . . . 3 hrs.
Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSY 200; (d) ED 370

Required courses—to be taken in this sequence:
ED 312 The Foundations of Reading Instruction . . . . 3 hrs.
Prerequisite: MATH 110 OR adequate performance on placement test
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 307 Teaching Elementary Social Studies . . . . 3 hrs.
Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSY 200; (d) ED 370

* 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.

Select two courses from the following:
ART 200 The Creative Process Through Art . . . . 3 hrs.
MUS 140 Music for the Classroom Teacher . . . . 3 hrs.
COM 564 Creative Drama for Children . . . . 4 hrs.

Select one course from the following:
ED 395 Writing for Elementary Teachers . . . . 4 hrs.
ENGL 373 Reading and Writing as Psycholinguistic Processes . . . . 4 hrs.

Select one course from the following:
COM 365 Oral Communication and the Early Elementary Child . . . . 4 hrs.
COM 366 Oral Communication and the Later Elementary Child . . . . 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 307 Teaching Elementary Social Studies . . . . 3 hrs.
Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSY 200; (d) ED 370

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

* 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 Art, Creative Arts, Physical Education/Elementary, or Physical Education/Exceptional Child
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
Select one course from the following:

**ED 351 Reading and Related Communication Skills for Early Childhood**

- Prerequisite: ENGL 282 AND ED 312

**ED 352 Reading and Related Communication Skills for Middle and Upper Grades**

- Prerequisite: ENGL 282 AND ED 312

**ED 307 Teaching Elementary Social Studies**

- Prerequisite: ED 250

**ENGL 369 Writing for Elementary Teachers**

- Prerequisite: ENGL 282 AND ED 312

**COM 365 Oral Communication and the Later Elementary Child**

- Prerequisite: ED 370

*Approved for General Education credit. See adviser for third minor.

### Elementary Education minor requirements with a major of Art, Music, or Physical Education

This program does not include the Science and Mathematics Teaching Minor.

These courses cannot be used as part of any other minor or major.

Select one course from the following:

**GEOG 105 Physical Geography**

- 4 hrs.

**GHUM 102 Direct Encounter with the Arts**

- 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

**ED 307 Teaching Elementary Social Studies**

- 3 hrs.

Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSCI 200; (d) ED 370 recommended

Select one course from the following:

**ENGL 369 Writing for Elementary Teachers**

- 4 hrs.

**COM 365 Oral Communication and the Early Elementary Child**

- 4 hrs.

**COM 366 Oral Communication and the Later Elementary Child**

- 4 hrs.

*Approved for General Education credit. See adviser for third minor.

### Elementary Education minor requirements with a major of Speech Pathology and Audiology

These courses cannot be used as part of any other minor or major.

Select one course from the following:

**BIOS 112 Introduction to Biomedical Sciences**

- 3 hrs.

**BIOS 101 Animal Biology**

- 4 hrs.

Required courses—to be taken in this sequence:

**PHYS 106 Elementary Physics**

- 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

**ED 307 Teaching Elementary Social Studies**

- 3 hrs.

Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSCI 200; (d) ED 370 recommended

Select one course from the following:

**ENGL 369 Writing for Elementary Teachers**

- 4 hrs.

**ENGL 373 Reading and Writing as Psycholinguistic Processes**

- 4 hrs.

Select one course from the following:

**COM 365 Oral Communication and the Early Elementary Child**

- 4 hrs.

**COM 366 Oral Communication and the Later Elementary Child**

- 4 hrs.

*Approved for General Education credit. See major adviser.

### Creative Arts Minor

Adviser: Alfred Balkin

2438 Sangren Hall
(616) 387-3465

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. In general, ED 250, Human Development (or its equivalent), is a prerequisite for admission to the program. English 282, Children’s Literature, is also recommended. 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) Adviser, Dr. Jim Burns, 3414 Sangren Hall, 387-3470.

A minor slip is required. Students must see the minor adviser before they enter the minor. A 2.75 GPA is required for entrance.

### Program

This 24-hour interdepartmental minor for elementary education students consists of the following:

**Entry Courses**—must be taken concurrently:

**ILAM/ED**

**ART 200** The Creative Process Through Art

**COM 564** Creative Drama for Children

**ED 430** Creativity in the Elementary School

**Electives**

- 1-4 hrs.

* Approved for General Education credit.

**ED 230** is geared to personal creative development and is not restricted to Integrated Creative Arts Minor. Students enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group minor.

**ED 230** Electives to accommodate student needs and balance will be determined by the departments and faculties of Education and Professional Development, Art, Dance, Music, and Communication and selected with the approval of the adviser.

### Integrated Language Arts Minor (ILAM)

Dr. Jim Burns, Adviser

3414 Sangren Hall
(616) 387-3470

An interdisciplinary program of:

- COLLEGE OF ARTS AND SCIENCES
- Communication
- English

- COLLEGE OF EDUCATION
- Department of Education and Professional Development

- COLLEGE OF HEALTH AND HUMAN SERVICES
- Speech Pathology and Audiology

This 24-hour interdepartmental minor for preservice elementary school teachers consists of the following:

**Entry Courses**—must be taken concurrently:

**ILAM/ED**

**MUS 140** Music for the Classroom Teacher

**ART 200** The Creative Process Through Art

**COM 564** Creative Drama for Children

**ED 430** Creativity in the Elementary School

**Electives**

- 1-4 hrs.

* Approved for General Education credit.

**ED 230** is geared to personal creative development and is not restricted to Integrated Creative Arts Minor. Students enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group minor.

**ED 230** Electives to accommodate student needs and balance will be determined by the departments and faculties of Education and Professional Development, Art, Dance, Music, and Communication and selected with the approval of the adviser.
### Emphasis in Early Childhood Education

**Adviser:** Mary A. Cain

*2430 Sangren Hall (616) 387-3492*

(Students must see the Early Childhood adviser prior to enrollment in the program.)

The Early Childhood Emphasis offers a special professional sequence for kindergarten through eighth grade certification with an endorsement signifying special preparation in teaching young children.

Prerequisite: ED 250, Human Development.

Students will have a split directed teaching assignment, which will be done in the Kalamazoo area, where a childhood faculty are available. (Rare exceptions to Kalamazoo assignments may be made upon approval of the Early Childhood adviser.) Students with an Early Childhood Emphasis must 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 370 Educational Psychology: Young Children/Elementary** 3 hrs.

**ED 371 Classroom Organization and Management: Young Children/Elementary** 3 hrs.

(Students must enroll in specially designated early childhood section)

**ED 410 Seminar in Education** 2 hrs.

**ED 470 Directed Teaching (Early Childhood)** 5 hrs.

**NOTE:** COM 385, when taken as part of the Elementary Education Minor, may also count toward the Emphasis.

*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. (Students have 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 adviser.

### Minimum hours required for this curriculum

**General Education Requirement**

35 hrs. required for University General Education requirement. An additional 5 hrs. in General Education courses drawn from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies, are required for Michigan certification.

**Major/Minor Requirements Elementary Certification Option**

1. Two minors or group minors (20-28 hours);
2. 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 adviser in the Office of Admissions and Advising.

**Secondary Certification Option**

1. One major or group major
2. One minor or group minor

Majors and minors must be selected from the following areas: communication, English, languages, linguistics, mathematics, and science.

It is strongly recommended that majors and minors be chosen from related disciplines. See adviser for acceptable combinations.

**Pre-professional Foundations:**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One course from: GENL 122 or GJUM 316.</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>OR SOC 314, 320, 353, 514.</td>
<td></td>
</tr>
<tr>
<td>COM 170</td>
<td></td>
</tr>
<tr>
<td>OR one major orgroup major (30-36 hours)</td>
<td></td>
</tr>
<tr>
<td>OR Communications . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 312 The Foundations of Reading Instruction . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>OR ED 322 Teaching of Reading Secondary . . . . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 371 Classroom Organization and Management: Young Children/Elementary . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 398 Special Studies in Education (topical seminar) . . . . . . .</td>
<td>4 hrs.</td>
</tr>
</tbody>
</table>

**Winter Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 398 Special Studies in Education (Psychology and Guidance of Young Adolescents) . . . . . . .</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>ED 352 Reading and Related Communication Skills for Middle and Upper Grades . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 395 School and Society . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 307 Teaching Elementary Social Studies (elementary option OR methods course in major or minor field—secondary option) . . . . . . .</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>ED 410 Seminar in Education . . . . . . .</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>ED 472 Directed Teaching: Upper Elementary/Secondary . . . . . . .</td>
<td>2 hrs.</td>
</tr>
</tbody>
</table>

**Field Experiences (no credit)**

**21 hours; other professional education**
requirements are included in two semester planned sequence.

Physical Education .......................... 2 hrs.

Bachelor of Science Degree Elementary Music Curriculum

Elementary Education Minor
Grants certification to teach in elementary grade room and elementary music.

Minimum hours required for this curriculum ........................................... 132 hrs.

Course Requirements

General Education Requirements .......................... 35 hrs.
See University requirements for General Education

Music Major ........................................ 40 hrs.
Music Convocation 101 (4 semesters) .......................... 0
Basic Music 160-161 .................................. 6
Rural Comprehension 162-163 .......................... 2
Basic Music 260 .................................. 3
Twentieth Century Techniques 261 .......................... 2
Music History and Literature 270-271 .......................... 8
Conducting 215 .................................. 1
Keyboard Musicianship 220, 221, 320, 322 .......................... 4
NOTE: Students who do not qualify for entry to 220 must complete Keyboard Fundamentals 120 and/or 121 as a deficiency. Students who "comp out" of advanced Keyboard Musicianship 322 are urged to consider 518 Improvisation. 350 American Music, 352 Non-Western Music as courses to take as music electives toward the 40 hour requirement.

Voice Class 122-123 .......................... 2
Choral Ensemble 107, 108, or 112 .......................... 2
Elementary Music Practicum 244 .......................... 3
Creating Music in the Classroom 579 .......................... 4
General Music Methods 240 .......................... 2
Fundamentals of Guitar 126 .......................... 2
Instruments of the Band and Orchestra 279 .......................... 2

Elementary Education .......................... 28 hrs.
An adviser sets up an "individualized" program for each student. Report to the College of Education, Office of Admissions and Advising 2504 Sangren Hall

Professional Education Program .......................... 21 hrs.
ED 250 Human Development .......................... 3
ED 371 Classroom Organization and Management .......................... 3
ED 395 School and Society .......................... 3
Directed Teaching, Seminar in Education 410 .......................... 2
Directed Teaching, Seminar in Education 411 .......................... 2
Physical Education (General) .......................... 2 hrs.
(PERP 340 Physical Education for the Elementary Teacher will satisfy one hour of this requirement.)

Rural Elementary Curriculum

Bachelor of Arts or Bachelor of Science Degree
State Elementary Provisional Certificate

Major attention is given to preparation for teaching in schools located in rural or small community areas—population 2,500 or fewer. Students desiring to teach in schools serving these areas select the rural life major or two academic minors under the guidance of the Director of Rural Life and Education. Thought is given to the many demands made upon the teacher in the small school. Those preparing to serve the smaller communities in other professional groups, such as ministers, librarians, recreation leaders, etc., either at home or overseas, will find considerable basic work in the curriculum of rural life and education.

Minimum hours required for this curriculum ........................................... 122 hrs.

Course Requirements

General Education Requirement: 35 hours 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.

Elementary Education Minor .......................... 24 hrs.
Requirements and approval for this required minor are available in the College of Education Office of Admissions and Advising 2504 Sangren Hall. Students must have a minor slip signed by an approved elementary education adviser.

Professional Education Sequence .......................... 16-21 hrs.

Bachelor of Arts or Bachelor of Science Degree

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.
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 semester hours of general physical education, distributed over at least two “activity” courses are required.

Professional Education Program: 26 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.

Pre-Professional Foundations: 3 hrs.
ED 250 Human Development .......................... 3
(Must be at least a sophomore)

ED 322 Teaching of Reading
(Secondary) .......................... 3
Prequisite: ED 250.

ED 395 School and Society .......................... 3
Prequisite: ED 250; must at least be a junior

A "methods of teaching" course in either the major or minor (both, if required by respective major and minor departments.) .......................... 3

ED 475 Directed Teaching
(Secondary) .......................... 9
Prequisite: ED 301; ED 322; must be at least a senior; successful completion of appropriate "methods of teaching" course(s) in major and/or minor; approval of director of Directed Teaching.

ED 410 Seminar in Education .......................... 2
Must be taken concurrently with ED 475.
Note: Ed 475 and ED 410 comprise the “student teaching semester.”

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 list 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
(Each major marked with an asterisk results in a K-12 certification in that subject.)

Agriculture (AGR)
American Studies (AMS)
Anthropology (ANT)
Art Education (ATE)
Biology (BIO)
Business Education (BED)
Chemistry (CHM)
Computer Science (CPS)
Economics (ECON)
English (ENG)
Geography (GEO)
Health Education (HED)
History (HIS)
Home Economics (HEE)
Industrial Education Majors:
General Industrial Arts (GIA)
Special Education
curriculum
Bachelor of Science Degree
State
Elementary Provisional Certificate

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 Teaching of Reading 3
ED 351 Reading and Related Communication Skills for Early Childhood 3
ED 395 School and Society 3
ED 471 Directed Teaching: Elementary 4
ENGL 282 Children's Literature 4*
MATH 150 Structure of Arithmetic 4
MUS 140 Music for the Classroom Teacher 3
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.

SPED 530 Education of Exceptional Persons 3
SPED 531 Classroom Pracrticum 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 Practicum in Special Education: El. 1

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 "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 Teaching of Reading 3
ED 351 Reading and Related Communication Skills for Early Childhood 3
ED 395 School and Society 3
ED 471 Directed Teaching: Elementary 4
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 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.

SPED 530 Education of Exceptional Persons
Teacher 3

SPED 531 Classroom Practicum in Special
Education 3

SPED 532 Technology in Special Education
Electives 3

SPED 533 Classroom Management 3

SPED 534 Curriculum and Instruction
in Special Education 3

SPED 535 Assessment and Prescription in
Special Education: MI 1

SPED 536 Technology in Special Education
Electives 3* 3

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 Physically and
Otherwise Health Impaired

For the preparation of teachers of elementary
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
Elementary Physically and Otherwise Health
Impaired. Those marked with * are approved
for General Education and are not included in
the hour totals for the following requirements:

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 104
COM 104 Public Speaking .................. 3
ED 250 Human Development ............... 3
ED 312 Teaching of Reading ............... 3
ED 351 Interpersonal Communication
OR 104
MUS 141 Music in Special Education
or 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 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.

SPED 530 Education of Exceptional Persons
Teacher 3

SPED 531 Classroom Practicum in Special
Education 3

SPED 532 Technology in Special Education
Electives 3

SPED 533 Classroom Management 3

SPED 534 Curriculum and Instruction
in Special Education 3

SPED 535 Assessment and Prescription in
Special Education: MI 1

SPED 536 Consultation and Communication
in Special Education 3

SPED 537 Technology in Special Education
Electives 3

SPED 538 Classroom Management 3

SPED 550 Introduction to Orthopedic and
Otherwise Health Impaired .......... 2

SPED 551 Program Practicum in Special
Education: POHI 1

SPED 552 Assessment and Prescription in
Special Education 3

SPED 553 Consultation and Communication
in Special Education 3

SPED 554 Curriculum and Instruction
in Special Education 3

SPED 555 Education of Physically and
Multiply Handicapped .......... 2

SPED 556 Teaching Practicum in Special
Education: POHI 1

SPED 557 Technology in Special Education
Electives 3

SPPA 200 Communication Disorders .......... 3*

SPED 474 Directed Teaching in Special
Education: Elementary Level
POHI 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 Visually Impaired

For the preparation of teachers of elementary
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
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 104
MUS 141 Music in Special Education
or 140 Music for the Classroom
Teacher 3

ED 250 Human Development ............... 3
ED 312 Teaching of Reading ............... 3
ED 351 Interpersonal Communication
Communication Skills for Early
Childhood 3

ED 395 School and Society ............... 3
ED 471 Directed Teaching: Elementary
Teacher 2

ENGL 282 Children's Literature .......... 4*
MATH 150 Structure of Arithmetic ........ 4
MUS 141 Music in Special Education

COM 104 Public Speaking .................. 3

CURRICULA 165
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 Teaching of Reading - 3
ED 352 Reading and Related Communication Skills for Middle and Upper Grades - 3
ED 385 School and Society - 3
ED 472 Directed Teaching: Upper Elementary/Middle School - 3
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
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 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.

SPED 530 Education of Exceptional Persons - 3
SPED 531 Classroom Practicum in Special Education - 3
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 Communication Disorders - 3
SPED 474 Directed Teaching in Special Education: Secondary Level EI - 3
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 Teaching of Reading - 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 - 3
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 Mentally Impaired Major — Secondary - 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.

SPED 530 Education of Exceptional Persons - 3
SPED 531 Classroom Practicum in Special Education - 3
SPED 537 Technology in Special Education - 3
SPED 538 Classroom Management - 3
SPED 540 Introduction to Mental Retardation - 2
SPED 541 Program Practicum in Special Education: MI - 1
SPED 533 Assessment and Prescription in Special Education - 3
SPED 539 Consultation and Communication in Special Education - 3
SPED 545 Education of Moderately/Severely Retarded - 2
SPED 546 Teaching Practicum in Special Education: MI - 1
SPED 536 Curriculum and Instruction in Special Education: Secondary - 3
SPPA 200 Communication Disorders - 3
SPED 474 Directed Teaching in Special Education: Secondary Level MI - 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 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.

ART 150 Art Education Workshop - 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking - 3
ED 250 Human Development - 3
ED 312 Teaching of Reading - 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 - 3
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 Physically and Otherwise Health Impaired Major — Secondary - 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.

SPED 530 Education of Exceptional Persons - 3
SPED 531 Classroom Practicum in Special Education - 3
SPED 537 Technology in Special Education - 3
SPED 538 Classroom Management - 3
SPED 540 Introduction to Mental Retardation - 2
SPED 541 Program Practicum in Special Education: MI - 1
SPED 533 Assessment and Prescription in Special Education - 3
SPED 539 Consultation and Communication in Special Education - 3
SPED 545 Education of Moderately/Severely Retarded - 2
SPED 546 Teaching Practicum in Special Education: MI - 1
SPED 536 Curriculum and Instruction in Special Education: Secondary - 3
SPPA 200 Communication Disorders - 3
SPED 474 Directed Teaching in Special Education: Secondary Level MI - 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.
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).

Curriculum Requirements................. 31 hrs.

Reading Center and Clinic
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.

Courses in Visually Impaired Major - Secondary................. 40 hrs.

COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY

COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY

John S. Geisler
William A. Carlson
Thelma Urbick
Gilbert E. Mazer
Beverly Belson
Kenneth Bullmer
Jody L. Newman
Robert Oswald
Laura A. See
Edward L. Trembley

Counselor Education and Counseling Psychology (CECP)

CP 580 Principles of Counseling and Guidance
3 hrs.
The content of this introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. Open to all students, but is not intended for counseling majors.

CP 583 Workshops in Counseling 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

Evelyn T. Dearmin, Chair
Ariel Anderson
DeWayne Anderson
James Armstrong
Alfred Balkin
James Bosco
Robert Brashear
James Burns
Mary A. Cain
Joe R. Chapel
Mary Corder
Ronald A. Crowell
Suzanne Davis
Margaret Ebler
Paul Farber
Mary Frances Fenton
Franklin Fisk
Richard Hearing
Edward Hening
Gunilla Holm
Arthur Howson
Rachel Ingeberg
Jeanne Jacobson
Lynn N. Johnson
Robert Kotecki
Barbara Mehoke
George Miller
Stefinee Pinnegar
Carol P. Smith
Mary Ann Strubbe
Anchie Watson
Paul Wilson

Courses are designed to meet the professional needs of the student preparing to teach. All students pursuing a curriculum for a secondary provisional certificate and a degree are required to take the professional education sequence of courses, plus a methods course offered in the major and/or minor field and directed teaching; students in elementary education are required to complete the prescribed elementary education program. Students must contact the Office of Admissions and Advising, 2504 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an adviser who will assist the student in program planning and scheduling the sequence of courses, including directed teaching.

Education and Professional Development Courses (ED)

ED 102 Techniques of Learning and Adjustment
2 hrs.
Designed to aid the student in making a more adequate academic and social adjustment. Attention is given to schedule making, note-taking, study techniques, and examination writing. Principles of effective learning are discussed and demonstrated.

ED 103 Critical and Creative Reading
2 hrs.
Designed to develop practical application of principles of critical reading through extensive use of content area textbooks. Course will stress author's purpose, summarizing, and outlining for academic efficiency.

ED 104 Effective Reading for College Students
2 hrs.
Designed to provide the student with skills in vocabulary development, comprehension, and reading efficiency. Attention is given to the effective use of text and reference books; 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 105 Advanced Reading
2 hrs.
Designed to increase reading rates and comprehension skills. Provides the well-adjusted academic student with an opportunity to develop more sophisticated skills. 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 METLP.

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 progress 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 of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings.

ED 260 The Cognitive Development of the Child
2 hrs.
This course focuses on the physical, social, emotional, and cognitive development of the child, birth through 12 years. Special attention is given to 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 SPPE 260.)

ED 301 Teaching and Learning (Secondary)
3 hrs.
This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on: purposes of the school; selection and organization of learning experiences; instructional methods and materials; patterns of curriculum organization; classroom management; noninstructional duties of the teacher in the school and community. Requires a one half day per week field experience in the classroom from 3:30 a.m. to 11:00 a.m. or from 1:00 p.m. to 3:30 p.m. Offered only during the Fall and Winter Semesters. Prerequisite: ED 250.

ED 302 Teaching Elementary Social Studies
3 hrs.
This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and attitudes; and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-sexist content and strategies will be emphasized. Prerequisite: Junior standing in Elementary Education Curriculum and ED 250.

ED 311 Reading Workshop
3 hrs.
The basic purpose of the workshop will be to study typical classroom reading problems. Tools useful in identifying problems, materials available, and techniques for the teaching of reading will be examined and experimented with in the classroom. Special consideration will be given to a case study of one severe reading problem.

ED 312 The Foundations of Reading Instruction
3 hrs. Fall, Winter
This course will provide students with the foundations of reading instruction in the United States. Summaries of the results of current research in reading will be presented and the underlying theories and concepts examined. Also, current methods of teaching reading—especially the teaching approaches exemplified in basal programs—will be critically analyzed. Language as a system for transmitting ideas, information, and feelings will be introduced. Additionally, specific topics of importance to a foundational study, such as classroom diagnosis, also will be presented. Prerequisite: ED 250.

ED 316 The Teaching of Reading (Secondary)
3 hrs. Fall, Winter
This course deals with methods and materials for improving reading in the junior and senior high school. Both developmental and remedial procedures are stressed. Prerequisite: ED 250.

ED 324 Technology in Learning
1 hr.
An introduction to the contributions of technology and nonprint media to learning and development in childhood. Based upon a manifold model of cognitive processing, the course will provide opportunities for students to develop their own skills in learning and communicating with graphic, photographic, and audio technologies while considering how similar processes can enable the young learner to understand and express more about his or her world. To be taken concurrently with ED 370. Prerequisite: ED 250.

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. To be taken concurrently with ED 371.

ED 350 Young Children, Their Families, and Their Society
3 hrs.
A study of the effects of family, peer group, and society on the development of young children. Emphasis will be placed on family styles and child-rearing practices and their effects on learning and other behavior. Family constellations, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will
look at the contemporary American scene as it affects young children. Prerequisite: ED 250.

ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs. Fall, Winter
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 affects reading programs and reading instruction for young children, as well as on experiences in selecting books, storytelling, writing for and with children, and the production of a wide variety of student 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. Fall, Winter
An analysis of the multi-ethnic language of this age group and of how these youngsters record and interpret language. Emphasis will be placed on the implications of current research as it affects reading programs and reading instruction. Grouping for learning skills for reading in the content fields, testing, and remedial techniques will be stressed. Emphasis will be placed on book selection, storytelling, creative writing, and the production of a wide variety of audiovisual materials to be used in selected classroom settings. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312. Elementary Education Minors must complete ED 351 prior to registering for ED 352.

ED 370 Educational Psychology: Young Children/Elementary 3 hrs.
This course will develop understandings of children's learning from birth through eighth grade. Emphasis will be placed on major learning theories, on the growth of a healthy self-concept, and on the cognitive styles of these age levels. Students will examine the effects on learning of cultural and gender differences and discrimination. Through observation and participation in a variety of learning situations with children, there will be opportunity to plan, implement, and evaluate teaching and learning relationships with young children, demonstrating application of the theoretical concepts of the course. Each student will interview the roles of the teacher as they relate to children's personal goals and as implicit in the content of the course. ED 370 must be taken concurrently with ED 347 and SPED 527. Prerequisite: ED 250.

ED 371 Classroom Organization and Management: Young Children/Elementary 3 hrs. Fall, Winter
Students will examine and apply recent research on effective classroom management, concentrating on such variables as time and 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 replicate research on effective teaching and to become an effective classroom manager. ED 371 must be taken concurrently with ED 348 and ED 395. Prerequisites: ED 250, 370, and SPED 527. SPPA majors may substitute SPED 530 for SPED 527. Physical Education Majors may substitute PEPR 520 or PEPR 520 for SPED 527.

ED 385 School and Society 3 hrs. This course is concerned with the utilization of change in society as a force in directing American education. The course is directed toward modern problems in education as well as a futuristic look at its possible development. Course content centers around analysis of the influences which areas as the following have upon American education: political, legal, economic, social, psychological, historical, philosophical. Consideration is given to the individual's role in the change process in education. An interdisciplinary approach is used.

ED 398 Special Studies in Education 1-4 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. Taken concurrently with ED 402.

ED 402 Seminar in Science and Mathematics 2 hrs. This capstone course required of all students in the Science and Mathematics Teaching Minor will afford the student classroom teaching and observation experiences on a regular basis. In addition to the required classroom participation of 2-3 hours per week, the student will meet weekly in a seminar with the supervising faculty from science, mathematics, and education. Taken concurrently with ED 401.

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 research on effective teaching and effective schools, 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 on the student's self-image as a professional as he/she is encouraged to take professional responsibility and to practice professional ethics. It is in the seminar that the ongoing Teaching Portfolio will be completed and reviewed by a faculty committee. Must be taken concurrently with ED 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 the individualization of instruction and creative problem solving in children.

ED 460 Integrated Language Arts Seminar 4 hrs. This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language arts processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience in 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 1-10 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: ED 347, 348, 370, 371, 395, and SPED 527. Credit/no credit only.

ED 471 Directed Teaching: Primary Grades 1-10 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: ED 347, 348, 370, 371, 395, and SPED 527.

ED 472 Directed Teaching: Upper Elementary/Middle School 1-10 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: ED 347, 348, 370, 371, 395, and SPED 527. Credit/no credit only.

ED 474 Directed Teaching in Special Education 4-6 hrs. Only for students specializing in Special Education. Candidates must be approved by the Chair of the Special Education Department. The student shall present 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 1-8 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 extracurricular programs of the school in which they teach. Prerequisite: Admission to teacher education and successful completion of ED 250, 301, 322, 395, specialty area methods courses in major and minor, and major and minor coursework or their equivalents prior to beginning Directed Teaching. Credit/no credit only.

ED 502 Curriculum Workshop 1-6 hrs.
Opportunity provided for teachers, supervisors, and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audiovisual materials, and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student’s official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a Master’s degree.

ED 504 Adult Development 3 hrs.
This course provides an in-depth look at each age and stage in the life cycle. It will explore such problems as: the changing role of parents and singles, the changing societal pressures on teachers, adult life-styles, mid-life career changes, the changing role of males and females, and unique health stresses. Emphasis will be placed on the identification of patterns of lifelong learning leading to a more fruitful and fulfilling life.

ED 505 The Adult Learner 3 hrs.
This course provides an in-depth look at the learning adult from age 22 to death with emphasis on human variability, unique learning style, and characteristics of the adult learner. Theories of adult learning, studies of intelligence and memory, learning capabilities, abilities, approach to teaching, and special needs of learning will be considered. Motivation as a prerequisite for high-level well-being and problem solving will be studied.

ED 506 Teaching in Adult Education 3 hrs.
This course is designed to provide teachers with a knowledge of special situations 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 administrators in planning inservice programs for their own staff.

ED 508 Seminar in Parent Education 2 hrs.
Emphasis will be placed on cooperative problem-solving between parents and teachers of school-age children and youth. Problems considered will include such topics as grief and loss through death, divorce, or separation, special needs and contributions of multicultural parents; parents as resource persons and paraprofessionals in the schools; and problems identified by members of the seminar. Members of the seminar will report on the current literature available through libraries and community resources and work toward potential solutions of problems.

ED 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 511 Developmental Reading Theory and Application 3 hrs.
Emphasizes the application of reading theory in the teaching of reading skills to special-needs students. Intensive study of the theory and practice of individualized reading, language-experience approaches, and basal reading materials will be focused on the actual use of materials with pupils to provide practical experiences in teaching on an individual and small-group basis. Efficiency of reading procedures will be studied through actual use with pupils. Intended to provide potential teachers with an introduction to basic reading theory as applied to materials, programs, and conditions likely to be encountered in the field. Prerequisite: ED 312 or 322.

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 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 educational objectives in presentation, interactive, and individualized modes of instruction. Emphasizes evaluation, selection, production, and classroom 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, audio tapes and photographic slides, and to demonstrate proficiency in the operation of audiovisual equipment. In addition to texts, each student should plan to spend $15 or more for supplies and have the use of a simple camera. Limited to 20 students.

ED 549 Audiovisual Media II 3 hrs.
A continuation of ED 548 in which teachers and media specialists consolidate basic audiovisual skills and deal in depth with more advanced processes and techniques. Laboratory experiences may include production of complex transparencies; photographic slides, filmstrips, and prints; super 8 films; audio and video tapes; duplicated materials; and more sophisticated charts, posters, and displays. A systematic production-planning process is emphasized, with consideration given to evaluating effectiveness of media and to requirements for operating a school building media center. In addition to texts, each student should expect to spend $15 or more for supplies and should have the use of a versatile camera. Limited to 15 students. Prerequisite: ED 548 or equivalent experience.

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 $25 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 is also intended to help students understand more fully the place of reading in a total language arts program and to give students an opportunity to make application to practical classroom situations.

ED 598 Selected Reading in Education 1-4 hrs.
Designed for highly qualified students who wish to study in-depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.
EDUCATIONAL LEADERSHIP
Robert O. Brinkerhoff
David J. Cowden
Kenneth E. Dickie
Patrick Jenlink
Edgar A. Kelley
James R. Sanders
Uilda Smichens
Daniel L. Stufflebarn
Charles C. Warfield

This department offers curricula in line administration, staff administration, human resource development, and program leadership, leading to a degree of Master of Arts, Specialist in Education, Doctor of Education, or Doctor of Philosophy. While most of the department's courses, seminars, and studies, are intended for graduate students, programs of study may be outlined and pursued by advanced undergraduate students whose career goals include positions as leaders in the many and varied educational agencies that are operative in society today. Courses are listed under the prefix EDLD.

ROBERT 0. BRINKERHOFF
DAVID J. COWDEN
KENNETH E. DICKIE
PATRICK JENLINK
EDGAR A. KELLEY
JAMES R. SANDERS
ULIDA SMICHENS
DANIEL L. STUFFLEBARN
CHARLES C. WARFIELD

PROFESSIONAL HEALTH, PHYSICAL EDUCATION AND RECREATION
Roger Zabik, Chair
Debra Berkey
Billye Ann Cheatum
Charles Comer
Harriet Creed
Mary Dawson
David Diget
Frances Ebert
Jean Friedel
Joy Griffin
William Gross
George Hobbs
Patricia Lemanski
Ruth Ann Meyer
John Miller
Robert Moss
Fred Orlowski
Linda Powell
Richard Raklovits
Harold L. Ray
William Roweikamp
William Schreiber
Norma Stafford
Ronald Winter
Robert Wyman

The professional programs are based on the concepts of (1) balanced preparation that enables the student to later specialize at the graduate level, (2) exposure to practical experiences throughout the professional sequence, (3) elective choices of specific courses, and (4) continual review of curricular offerings by students and faculty. Students who desire specialized professional preparation may select from the following:

MAJORS
1. Health Education
2. Physical Education
   A. Teacher-Coach Emphasis
   B. Teacher-Exercise Science Emphasis
3. Recreation

MINORS
1. Teaching Certification
   A. Health Education
   B. Physical Education
      1. Elementary
      2. Secondary
      3. Special Physical Education
2. Non-Teaching
   A. Athletic Training
   B. Coaching
   C. Recreation

The professional student is expected to work closely with a departmental adviser during his/her years on campus. A copy of the "Departmental Handbook" should be secured from the department office promptly after choosing a major or minor.

Transfer Students
Transfer courses from four year schools and appropriate lower division courses from community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University. The PEPR teaching methods course(s) must be included in the hours at WMU. Transfer students must participate in HPER entry skill and fitness assessments.

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 adviser 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
36 credit hours
Bachelor of Science Degree
State Elementary or Secondary Provisional Certificate

The Health Education program prepares health educators who can influence the psychological, sociological, and biological development of individuals and groups to effectively meet the health needs of society.

The major is designed so graduates may enter first level positions in both schools and community agencies and qualify for graduate work.

Students planning to enter community health positions are not required to take directed teaching or courses in the education block.

Students planning to major in health must consult a department adviser promptly after choosing this major.

Health Education majors are expected to have a valid First Aid Certificate at the time of graduation.

COURSE REQUIREMENTS ......... Hrs.
General Education ............. 40
Physical Education .............. 2
Required Cognates ............... 10
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 ............... 28-29
PEPR 100 Health for Better Living .... 4
PEPR 211 Community Health—Public Health I .... 3
PEPR 314 Elementary School Health and Safety Education .... 3
OR
PEPR 315 Secondary School Health and Safety Education .... 3
PEPR 411* Public Health II .... 3
PEPR 412* Administration in Health Education .... 3
BIOS 211 Human Anatomy .... 4
**Physical Education Major**

45 credit hours
Bachelors of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Teacher-Exercise Science Emphasis

Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. In HPER, students must also serve as a teaching assistant for one semester in a general physical education course and complete a minimum of 20 clock hours of observation and participation at both the elementary and secondary levels.

The Teacher-Exercise Science emphasis prepares students to assume careers in non-school settings such as corporate, public, and private adult fitness programs. The emphasis is also excellent preparation for the student desiring to pursue graduate study in exercise science and/or research. Students completing the Teacher-Exercise Science emphasis are not eligible for teaching certification.

**HOURS REQUIRED**: 122

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**Recreation**

45 credit hours
Bachelor of Arts Degree
or
Bachelor of Science Degree

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public or private recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific phase of recreation. Students will also complete a supervised internship of at least three consecutive months duration.

**HOURS REQUIRED**: 122

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**Physical Education Major**

45 credit hours
Bachelors of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Teacher-Exercise Science Emphasis

Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. In HPER, students must also serve as a teaching assistant for one semester in a general physical education course and complete a minimum of 20 clock hours of observation and participation at both the elementary and secondary levels.

The Teacher-Exercise Science emphasis prepares students to assume careers in non-school settings such as corporate, public, and private adult fitness programs. The emphasis is also excellent preparation for the student desiring to pursue graduate study in exercise science and/or research. Students completing the Teacher-Exercise Science emphasis are not eligible for teaching certification.

**HOURS REQUIRED**: 122

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**Recreation**

45 credit hours
Bachelor of Arts Degree
or
Bachelor of Science Degree

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public or private recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific phase of recreation. Students will also complete a supervised internship of at least three consecutive months duration.

**HOURS REQUIRED**: 122

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**Physical Education Major**

45 credit hours
Bachelors of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Teacher-Exercise Science Emphasis

Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. In HPER, students must also serve as a teaching assistant for one semester in a general physical education course and complete a minimum of 20 clock hours of observation and participation at both the elementary and secondary levels.

The Teacher-Exercise Science emphasis prepares students to assume careers in non-school settings such as corporate, public, and private adult fitness programs. The emphasis is also excellent preparation for the student desiring to pursue graduate study in exercise science and/or research. Students completing the Teacher-Exercise Science emphasis are not eligible for teaching certification.

**HOURS REQUIRED**: 122

---

**Physical Education Major**

45 credit hours
Bachelors of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
2. Teacher-Exercise Science Emphasis

Successful completion of the Teacher-Coach emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. In HPER, students must also serve as a teaching assistant for one semester in a general physical education course and complete a minimum of 20 clock hours of observation and participation at both the elementary and secondary levels.

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**HOURS REQUIRED**: 122

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**Recreation**

45 credit hours
Bachelor of Arts Degree
or
Bachelor of Science Degree

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public or private recreation agencies and organizations. The hours of electives within this course of study allow the student flexibility in preparing for a specific phase of recreation. Students will also complete a supervised internship of at least three consecutive months duration.

**HOURS REQUIRED**: 122

---

**Physical Education Major**

45 credit hours
Bachelors of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:
1. Teacher-Coach Emphasis
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**HOURS REQUIRED**: 122

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**Physical Education Major**

45 credit hours
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**HOURS REQUIRED**: 122

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**Physical Education Major**

45 credit hours
Bachelors of Science Degree

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1. Teacher-Coach Emphasis
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**HOURS REQUIRED**: 122
<table>
<thead>
<tr>
<th>Music and Drama Area (Not more than 4 courses)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MUS 140 Music for the Classroom Teacher</td>
<td>3</td>
</tr>
<tr>
<td>MUS 281 Music Therapy Actv/Child</td>
<td>3</td>
</tr>
<tr>
<td>DANC 106 Recreational Dance</td>
<td>1</td>
</tr>
<tr>
<td>COM 564 Creative Drama for Children</td>
<td>4</td>
</tr>
<tr>
<td>THEA 100 Intro to Theatre</td>
<td>3</td>
</tr>
<tr>
<td>Outdoor Skills Area (Not more than 4 courses)</td>
<td></td>
</tr>
<tr>
<td>PEGN 106 Canoe Camping</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 108 Backpacking</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 110 Cross-Country Ski Camp</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 135 Outdoor Challenge</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 143 Cross Country Skiing</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 167 Winter Camping</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 172 Camp Leadership</td>
<td>3</td>
</tr>
<tr>
<td>DANC 234 Outdoor Education</td>
<td>4</td>
</tr>
<tr>
<td>BICS 105 Envir. Biology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group II: Administrative Skills**

Not more than four courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 368</td>
<td>Organization and Administration of Intramurals</td>
<td>2</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>COM 335</td>
<td>Leadership</td>
<td>3</td>
</tr>
<tr>
<td>COM 549</td>
<td>Public Relations/Organizations</td>
<td>3</td>
</tr>
<tr>
<td>COM 550</td>
<td>Public Relations/Program Development</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 204</td>
<td>National Park Lands</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>Conservation/Environmental Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 388</td>
<td>Records Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 556</td>
<td>Office Management</td>
<td>3</td>
</tr>
<tr>
<td>BIS 242</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>BIS 102</td>
<td>Intro to Information Processing</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 312</td>
<td>Geology of National Parks and Monuments</td>
<td>2-3</td>
</tr>
<tr>
<td>GEOL 544</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>ECON 319</td>
<td>Environmental Economics</td>
<td>3</td>
</tr>
<tr>
<td>CRT 363</td>
<td>Landscape Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group III: Community Organization Skills**

Not more than four courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGR 516</td>
<td>Issues in Health Education</td>
<td>2</td>
</tr>
<tr>
<td>COM 232</td>
<td>Discussion</td>
<td>3</td>
</tr>
<tr>
<td>COM 581</td>
<td>Organizations in Communication</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 572</td>
<td>Community Agency Resources</td>
<td>2</td>
</tr>
<tr>
<td>SWRK 562</td>
<td>Community Organizations in Urban Areas</td>
<td>3</td>
</tr>
<tr>
<td>SOC 210</td>
<td>Modern Social Problems</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 464</td>
<td>Problem Solving in Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>PEGR 572</td>
<td>Recreation for the Aging</td>
<td>2</td>
</tr>
<tr>
<td>SOC 352</td>
<td>Introduction to Gerontology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group IV: General Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGR 500</td>
<td>Studies in H.P.E.R</td>
<td>1-3</td>
</tr>
<tr>
<td>PEGR 598</td>
<td>Readings in H.P.E.R</td>
<td>1-2</td>
</tr>
</tbody>
</table>

**Minors**

**Health Education Minor**

**24 credit hours**

A minor is offered in Health Education. It is open to all students and 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. The health education minor consists of 24 hours. The program is designed to offer courses in multidisciplinary areas and to meet state certification standards.

**Cognates**—Students will elect BIOS 101, 110, or BIOS 112—4 semester hours (Biological Sciences) as part of the distribution program in general education.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 100</td>
<td>Health for Better Living</td>
<td>4</td>
</tr>
<tr>
<td>PEPR 314</td>
<td>Elementary School Health and Safety Ed</td>
<td>3</td>
</tr>
<tr>
<td>PEGN 139</td>
<td>Relaxation</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 165</td>
<td>Yoga</td>
<td>3</td>
</tr>
<tr>
<td>PEGN 350</td>
<td>W.S.I.</td>
<td>2</td>
</tr>
</tbody>
</table>

**Secondary Teaching Assistant**

**Required Teaching Assistant**

**23 credit hours**

**Special Physical Education Minor**

**23 credit hours**

Designed to prepare special education and physical education majors in the area of recreation, physical education, swimming, health, and dance for the exceptional child. Students majoring in other curricula must take all courses listed for physical education majors and special education majors. (Courses A. and B.)

**Required Cognates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 107</td>
<td>Basic Exercise Concepts</td>
<td>4</td>
</tr>
<tr>
<td>BIOS 112</td>
<td>Basic Exercise Concepts</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 211</td>
<td>Physical Education</td>
<td>4</td>
</tr>
<tr>
<td>ED 230</td>
<td>*Applicable to total General Education requirement.</td>
<td></td>
</tr>
</tbody>
</table>

**Required Professional Courses: Academic**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 101</td>
<td>Basic Exercise Concepts</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 276</td>
<td>Outdoor Education</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 295</td>
<td>Biomechanical Analysis of Activity</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 320</td>
<td>Physical Education for the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 444</td>
<td>Administration and Development of Instructional Systems</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 445</td>
<td>Physical Education: Teaching Skills and Strategies</td>
<td>2</td>
</tr>
</tbody>
</table>

**Required Activity**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 115</td>
<td>Tumbling: Apparatus</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 310</td>
<td>Track and Field</td>
<td>1</td>
</tr>
<tr>
<td>DANC 106</td>
<td>Recreational Dance</td>
<td>1</td>
</tr>
<tr>
<td>DANC 290</td>
<td>Teaching Dance in the Elementary School</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 105</td>
<td>Softball/Volleyball</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 110</td>
<td>Soccer/Basketball</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 181</td>
<td>First Aid</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 210</td>
<td>Racquet Sports</td>
<td>1</td>
</tr>
</tbody>
</table>

**Special Physical Education Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 320</td>
<td>Physical Education for the Exceptional Child</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 321</td>
<td>Therapeutic Needs and Exercises</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 420</td>
<td>Testing and Developmental Programs</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 400</td>
<td>Professional Field Experience/Internship</td>
<td>4</td>
</tr>
</tbody>
</table>

**A. Background Courses in Physical Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 101</td>
<td>Basic Exercise Concepts</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 139</td>
<td>Relaxation</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 310</td>
<td>Track and Field</td>
<td>1</td>
</tr>
<tr>
<td>PEGN 325</td>
<td>Swimming for the Exceptional Child</td>
<td>3</td>
</tr>
</tbody>
</table>
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:
- PEPR 181 First Aid 2
- PEPR 380 Foundations of Sports Injuries (PreReq—First Aid 181) 2

Professional Electives:
- PEPR 337 Advanced Techniques and Coaching Series—Prerequisites: Must have had first level course(s) or permission of instructor. Each 6 hours must be one team sport and one individual sport. 6

Team:
- Basketball 2
- Baseball or Softball 2
- Volleyball 2
- Football 2
- Soccer 2
- Ice Hockey 2

INDIVIDUAL:
- Gymnastics 2
- Tennis 1
- Track and Field 1

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

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

Required Professional Courses:
- PEPR 170 Introduction to Recreation 3
- PEPR 270 Recreational Leadership (PreReq. 170) 2
- PEPR 372 Recreational Programming (PreReq. 270) 3
- PEPR 370 Recreation Practicum (PreReq. 170, 270, 372) 3
- PEPR 375 Organization and Administration of Recreation (PreReq. 170, 270, 372, 370) 3

Elective Courses (From not more than two groups):

Group I: Program Skills
- Aquatics Area (Not more than 4 courses)
- PEGN 251 Senior Life Saving 2
- PEGN 350 Water Safety Instructors 2

Group II: Administrative Skills
- Not more than four courses
- PEPR 368 Organization and Administration of Intramurals 2
- COM 104 Public Speaking 3
- COM 335 Leadership 3
- COM 549 Public Relations/Organization 3
- COM 550 Public Relations/Program Organization 3

Group III: Community Organization Skills
- Not more than four courses
- GEOL 240 National Park Landscapes 3
- GEOL 350 Conservation/Environmental Management 3
- BIS 388 Records Management 3
- BIS 556 Office Management 3
- BIS 242 Business Communications 3
- BIS 102 Intro to Information Processing 3

Group IV: General Electives
- PEGR 516 Issues in Health Education 2
- COM 232 Discussion 3
- COM 581 Communication in Organizations 3
- SWRK 572 Community Agency Resources 2
- 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
Courses By Topic

PROFESSIONAL ACTIVITY COURSES (PEPR)
102 Cycling: Relaxation/Stress Management
105 Baseball/Softball: Volleyball
110 Soccer: Basketball
115 Tumbling: Apparatus
200 Football: Wrestling
205 Cross Country Ski: Weight Training
210 Racquet Sports
215 Aerobic Conditioning
305 Golf : Archery: Bowling
310 Track and Field

HEALTH EDUCATION ACADEMIC COURSES (PEPR)
100 Health for Better Living
211 Community Health—Public Health I
314 Elementary School Health and Safety Education
315 Secondary School Health and Safety Education
400 Field Experience in Health Education
411 Health Education: Public Health II
510 Modern Health for Teachers and Health Professionals
512 Principles, Practices, and Methods in Health Education
516 Issues in Health Education
520 Principles and Problems of Coaching

PHYSICAL EDUCATION ACADEMIC COURSES (PEPR)
101 Basic Exercise Concepts
150 Foundations of Health, Physical Education and Recreation
181 First Aid
235 Theory of Coaching
236 Officiating Series
295 Biomechanical Analysis of Activity
300 Seminar Series
320 Physical Education for the Exceptional Child
321 Therapeutic Needs and Programs for the Exceptional Child
325 Swimming for the Exceptional Child
337 Coaching and Advanced Techniques
345 Nature and Bases Motor Skills
368 Administration and Organization of Intramural Sports
380 Foundations of Sports Injuries
386 Physiology of Motor Activity
392 Measurement and Evaluation in Physical Education
400 Field Experience/Internship in HPER
416 Test and Developmental Programs for the Exceptional Child
444 Administration and Development of Instructional Systems in Physical Education
445 Teaching Skills and Strategies
450 Cultural Bases of Physical Education
490 Adult Fitness and Exercise Prescription

PROFESSIONAL RECREATION COURSES
170 Introduction to Recreation
172 Camp Leadership
178 Playgroup Administration
270 Recreational Leadership
276 Outdoor Education
370 Recreation Practicum
372 Recreational Programming
375 Organization and Administration of Recreation
400 Field Experience/Internship in HPER
470 Recreational Facilities and Areas
572 Recreation for the Aging
Open to Upperclass and Graduate Students (PEGR)
500 Studies in Health, Physical Education and Recreation
520 Physical Activities for Exceptional Children
521 Therapeutic Trends for Exceptional Children

530 Practicum in Teaching and Coaching
535 Principles and Problems of Coaching
540 Movement Education
560 Administration of Physical Education
562 Administration of Athletics
580 Studies in Athletic Training
590 Exercise Physiology
591 Evaluation in Health, Physical Education, and Recreation
595 Analysis of Movement in Sport
596 Readings in Health, Physical Education, and Recreation

Professional Health, Physical Education and/or Recreation (PEPR/PEGR)
(Courses described in italics are approved for General Education. Course descriptions preceded by * are open to all students.)

PEPR 100 Health for Better Living
4 hrs. Fall, Winter
*The focus of this introductory health course is to assist students in achieving an awareness of optimal physical, mental, and social health in a changing environment. Guest lectures from the community will present some of the topics considered important to the health of modern people. Preference is given to freshmen and sophomores. 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 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 approach 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 170 Introduction to Recreation
3 hrs. Fall only
*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 arms 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 211 Community Health—Public 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. Introduces student to the scope of public health programs. Prerequisite: 100.

PEPR 215 Aerobic Conditioning
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

PEPR 241 Physical Education and Recreation for Teachers
2 hrs.
This course is open only to teachers. Topics included in the course are: Program planning, making of games and equipment, accident prevention, basic motor skills. Practice in games, stunts, rhythms and recreational activities will be included. Offered by extension only.

PEPR 270 Recreational Leadership
2 hrs. Winter only
A course studying the skills, knowledge and techniques necessary to conduct social recreational programs for all ages. Creative and effective leadership stressed through observations, participation and the leading of activities. Prerequisite: PEPR 170 or permission of instructor.

PEPR 276 Outdoor Education
2 hrs. Winter only
*A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth.

PEPR 295 Biomechanical Analysis of Activity
2 hrs. Fall, Winter
The analysis and measurement of human performance. Includes the examination and application of biomechanical principles to 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 of 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 314 Elementary School Health and Safety Education
3 hrs. Winter only
This course is directed toward prospective elementary school teachers. It is designed to provide knowledge and experiences related to the total school health program. Prerequisite: 100, ED 371

PEPR 315 Secondary School Health and Safety Education
3 hrs. Fall only
This course is directed toward prospective secondary school teachers. Through the media of knowledge and experiences the total school health program is brought into focus as an integral part of a secondary school program. Prerequisite: 100, ED 301

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 337 Coaching and Advanced Technique
2 hrs. Fall, Winter
Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events. Prerequisites: Must have had first level course(s).

PEGR 500 Studies

Professional Courses Open To Underclass and Graduate Students (PEGR).

Note: The following courses are open to undergraduate students when marked in the Schedule of Classes as "Undergraduate Students Only."

PEGR 500 Studies in Health, Physical Education and Recreation
1-2 hrs.
In depth study of selected topics in HPER. Format can include clinics, workshops, seminars, travel and/or mini-courses, and provide opportunity to acquire skills and teaching techniques. State, national, and international authorities or consultants may be involved. Topics include: Lifetiming Sports,

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: PEGR 314/315 or consent of department.

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: PEGR 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.

Substance Abuse
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, Tennis, 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 evaluation personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

PEGR 540 Movement Education
2 hrs.
A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

PEGR 560 Administration of Physical Education
2 hrs.
For administrative officers, as well as for teachers and directors of physical education, includes a study of representative programs for physical education and discussion of standards for evaluating such programs.

PEGR 562 Administration of Athletics
2 hrs.
Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

PEGR 572 Recreation for the Aging
2 hrs. Fall
An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs. Suggested Prerequisite: SOC 352.

PEGR 580 Studies in Athletic Training
1-2 hrs.
Listed with various topics. A lecture/ demonstration course concerned with the prevention diagnosis, and treatment of sports type injuries. Prerequisite: BIOS 211, 240, PEGR 380.

PEGR 590 Exercise Physiology
2 hrs.
The mechanics of muscular contraction, nerve impulse conduction, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletics. Prerequisites: BIOS 211, 240. Open to graduate students only.

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 muscules and the application of kineology to physical activity. Prerequisite: BIOS 211. Open to graduate students only.

PEGR 598 Readings in Health, Physical Education and Recreation
1-2 hrs. All Semesters
Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of the Chairperson of the Department of Physical Education. Open to graduate students only.

General Physical Education
All undergraduate students must participate in general activity physical education beginning with the first semester or session of residence, until a minimum of 2 hours is completed. Classes meet two hours weekly for one semester of credit. Exceptions:

1. Any student 30 years of age or older is not required to take physical education. (122 hours required for graduation.)
2. A student in the marching band may count band participation towards two semesters of general physical education.
3. A veteran (defined as one having served one year’s continuous active duty) will be exempt from the general physical education requirement.
4. A transfer student must enroll in general physical education during the first semester or session of residence at Western and thereafter each semester or session until the 2 hour requirement is completed.
5. Only a student with a severe physical disability will receive a medical waiver from the requirement. A student with a temporary or permanent physical disability may receive counseling concerning selection of courses suited to his/her 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 PEGR 400 series (List follows 300 level courses.).
7. Only one dance course may be used to fulfill the general physical education graduation requirement. (List follows PEGR 100 listing.)
8. ROTC Cadets are to enroll in PEGR 132 Military Fitness I to fulfill the general physical education requirement. Permission required from ROTC.

RESTRICTIONS:
1. Up to 2 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. PEGR 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:
   101 Beginning Ballet I
   102 Beginning Jazz Dance I
   103 Beginning Modern I
   106 Recreational Dance
   111 Beginning Ballet II
   112 Beginning Jazz Dance II

All courses are co-ed. Course descriptions may be obtained from the general physical education office.

- **PEGN 100-level courses** are open to all students and emphasize the beginning skills in the activity given. The student with some experience in activities marked*—"Beginners Only"—should enroll in 200/300 level courses.
- **PEGN 200-level courses** are open to all students who have completed a 100-level course in the activity or the equivalent. (**Prerequisite 249 or Red Cross Intermediate Card**)
- **PEGN 300-level courses** are open to all students desiring additional experience in an activity and who have completed the 200-level course or permission of instructor to enroll.
- **PEGN 400**—A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

**General Physical Education (PEGN)**

**PEGN 100** Adapted P.E. Med. Rec
1 hr.
**PEGN* 101** Archery
1 hr.
**PEGN 102** Badminton
1 hr.
**PEGN 103** Aerobic Exercise
1 hr.
Course consists of a broad spectrum of fitness exercises to music.
**PEGN 104** Basketball
1 hr.
**PEGN 105** Bowling
1 hr.
**PEGN 106** Canoe Camping
1 hr.
The course combines the fundamentals of camping with canoeing. Terminates with a weekend camping trip by canoe.

**PEGN 107** Canoeing
1 hr.
**PEGN 108** Backpacking
1 hr.
**PEGN 109** Cycling
1 hr.
**PEGN 110** Cross Country Ski Camp
1 hr.
This course combines Cross Country skiing with outdoor living experiences.
**PEGN* 120** Fencing
1 hr.
**PEGN 121** Field Hockey
1 hr.
**PEGN* 122** Golf I
1 hr.
**PEGN 123** Gymnastics—Apparatus
1 hr.

- **PEGN 124** Gymnastics—Tumbling
  1 hr.
- **PEGN 128** Jogging
  1 hr.
- **PEGN* 129** Ice Hockey
  1 hr.
- **PEGN 130** Judo
  1 hr.
- **PEGN* 131** Karate
  2 hrs.
- **PEGN 132** Military Fitness
  1 hr.
- **PEGN 135** Outdoor Challenge
  1 hr.
This course, taught in cooperation with Pretty Lake Camp, teaches teamwork, trust of others, and responsibility through outdoor physical activities. Students work together to solve problems of survival in the outdoors.
- **PEGN 136** Physical Fitness
  1 hr.
- **PEGN* 137** Racketball
  1 hr.
- **PEGN 138** Rock Climbing
  1 hr.
This course, taught in cooperation with Pretty Lake Camp, gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience.
- **PEGN 139** Relaxation
  1 hr.
- **PEGN 140** Riffery
  1 hr.
- **PEGN* 141** Sailing
  1 hr.
- **PEGN 142** Skating—Ice
  1 hr.
- **PEGN 143** Skiing—Cross Country
  1 hr.
- **PEGN* 144** Sking—Alpine
  1 hr.
- **PEGN 146** Soccer
  1 hr.
- **PEGN 147** Softball
  1 hr.
- **PEGN* 149** Swimming—Unable to swim in deep water
  1 hr.
- **PEGN 160** Tennis I
  1 hr.
- **PEGN 161** Track and field
  1 hr.
- **PEGN 163** Volleyball
  1 hr.
- **PEGN 164** Wrestling
  1 hr.
- **PEGN 165** Yoga
  1 hr.
- **PEGN 166** Weight Training
  1 hr.
Course consists of individualized weight training programs.
- **PEGN 167** Winter Camping
  1 hr.
Course includes winter survival as well as winter camping for the hardy outdoor person.
- **PEGN 175** Special Activities, e.g., Wind Surfing, Kayaking, 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.

- **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** Advanced Swimming
  1 hr.
Students will build on skills learned in Intermediate Swimming and learn to develop these skills in order to enter the Life Saving course. Prerequisite: PEGN 249
- **PEGN 251** Swimming—Lifesaving
  2 hrs.
- **PEGN 252** Swim Conditioning
  1 hr.
- **PEGN** 253 Swimming—Speed
  1 hr.
- **PEGN** 254 Swimming—Springboard—Diving
  1 hr.
- **PEGN 260** Tennis II
  1 hr.
- **PEGN 283** Volleyball Intermediate
  1 hr.
- **PEGN 350** W.S.I.—Current Life Saving Certificate required
  2 hrs.
- **PEGN 360** Tennis—Intermediate
  1 hr.

**VARSITY ATHLETICS**

**PEGN 400** Baseball
1 hr.
SPECIAL EDUCATION

Alonzo E. Hannaford, Chair
Christine M. Bahr
Dona Gordon Iacobone
Elizabeth Lawrence-Patterson
Barbara L. Loss Harris
Abraham W. Nicolaou
Donald F. Sellin

The Department of Special Education offers undergraduate programs for the preparation of teachers in the areas of emotionally impaired, mentally impaired, physically or otherwise health impaired and visually impaired. Students in undergraduate programs are awarded elementary/provisional teaching certificates with a major in one of the above fields, which also permits them to teach in their major at either the elementary or secondary level.

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 officially admitted to, and enrolled in, undergraduate curricula in special education, are expected to consult with departmental advisers early in their college career. Questions regarding enrollment procedures in special education, course substitutions, or practicum placements, should be referred to the students' advisers.

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 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 529 Exceptional Learners in Regular Secondary Programs
3 hrs.
This course is designed for prospective secondary teachers. Emphasis is placed on the types of exceptional learners found in secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

SPED 530 Education of Exceptional Persons
3 hrs.
This course deals primarily with the problems of individuals who are atypical in terms of their sensory, physical, mental, emotional, and learning characteristics. Emphasis is placed on developing an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of exceptionality, including education in the Least Restrictive Environment. Prerequisite: Consent of department.

SPED 531 Classroom Practicum in Special Education
1 hr.
This course will provide the student with an opportunity to work within a classroom setting with a particular disability group — Ei, Mi, POHi, VI — at the elementary or secondary level. It is intended to provide the student with an awareness of the nature of the 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.

SPED 536 Curriculum and Instruction in Special Education: Secondary
3 hrs.
The major focus of this course is the application of the Clinical Teaching Model to the education of 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 the continuum of special education placements and the role of non-school agencies serving retarded persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 542 Introduction to the Severely Impaired
3 hrs.
This course is designed to provide basic knowledge about the severely impaired, including mental, physical, emotional, and sensory impairments. The problem of severe impairment is 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 impaired 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 intended to provide a basic foundation for understanding the condition of emotional impairment and appropriate educational and management provisions. Prerequisite: Consent of department.

SPED 571 Program Practicum in Special Education: EI
1 hr.
This course will provide the student with guided observations of school and community agencies serving the Emotionally Disturbed population. The course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving emotionally disturbed persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 575 Education of Emotionally Disturbed Persons
2 hrs.
This course is to be taken following SPED 570 and focuses on understanding curriculum organization and the application of the clinical teaching model to instruction in order to assure maximal learning by students with emotional 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 591 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 593 Methods and Techniques of Teaching Braille and Other Areas of Communication
3 hrs.
This course explores various methods and techniques of teaching essential communication skills—braille, typing, 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 598 Readings in Special Education
1-4 hrs.
This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and head of the department. May be repeated for credit. Prerequisite: Consent of department.
The mission of the College of Engineering and Applied Sciences supports the three fundamental goals of the University mission of education, research, and service. The College recognizes that its primary clientele are the people and industries of the State of Michigan. The education goals are to provide balanced undergraduate and graduate programs designed to prepare individuals for professional careers, and to inculcate in students the ability to continue to learn on their own. Each academic department 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 Home Economics, Teaching of Vocational Education, Manufacturing Administration, Operations Research, Electrical Engineering, Mechanical Engineering, and Paper Science and Engineering. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

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. Experimental facilities include reciprocating and jet engine dynamometers, paper, printing, and recycled fibre pilot plants, environmental test chamber; wind tunnel; solar energy test center; anechoic chamber; RF screened chambers; ergonomic laboratory, and an advanced manufacturing systems laboratory. These facilities are all supported by a computer-aided engineering center complete with a VAX 11/785 central processor, 3-D graphics design terminals, and attendant peripherals.

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.
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 educational and research activities in papermaking and printing. Industrial seminars are offered during the summer months and training is available by special arrangement.

Enrollment
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 small web printing operations as well as major web-fed flexographic, rotogravure, and offset presses. The Center serves as a resource for students interested in paper-making, printing, packaging, and publishing industries.

Academic Advising
A central advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and it is essential to follow the program plans that appear in the curricula descriptions, students must contact their academic adviser in the first semester of enrollment at Western Michigan University. Failure to meet with the adviser on a regular basis may result in difficulty receiving requested class schedules and/or delayed graduation.

Advisers 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 adviser 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 ensure the proper conduct of the course. Therefore, prerequisites will be strictly enforced for all departmental courses. Exceptions must be accepted 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 curriculum, probation, or dismissal from the University.

Computer Use in College Programs
Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. This is particularly true in engineering and engineering related disciplines. Although Western Michigan University and the College provide adequate computer facilities for student use, many students find it advantageous to have their own computer (students are not required to purchase one). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of micro-computers and software. Interested students may obtain current information about the purchase of computing equipment from the College of Engineering and Applied Sciences Advising Office (Room 2038 Kohrman Hall) or their academic adviser.

Scholarships
Many scholarships are available to both freshmen and upperclass students in the College of Engineering and Applied Sciences. The majority of these scholarships available specifically for students in the College are administered by the individual departments of the College. A listing may be found in the "Financial Aid and Scholarships" section of this catalog.

Engineering Programs

Engineering Students
Three common characteristics are prevalent among students who are attracted to engineering. All show an interest in problem-solving—not only to know how, but why, something works. Second, engineering students possess a degree of technical aptitude—the ability to think in mathematical and scientific terms—which, third, is coupled with a strong interest in mathematics and the sciences.

A majority of engineering students are involved in one or more of the several professional organizations that have student chapters on campus. Such involvement enhances the "textbook learning" by providing students with opportunities to interact with other students having similar interests, to gain a closer look at the profession they have chosen to enter, and to plan and direct programs and projects.

Engineering Graduates
Undergraduate engineering programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. A survey of graduates indicated WMU engineering alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, and lawyer. Students interested in advanced studies in engineering may pursue a Master of Science degree in Electrical Engineering, Mechanical Engineering, Operations Research, Paper Science and Engineering, or Manufacturing Administration 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 adviser.

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:

- Aircraft Engineering (ACE)
- Automotive Engineering (AME)
- Computer Systems Engineering (CSE)
- Electrical Engineering (EE)
- Industrial Engineering (IE)
- Mechanical Engineering (ME)
- Paper Engineering (PAE)
- General Engineering (GE, not available on campus)

University admission standards are used for enrollment in PE. Students admitted for PE should have appropriate academic preparation.

Academic Advising

All students enrolled in the PE curriculum will receive academic advising by the College of Engineering and Applied Sciences.

Enrollment Restrictions

Pre-engineering (PE) students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences at the 300 level or above that is required in any of the engineering curricula.

Pre-Engineering Curriculum Requirements

Displayed below are the courses required in the pre-engineering curriculum for all students planning to pursue one of the engineering curricula listed above. See the respective department catalog entry for full degree requirements.

Common Core Courses Required For All Curricula

- MATH 122, 123, and 272 .......... 12 cr. hr.
- CHEM 101 or 102 ............... 4 cr. hr.
- PHYS 210 and 211 .......... 8 cr. hr.
- General Education AREA I II, OR IV ....... 3-4 cr. hr.
- General Education AREA I OR II ....... 3-4 cr. hr.

Additional Courses Required by Curricula

- Aircraft Engineering CS 106, EE 210, IE 102, ME 256, and PHYS 212 OR PHYS 342 OR PHYS 352 OR CHEM 120. See the Department of Engineering Technology for complete Aircraft Engineering curriculum requirements.
- Automotive Engineering CS 106, EE 210, IE 102, ME 256, and PHYS 212 OR PHYS 342 OR PHYS 352 OR CHEM 120. See the Department of Engineering Technology for complete Automotive Engineering curriculum requirements.
- Computer Systems Engineering CS 111, EE 210, EE 250, IE 102, and PHYS 212. See the Department of Electrical Engineering for complete Computer Systems Engineering curriculum requirements.
- Electrical Engineering CS 306, EE 210, IE 102, ME 256, and PHYS 212. See the Department of Electrical Engineering for complete Electrical Engineering curriculum requirements.
- Industrial Engineering EE 210, IE 102, IE 206, ME 253, and PHYS 212 OR CHEM 120. See the Department of Industrial Engineering for complete Industrial Engineering curriculum requirements.

Production Technology

Bachelor of Science Degree

This manufacturing-oriented program is especially designed for the individual with a two-year associate degree in a technical field from an accredited institution, who may be working in industry, and who wants to earn a Bachelor of Science degree. This degree provides the technological background necessary for growth and advancement. The program builds on the 60 semester hours of academic credit from the associate degree with an additional 60 semester hours of academic credit from Western Michigan University. Two semester hours of physical education (which can be substituted with two hours of course work for those over age 30) is also required, bringing the total hours needed for the degree to 122.

The entering student is expected to have taken a total of six courses in the following areas as part of the associate degree work:

- Engineering graphics
- General physics
- Humanities
- Social studies (two courses)
- English composition

A student lacking any courses in the above areas will be required to complete them in addition to the 60 hours needed at Western Michigan University.

The entering student must also have had three years of full-time work experience in an area related to studies for the associate degree. A student lacking this experience must obtain it before the bachelor's degree is awarded. Alternatively, each year of experience may be substituted by registering for and successfully completing 3 hours of IC 390 Cooperative Education. The cooperative education credits generated will not count as part of the 60 hours required at Western Michigan University.

Program Requirements

T. Earn a Bachelor of Science degree in Production Technology, the following courses must be completed in addition to meeting other University requirements applicable to transfer students:

- Industrial Engineering (18 hours)
  IE 305 Work Analysis .......... 3
  IE 316 Report Preparation ...... 3
  IE 320 Engineering Cost Analysis ...... 3
  IE 326 Operations Planning and Control ...... 3
  IE 328 Quality Assurance and Control ...... 3
  IE 402 Supervision of Industrial Operations ...... 3
- Engineering Technology (17 hours)
  ET 256 Properties of Materials ...... 4
  ET 281 Statics and Strength of Materials ...... 4
  ET 387 CAD/CAM Fundamentals ...... 3
  ET 453 Maintenance in Manufacturing ...... 3
  ET 487 Manufacturing Productivity Techniques ...... 3
- Other (25 hours)
  MATH 366 Introduction to Statistics ...... 4
  *Humanities Elective (Area I) ...... 3-4
  *Non-Western World Elective (Area IV) ...... 3-4
  *Approved electives (the courses in this group must be approved in advance by the program adviser to meet University General Education/Computer Literacy program requirements as listed in the current undergraduate catalog) ......... 14-15
  * At least one of these courses must be at the 300-400 level.

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 (GCC)

Charn L. Sanford, Adviser

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 adviser is required to enroll in this curriculum beyond the second year.

Pre-Architecture
Charon L. Sanford, Adviser

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.

Recommended  
Requirements  
Semester  
Hours  

Math  
Physics  
Natural Science  
Economics  
Social Science  
English  
Humanities  
Drawing  
Electives  

AAS 497 General University Studies  
(Variable Credit)  
Fall, Winter, Spring, Summer  
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 adviser, Room 2038, Kohrman Hall

Engineering and Applied Sciences College Courses (AAS)

Aircraft and Automotive Engineering

M. Jerry Kenig, Chair  
Richard B. Hathaway  
Arthur W. Hoodley  
Parviz Merati  
Pradipkumar Sagdeo  
Curtis N. Swanson  

The Department of Aircraft and Automotive Engineering offers a program leading to the degree of Bachelor of Science in Engineering (Aircraft and Automotive). The program is designed to provide engineering expertise appropriate to the aviation industry and to the automotive industry in product development, product design, and other related areas requiring an appropriate engineering background. It includes mathematics, general education subjects, the basic sciences, the engineering sciences, design and an integrated computer experience. The engineering science courses and design experiences specifically emphasize applications to the aircraft and automotive fields in such areas as internal combustion engines and structures. Up to fifteen (15) credit hours may be specialized to aircraft or automotive engineering. Graduates of the program find opportunities in the aircraft and automotive industries and in other engineering areas capitalizing on their strong engineering background. Opportunities for graduates continue to develop with the rapid expansion of our knowledge base and population growth.

Academic Advising

Students should contact their adviser as early as possible. The adviser 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 adviser, the curriculum committee, and the department chairman. The academic adviser is located in Room 2038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic adviser 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 aircraft engineering activity.

Related Academic Programs

COOPERATIVE EDUCATION PROGRAM

Lawrence A. Williams, Coordinator

Students enrolled in engineering and related degree curricula may gain experience and knowledge about a professional field of interest by enrolling in a cooperative education program or in a field experience course. Additional information may be obtained from the Coordinator in Room 1005, Trimpe Distributive Education Building.

Students are usually selected in pairs and alternate by semester between campus and industry. While on the job, the student must be enrolled in the course IE 300, Co-operative Education: During their employment periods, Co-op students are paid an appropriate salary by their employer. Cooperative education students work in such areas as manufacturing, assembly, research, design, quality control, and safety. They may perform tests, prepare engineering drawings, collect and record data, design tools and fixtures, and assist in supervision. The student's cooperative program is closely supervised by a college coordinator.

OTHER COOPERATIVE EDUCATION PROGRAMS

Other cooperative education programs are available in consumer resources and technology in the fields of food and petroleum distribution and fashion management, marketing and merchandising. The arrangement of work assignments varies by curriculum.

FOUNDORY PROGRAM

Any student enrolled in an engineering or related curriculum and interested in a career in the metal casting industry may be admitted into the Foundry Program. While engaged in this special program, the student must also meet the requirements for a B.S. degree offered by the College of Engineering and Applied Sciences. The Foundry Program is designed to allow the student an opportunity to elect various specific interest courses while earning a degree in any standard curriculum.

Foundry Program students must join the student chapter of the American Foundrymen's Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Co-operative Education Program by contacting the coordinator of Engineering Cooperative Education in agreement with many sponsoring industries.

Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

Academic Advising

Students should contact their adviser as early as possible. The adviser 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 adviser, the curriculum committee, and the department chairman. The academic adviser is located in Room 2038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic adviser for proper course sequence.

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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 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.

Aircraft and Automotive Engineering Degree Program

Candidates for the Bachelor of Science in Engineering (Aircraft and Automotive Engineering) degree must satisfy the following requirements.

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences) The sequence must 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 or 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, AE, 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 134 semester credit hours. The schedule below is an example of the one leading to graduation in eight semester, beginning in the fall. Pre-engineering requirements are in darker print.

First Semester—16 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 102</td>
<td>OR 101 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>OR 108</td>
<td>Intro to Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education*</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>
<td>1</td>
</tr>
</tbody>
</table>

Second Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ME 250</td>
<td>Material Science I</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education*</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Semester—18 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Vector/Mult. Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>ME 232</td>
<td>Thermodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ME 258</td>
<td>Statics</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Diff. Eq.</td>
<td>3</td>
</tr>
<tr>
<td>EE 211</td>
<td>Machine and Electric Circuits</td>
<td>3</td>
</tr>
<tr>
<td>ME 258</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>AAE 266</td>
<td>Vehicle Systems</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>Introduction to Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>OR</td>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
</tbody>
</table>

Fifth Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 350</td>
<td>Material Science II</td>
<td>3</td>
</tr>
<tr>
<td>ME 257</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 358</td>
<td>Mechanism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME 356</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>AAE 357</td>
<td>Fluid Mechanics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>AAE 363</td>
<td>Int. Comb. Engines I</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
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</table>

Sixth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 365</td>
<td>Machine Design I</td>
<td>3</td>
</tr>
<tr>
<td>ME 360</td>
<td>Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>AAE 368</td>
<td>Inst. Systems and Design</td>
<td>4</td>
</tr>
<tr>
<td>ME 431</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>AERCRAFT ENGINEERING ELECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAE 361</td>
<td>Fvt. Veh. Aerody. and Perf.</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
</tbody>
</table>

Seventh Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAE 461</td>
<td>Engrg. Design Concepts</td>
<td>2</td>
</tr>
<tr>
<td>AAE 467</td>
<td>Int. Comb. Engines II</td>
<td>3</td>
</tr>
<tr>
<td>AAE 470</td>
<td>Vehicle Struct. Design</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>AERCRAFT ENGINEERING ELECTIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAE 460</td>
<td>Aircraft P., S. and C.</td>
<td>3</td>
</tr>
</tbody>
</table>

Eighth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAE 465</td>
<td>Veh. Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Aircraft 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 [3]*
3 hrs. Fall
Introduction to aircraft systems, including propulsion, propulsion systems, and auxiliary systems, such as cabin environment, fuel and water control, and fuel systems. Prerequisites: MATH 122, PHYS 210, ET 110, or concurrent.

AAE 263 Fuel Metering Systems (2-2)*
3 hrs. Winter
Introduction to fuel management systems including induction and fuel metering, and exhaust systems. Carburation, fuel injection, injection control, emission reduction, 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 Veh. Systems and Power (2-2)*
3 hrs. Winter
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. Fall
Introduction to vehicle power transmission, transmission systems, and auxiliary systems, including control and gearing, system dynamics, transmission design configurations, and application. Prerequisite: MATH 122.

AAE 266 Vehicle Systems (2-3)
3 hrs. Fall
Introduction to vehicle systems to include auxiliary systems, speed reducing systems, fluid power systems, system dynamics, vehicle inertial characteristics, design configurations and applications. Prerequisites: MATH 123, PHYS 211, corequisite ME 258.

AAE 357 Fluid Mechanics Laboratory (0-3)
1 hr. Fall, Winter, Spring
Experiments to include hydrostatics and aerodynamics, calibration of flow meters, flow through a nozzle, hydraulic jump in a horizontal channel, open channel flows, friction loss in a pipe for laminar and turbulent flows, drag force, lift force and pitching moment. In a wind tunnel, flow visualization around bluff bodies using smoke-wire technique, flow velocity measurements using pitot-static and hot-wire probes, measurement of flow velocities in a wave channel. Prerequisite: ME 356 or concurrent.

AAE 361 Flight Vehicle Aerodynamics and Performance (3-0)
3 hrs. Winter
A study of incompressible aerodynamics and performance of flight vehicles with an emphasis on the effect of aerodynamics on vehicle design. Computer applications to the solution of the problems of flight vehicle aerodynamics. Prerequisite: ME 356.

AAE 362 Subsonic Aerodynamics (3-0)
3 hrs. Winter
Subsonic aerodynamics for engineers. The study of incompressible and compressible flow around bluff bodies. Computer applications to the solution of aerodynamic problems. Prerequisite: ME 356.

AAE 363 Internal Combustion Engines I (2-3)
3 hrs. Fall, Spring
Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines. Prerequisite: MATH 272, ME 258, ME 232.

AAE 364 Electronic Systems (2-2)*
3 hrs. Fall
Application of electricity and electronics to the design, operation, and service requirements of vehicle systems including power systems. Emphasis on analysis and synthesis of system functions and design parameters. Prerequisites: AAE 261 or AAE 264, CS 106, EE 211 or concurrent.

AAE 367 Instrumentation and Testing (2-2)*
3 hrs. Fall, Winter
Principles of engineering measurements as applied to engine and structure testing. Laboratory assignments include calibration of instruments, obtaining data, dynamometer operation, and engine testing. Data will be analyzed with the aid of the computer. Graphing and analysis techniques will be utilized in formal written reports. Prerequisites: AAE 364, ME 356.
specific mission requirements. Optimization of thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Lab projects emphasizing the design of computer-based instrumentation systems. Prerequisite: EE 211.

AAE 460 Aircraft Stability and Control (3-0) 3 hrs. Fall Analysis and synthesis of aircraft stability and control. Design of the aircraft control surfaces for different configurations to provide the required stability and control power. Maneuver interaction and effect on control surface sizing. Prerequisite: AAE 361, ME 356

AAE 461 Engineering Design Concepts (2-0) 2 hrs. Fall 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 adviser.

AAE 462 Aircraft Aerodynamic Design (3-0)* 3 hrs. Fall Aerodynamic design of aircraft emphasizing performance, stability, and control characteristics. Prerequisite: ET 461 or taking concurrently.

AAE 463 Aircraft Structural Design (3-0)* 3 hrs. Fall Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints. Prerequisite: AAE 461 or concurrently, ME 365

AAE 464 Aircraft Engineering Lab (0-6)* 3 hrs. Winter Aerodynamic and structural analysis of aircraft. Emphasis on design and application of wind tunnel and flight testing techniques. Prerequisites: AAE 460, AAE 461, AAE 463, AAE 472.

AAE 465 Vehicle Dynamics (3-0) 3 hrs. Fall 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 466 Automotive Engineering Lab (0-6)* 3 hrs. Winter Special topics in automobile design including problems of performance and economy, compatibility of engine and transmission, aerodynamic design applications, and noise and vibration control. Prerequisites: AAE 461, AAE 465, AAE 475.


AAE 468 Engine Design (1-6) 3 hrs. Winter Application of the knowledge of the mechanics, thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Optimization of the design using computer modeling and parametric studies. Prerequisites: AAE 461, AAE 467.

AAE 470 Vehicle Structural Design (3-0) 3 hrs. Fall Structural design of surface and air vehicles to meet specific mission requirements. Design of structures with minimum weight and cost while maintaining structural integrity under the imposed loads. Prerequisites: AAE 361 or AAE 362; ME 358; and ME 365.

AAE 472 Compressible Fluid Flow (3-0) 3 hrs. Fall Introduction to compressible flow focusing on isentropic flow of perfect gases, normal and oblique shock waves, Prandtl-Meyer flow, linearized flow, and design of supersonic airfoils, nozzles, and wind tunnels. Prerequisites: AAE 361, AAE 362.

AAE 475 Vehicle Structural Design (3-0) 3 hrs. Fall Structural design of automotive vehicles, emphasis on maintaining structural integrity under imposed loads while optimizing weight and cost. Prerequisites: AAE 461 or concurrent, ME 365.

AAE 480 Aircraft and Automotive Engineering Design Project (1-6) 3 hrs. Fall, Winter, Spring An engineering experience emphasizing an open-ended design project directed toward a surface or air vehicle problem with possible interaction with industry. Prerequisites: AAE 461 or equivalent or consent of department.

AAE 495 Topics in Aircraft and Automotive Engineering (1-4) 1-4 hrs. Fall, Winter, Spring, Summer A specialized course dealing with a particular area of aircraft and/or automotive engineering not included in other course offerings. May be repeated for credit with a different topic for up to a total of six credits. Prerequisite: Departmental consent.

AAE 499 Independent Study (1-6) 1-6 hrs. Fall, Winter, Spring, Summer 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.
### Work Experience Programs

Programs offered in agriculture, fashion merchandising, food service administration, interior design, food distribution, and petroleum distribution 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. Cooperative education programs particularly in food distribution and petroleum distribution use an alternate semester-in-school and semester-on-the-job approach and provide students with valuable field experience.

### Additional Information

General information regarding counseling, scholarships and special programs of interest to students in this department may be obtained under the heading of the College of Engineering and Applied Sciences section of the catalog. Enrolment 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.

### Agriculture

**Bachelor of Science Degree**

Adviser: Dr. Max Benne

The agriculture curriculum is a four-year degree program that deals with the production, distribution, and service aspects of the agricultural industry. The student Agriculture Club provides additional opportunities for professional interaction and experiences.

**Requirements**

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 170</td>
<td>Introduction to Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>CRT 171</td>
<td>Animal Industry</td>
<td>3</td>
</tr>
<tr>
<td>AREA V</td>
<td>General Education College</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Approved Elective</td>
<td></td>
<td>3</td>
</tr>
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**Second Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 110</td>
<td>Algebra I</td>
<td>3</td>
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<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 121</td>
<td>Algebra II</td>
<td>3</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>CS 015</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td><em>General Education</em></td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td></td>
<td>3</td>
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**Third Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 321</td>
<td>Agronomy</td>
<td>4</td>
</tr>
<tr>
<td>CRT 266</td>
<td>Food and Society</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>AREA III</td>
<td><em>General Education</em></td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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**Fourth Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 202</td>
<td>Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 262</td>
<td>Principles of Horticulture</td>
<td>4</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Principles of Sociology</td>
<td>3</td>
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**Fifth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRT 361</td>
<td>Introduction to Soils</td>
<td>4</td>
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<tr>
<td>MATH 216</td>
<td>Business Statistics</td>
<td>3</td>
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<tr>
<td>OR</td>
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<td></td>
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<tr>
<td>FCL 340</td>
<td>Legal Environment</td>
<td>3</td>
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<tr>
<td>AREA I</td>
<td>General Education*</td>
<td>3</td>
</tr>
<tr>
<td>CRT 463</td>
<td>Agriculture Marketing</td>
<td>3</td>
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**Sixth Semester—15 hours**

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<thead>
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<th>Course</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>CRT 362</td>
<td>Landscape Gardening</td>
<td>3</td>
</tr>
<tr>
<td>CRT 365</td>
<td>Farm Organizations and</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Management</td>
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<tr>
<td>ACTY 201</td>
<td>Accounting Concepts and</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Applications</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTY 210</td>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>AREA III</td>
<td>General Education*</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
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**Seventh Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 467</td>
<td>Agriculture Finance</td>
<td>3</td>
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<tr>
<td>AREA IV</td>
<td>General Education*</td>
<td>3</td>
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**Eighth Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 364</td>
<td>Land Use and Soil Conservation</td>
<td>4</td>
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<tr>
<td></td>
<td>General Education Elective*</td>
<td>7</td>
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<tr>
<td></td>
<td>Approved Elective</td>
<td>4</td>
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</tbody>
</table>

* At least two of these courses must be at the 300-400 level.

### Dietetics

**Bachelor of Science Degree**

Adviser: Dr. Majia Petersens

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 dietitian is eligible for positions in hospitals such as food administrator, therapeutic dietitian, or teaching dietitian; 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.

**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. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—14 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 110</td>
<td>Algebra I</td>
<td>3</td>
</tr>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>BI 102</td>
<td>Introduction to Information</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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</table>

**Second Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
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**Third Semester—14 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 100</td>
<td>Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CRT 126</td>
<td>Fashion Merchandising I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 155</td>
<td>Design Principles</td>
<td>3</td>
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**Fourth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 461</td>
<td>Diet and Disease</td>
<td>4</td>
</tr>
<tr>
<td>CRT 462</td>
<td>Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 531</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 450</td>
<td>Introductory Biochemistry</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
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**Seventh Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 460</td>
<td>Advanced Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CRT 468</td>
<td>Advanced and Experimental</td>
<td>4</td>
</tr>
<tr>
<td>CRT 486</td>
<td>Institutional Management</td>
<td>4</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education*</td>
<td>3</td>
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**Eighth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 461</td>
<td>Diet and Disease</td>
<td>4</td>
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<tr>
<td>CRT 462</td>
<td>Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 531</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 450</td>
<td>Introductory Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

* At least two of these courses must be at the 300-400 level.

### 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. The student organization, FABS, provides additional fashion experiences and interaction with fashion professionals.

Third year fashion merchandising students have the option of attending the Fashion Institute of Technology, New York, New York, for two semesters if a 3.0 grade point average has been maintained.

**Requirements**

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—15 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 100</td>
<td>Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CRT 126</td>
<td>Fashion Merchandising I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 155</td>
<td>Design Principles</td>
<td>3</td>
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</tbody>
</table>
### Collegiate Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>14-15</td>
</tr>
<tr>
<td>Second Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>Third Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>Sixth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>Seventh Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>Eighth Semester</td>
<td>14 hours</td>
</tr>
</tbody>
</table>

**Second Semester—16 hours**
- CRT 221 Fashion Analysis
- CRT 226 Fashion Merchandising II
- CRT 225 Computers in Distribution
- CRT 102 Introduction to Information Processing
- CS 105 Introduction to Computers
- PEGN Physical Education
- Elective

**Third Semester—15 hours**
- CRT 220 Textiles
- CRT 228 Non-Texile Products
- CRT 229 Menswear
- ECON 201 Principles of Economics (Micro)
- General Education Elective

**Fourth Semester—16 hours**
- CRT 320 Visual Merchandising
- CRT Elective
- ACTY 210 Principles of Accounting
- CRT Elective
- AREA I General Education
- Elective

**Fifth Semester—15 hours**
- CRT 202 Field Experience
- CRT 326 History of Costume I
- MGMT 300 Fundamentals of Management
- MKTG 270 Professional Selling
- MKTG 370 Marketing

**Sixth Semester—15 hours**
- CRT 327 History of Costume II
- CRT 242 Business Communication
- MKTG 374 Advertising
- Writing Course (Above 100 level)
- AREA II General Education

**Seventh Semester—16 hours**
- CRT 329 Promotion and Coordination
- MGMT 352 Personnel Management
- Elective
- AREA II General Education
- AREA IV General Education

**Eighth Semester—14 hours**
- CRT Elective
- AREA I General Education
- AREA III General Education
- Elective

* At least two of these courses must be at the 300-400 level.

**Approved Electives—Choose 6 hours from the following list:**
- CRT 205 Topics in CRT
- CRT 430 Mass Merchandising
- CRT 124 Clothing Construction
- CRT 305 Preparation for Employment
- CRT 429 Internship

---

### Food Service Administration

**Bachelor of Science Degree**

The food service administration curriculum is scientifically oriented for in-depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions in the equipment field, food research, public utility companies, mass media productions, quality testing, technical writing, or governmental food agencies. Student Food Service Association (FOOSA) activities provide additional professional experiences.

**Requirements**
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—16 hours**
- CRT 130 Food Distribution Industry
- CRT 205 Supermarket Foods
- AREA I General Education
- AREA III General Education
- AREA V General Education
- PEGN Physical Education

**Second Semester—16 hours**
- CRT 132 Food Distribution Merchandising
- BIS 242 Business Communications
- COM 104 Public Speaking
- AREA I General Education
- PEGN Physical Education
- General Education Elective

**Spring/Summer—3 hours**
- CRT 202 Field Experience

**Third Semester—16 hours**
- CRT 231 Food Distribution Supervision
- ACTY 210 Principles of Accounting
- ECON 201 Principles of Economics (Micro)
- AREA II General Education
- AREA III General Education

**Fourth Semester—6 hours**
- CRT 202 Field Experience
- General Education Elective

**Spring/Summer—9 hours**
- CRT 309 Industry Survey
- ECON 202 Principles of Economics (Macro)
- General Education Elective
- CRT 225 Computers in Distribution

**Fifth Semester—6 hours**
- CRT 302 Coordinated Distribution Practices
- AREA II General Education

**Sixth Semester—16 hours**
- CRT 222 Food Distribution Operations
- FCL 340 Legal Environment
- MGMT 300 Fundamentals of Management
- AREA IV General Education
- General Education Elective

**Spring/Summer—3 hours**
- CRT 302 Coordinated Distribution Practices

**Seventh Semester—16 hours**
- CRT 331 Food Distribution Managerial Processes
- CRT 438 Current Issues in Food Distribution
- MKTG 370 Marketing
- Elective

**Eighth Semester—16 hours**
- CRT 332 Food Distribution Systems
- CRT 436 Problems in Food Distribution

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**Third Semester—15 hours**
- CRT 210 Fashion Analysis
- CRT 226 Fashion Merchandising II
- CRT 225 Computers in Distribution
- CRT 102 Introduction to Information Processing
- CS 105 Introduction to Computers
- PEGN Physical Education
- Elective

**Second Semester—16 hours**
- CRT 130 Food Distribution Industry
- CRT 205 Supermarket Foods
- AREA I General Education
- AREA III General Education
- AREA V General Education
- PEGN Physical Education

**Spring/Summer—3 hours**
- CRT 202 Field Experience

**Third Semester—16 hours**
- CRT 231 Food Distribution Supervision
- ACTY 210 Principles of Accounting
- ECON 201 Principles of Economics (Micro)
- AREA II General Education
- AREA III General Education

**Fourth Semester—6 hours**
- CRT 202 Field Experience
- General Education Elective

**Spring/Summer—9 hours**
- CRT 309 Industry Survey
- ECON 202 Principles of Economics (Macro)
- General Education Elective
- CRT 225 Computers in Distribution

**Fifth Semester—6 hours**
- CRT 302 Coordinated Distribution Practices
- AREA II General Education

**Sixth Semester—16 hours**
- CRT 222 Food Distribution Operations
- FCL 340 Legal Environment
- MGMT 300 Fundamentals of Management
- AREA IV General Education
- General Education Elective

**Spring/Summer—3 hours**
- CRT 302 Coordinated Distribution Practices

**Seventh Semester—16 hours**
- CRT 331 Food Distribution Managerial Processes
- CRT 438 Current Issues in Food Distribution
- MKTG 370 Marketing
- Elective

**Eighth Semester—16 hours**
- CRT 332 Food Distribution Systems
- CRT 436 Problems in Food Distribution

**Fourth Semester—16 hours**
- CRT 100 Career Seminar
- BIS 142 Information Writing
- CHEM 101 General Chemistry I
- MATH 110 Algebra I
- AREA I General Education
- PEGN Physical Education

**Second Semester—14-15 hours**
- BIOS 101 Animal Biology (4 hours)
- BIO 112 Introduction to Biomedical Science
- MATH 116 Finite Mathematics with Applications
- Required Elective
- PEGN Physical Education
- Approved Elective

**Third Semester—16 hours**
- CRT 165 Food Science Principles
- CRT 205 Topics: Microwave
- CRT 280 Nutrition
- BIOS 230 Microbiology and Man
- ECON 201 Principles of Economics I (Micro)
- Required Related Elective

**Fourth Semester—15 hours**
- CRT 202 Field Experience
- Approved Elective
- ECON 202 Principles of Economics II (Macro)
- PSY 100 General Psychology
- CS 105 Introduction to Computers

**Third Semester—14 hours**
- CRT 205 Catering
- Approved Elective
- ANTH 220 Cultural Anthropology
- MGMT 352 Personnel Management
- IE 402 Supervision of Industrial Operations

**Sixth Semester—15 hours**
- CRT 368 Quantity Foods
- Required Related Elective
- Approved Elective
**CONSUMER RESOURCES AND TECHNOLOGY** 189

**Seventh Semester—15 hours**
- CRT 466 Institutional Management .................. 4
- CRT 468 Advanced and Experimental Foods ........ 4
- Required Related Elective** ......................... 3
- Approved Elective ................................. 4

**Eighth Semester—16 hours**
- CRT 590 Project/Problems in CRT .................... 3
- Required Related Elective** ......................... 3
- Approved Elective ................................. 10

**First Semester—15 hours**
- CRT 318 Mate Selection and Marriage ................ 3
- CS 105 Introduction to Computing .................. 3
- Required Related Elective* ......................... 3
- AREA I General Education** ......................... 3
- Approved Elective ................................. 3

**Sixth Semester—15 hours**
- CRT 415 Effective Parenting ......................... 3
- COM 571 Theories of Interpersonal Communication .... 3
- Required Related Elective* ......................... 3
- General Education Elective** ....................... 3
- Approved Elective ................................. 3

**Seventh Semester—14 hours**
- CRT 415 Interpersonal Family in Maturity ........... 3
- Required Related Elective* ......................... 3
- Approved Elective ................................. 8

**Eighth Semester—15 hours**
- CRT 415 Effective Parenting ......................... 3
- COM 571 Theories of Interpersonal Communication .... 3
- Required Related Elective* ......................... 3
- General Education Elective** ....................... 3
- Approved Elective ................................. 3

**Individual and Family Relationships**

**Bachelor of Science Degree**

The individual and family relationships curriculum is an interdisciplinary program designed with flexibility to meet individual needs and goals. This program is also intended for those desiring to pursue a Master's degree program in home economics, counseling, and other related fields. The student organization, New Dimensions, provides additional opportunities for professional interaction and experiences.

**Requirements**

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—16 hours**
- SOC 122 Death, Dying and Bereavement ............... 3
- Required Related Elective* ......................... 3
- AREA II General Education** ....................... 3
- AREA V General Education College Writing ............ 1
- PEGN Physical Education ........................... 1
- Approved Electives ................................. 3

**Second Semester—16 hours**
- CRT 209 Consumer Education ....................... 3
- SOC 190 Men and Women in Contemporary Society ... 3
- Required Related Elective* ......................... 3
- AREA I General Education** ....................... 3
- PEGN Physical Education ........................... 1
- General Education Elective** ..................... 1

**Third Semester—15 hours**
- CRT 210 Sex Education Intro to Human Sexuality .... 3
- CRT 214 Human Growth and Development ............ 3
- Required Related Elective* ......................... 3

**Fourth Semester—16 hours**
- CRT 296 Food and Society .......................... 3
- Required Related Elective* ......................... 3
- AREA II General Education** ....................... 3
- AREA III General Education* ....................... 4
- CRT 215 Transitions to Adulthood ................... 3

**Fifth Semester—15 hours**
- CRT 318 Mate Selection and Marriage ................ 3
- CS 105 Introduction to Computing .................. 3
- Required Related Elective* ......................... 3
- AREA I General Education** ....................... 3
- Approved Elective ................................. 3

**Seventh Semester—15 hours**
- CRT 415 Effective Parenting ......................... 3
- COM 571 Theories of Interpersonal Communication .... 3
- Required Related Elective* ......................... 3
- General Education Elective** ....................... 3
- Approved Elective ................................. 3

**Sixth Semester—15 hours**
- CRT 415 Interpersonal Family in Maturity ........... 3
- Required Related Elective* ......................... 3
- Approved Elective ................................. 8

**Eighth Semester—15 hours**
- CRT 415 Effective Parenting ......................... 3
- COM 571 Theories of Interpersonal Communication .... 3
- Required Related Elective* ......................... 3
- General Education Elective** ....................... 3
- Approved Elective ................................. 3

**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 six hours of professional vocational education are required.

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.

**Interior Design**

**Bachelor of Science Degree**

Interior design is an interdisciplinary curriculum for the student who desires a career in residential or commercial interior design, retailing home furnishings or visual merchandising, marketing of building products, or in the interior design aspects of the building construction and real estate fields. Active student chapters of the American Society of Interior Design and the Institute of Business Designers provide additional opportunities for professional activities.

**Requirements**

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—13 hours**
- CRT 150 Introduction to Interior Design ............ 3
- CRT 155 Design Principles ......................... 3
- ET 131 Introduction to Building Practices ......... 3
- IE 102 Technical Communication or OR............. 3
- BIS 142 Informational Writing ..................... 3
- PEGN Physical Education ........................... 1

**Second Semester—16 hours**
- ET 330 Woods and Materials for the Interior Designer ... 3
- COM 104 Business and Professional Speech .......... 3
- ET 141 Introduction to Technical Drawing .......... 3
- CHEM 107 Chemistry of Textiles and Design Media .... 4
- Approved Elective ................................. 3

**Third Semester—15 hours**
- CRT 220 Textiles I ................................ 3
- CRT 251 Period Interiors I .......................... 3
- CRT 254 Interior Design Materials .................. 3
- ART 221 History of Art ................................ 3
- ET 241 Interior Design Graphics I .................. 3

**Fourth Semester—14 hours**
- CRT 205 Topics in Consumer Resources and Technology .... 1
- CRT 252 Period Interiors II .......................... 3
### Textile and Apparel Technology

**Bachelor of Science Degree**

The textile and apparel technology curriculum is designed for students interested in careers in the creative, protective, functional, and communicative aspects of clothing and textiles. Students will develop a required career direction option through the selection of electives in consultation with a department adviser in preparation for a variety of positions in the textile and apparel or related industries.

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.

**Requirements**

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**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>CRT 255</td>
<td>Lighting for Interiors</td>
<td>3</td>
</tr>
<tr>
<td>CRT 202</td>
<td>Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 205</td>
<td>Consumer Education</td>
<td>3</td>
</tr>
<tr>
<td>CRT 233</td>
<td>History of Costume</td>
<td>3</td>
</tr>
<tr>
<td>CRT 259</td>
<td>Flat Pattern Design I</td>
<td>3</td>
</tr>
<tr>
<td>CRT 260</td>
<td>Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CRT 261</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CRT 522</td>
<td>Topics in Textiles and Apparel</td>
<td>3</td>
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**Second Semester—15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRT 220</td>
<td>Textiles</td>
<td>3</td>
</tr>
<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
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<tr>
<td>Elective</td>
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**Third Semester—16 hours**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 224</td>
<td>Experimental Clothing Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CRT 121</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>SO 300</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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**Fourth Semester—15 hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRT 222</td>
<td>Flat Pattern Design II</td>
<td>3</td>
</tr>
<tr>
<td>CRT 326</td>
<td>History of Costume</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
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<td>Elective</td>
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**Fifth Semester—15 hours**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 451</td>
<td>Contract Design</td>
<td>3</td>
</tr>
<tr>
<td>CRT 305</td>
<td>Textiles for Interiors</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
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</tbody>
</table>

**Sixth Semester—16 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 524</td>
<td>Social and Psychological Aspects of Eating</td>
<td>3</td>
</tr>
<tr>
<td>CRT 155</td>
<td>Consumer Education</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
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</tbody>
</table>

**Seventh Semester—15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 327</td>
<td>History of Costume II</td>
<td>3</td>
</tr>
<tr>
<td>CRT 420</td>
<td>Textiles II</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
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<td>3</td>
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</tbody>
</table>

**Eighth Semester—15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 524</td>
<td>Social and Psychological Aspects of Clothing</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours Required:** 122

**Approved Elective courses, if needed, to complete the 300-400 level.**

### Minors

**Requirements**

Students should consult with the appropriate department adviser to plan one of the following minors.

### FAMILY LIFE EDUCATION (TEACHING)

**REQUIRED COURSES—18 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 210</td>
<td>Introduction to Human Communication</td>
<td>3</td>
</tr>
<tr>
<td>CRT 214</td>
<td>Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>CRT 318</td>
<td>Transitions to Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>CRT 319</td>
<td>Transitions to Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>CRT 410</td>
<td>Teaching of Sex Education in the School</td>
<td>3</td>
</tr>
<tr>
<td>CRT 415</td>
<td>Effective Parenting</td>
<td>3</td>
</tr>
</tbody>
</table>

**ELECTIVES—6 hours**

Choose six hours from the following. Courses with * apply toward General Education credit.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 220</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 101</td>
<td>Animal Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 240</td>
<td>Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BAS 314</td>
<td>The Black Community</td>
<td>3</td>
</tr>
<tr>
<td>BAS 320</td>
<td>Ecology and The Black Community</td>
<td>3</td>
</tr>
</tbody>
</table>

### FOOD OCCUPATIONS (TEACHING)

**REQUIRED COURSES—24 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 202</td>
<td>Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 260</td>
<td>Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CRT 509</td>
<td>Institutional Management</td>
<td>4</td>
</tr>
<tr>
<td>CRT 588</td>
<td>Independent Study in Consumer Resources and Technology</td>
<td>3</td>
</tr>
<tr>
<td>VE 542</td>
<td>Occupational Education (Foods)</td>
<td>3</td>
</tr>
<tr>
<td>VE 543</td>
<td>Coordination Techniques in Cooperative Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective courses, if needed, to complete the 24 semester hours:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTY 201</td>
<td>Accounting Concepts and Application</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 352</td>
<td>Personnel Management</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Economics</td>
<td>3</td>
</tr>
<tr>
<td>CECP 580</td>
<td>Principles and Philosophy of Guidance</td>
<td>2</td>
</tr>
<tr>
<td>PSY 100</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional requirement:**

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.)

### 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).
An overview of retailing and introduction to the textile, dietetics, and interior design.

**CRT 128 Fashion Merchandising I (3-0)**
3 hrs. Fall
An overview of retailing and introduction to the textile, dietetics, and interior design.

**CRT 132 Food Distribution Merchandising (3-0)**
3 hrs. Fall, Winter
Basic course in the study of food distribution, its history, origin, and structure with emphasis on the importance of the food industry. Basic principles and practices of the industry are considered.

**CRT 135 Introduction to Petroleum Industry (3-0)**
3 hrs. Fall, Winter
Basic course in the study of the petroleum industry, its history, exploration, drilling, production, refining, distribution, service station records and sales, general economics and structure of the industry. The course includes orientation necessary for student to understand the cooperative work program and the student's responsibility to such a program.

**CRT 150 Introduction to Interior Design (3-0)**
3 hrs. Fall, Winter
Basic study of the elements and principles of designing and furnishing interiors.

**CRT 155 Design Principles (2-3)**
3 hrs. Fall, Winter
Introduction to the principles and elements of designing and furnishing interiors.

**CRT 160 Introduction to Agriculture (4-0)**
4 hrs. Fall, Winter
An introduction to the principles and practices of food and fiber production, and agriculture's role in society and economy.

**CRT 161 Animal Industry (4-0)**
4 hrs. Fall
Fundamental concepts of livestock and poultry production in the United States. An introduction to types, breeds, selection, and management of livestock and poultry.

**CRT 164 Practical Vegetable Gardening (1-3)**
2 hrs. Spring
The basic concepts and fundamental practices of vegetable growing for the home gardener.

**CRT 165 Food Science Principles (2-3)**
3 hrs. Fall
Relationship of food science principles to basic food preparation techniques. Prerequisite: CHEM 101.
Material covered will emphasize the practicalities of appropriate furniture location and specification, blueprint reading and budgets. Prerequisites: CRT 150, ET 131, ET 141.

CRT 256 Sketching for Interior Designers
2 hrs. Winter
Development of freehand drawing skills pertaining to interior designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisites: CRT 155, ET 241.

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 265 Meal Management (3-0)
3 hrs. Winter-Odd Years
Planning, preparing, and serving meals with emphasis on meal quality and on time, money, and energy management. Prerequisite: CRT 165.

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 300 Careers in Interiors (1-0)
1 hr. Fall
A survey of the diversified career opportunities available in the interior design industry.

CRT 302 Coordinated Distribution Practices
3 hrs. Fall, Winter, Spring, Summer
Advanced supervised work experience under the supervision of the University and the participating company. Written reports required, and a performance appraisal of the trainee is made by the employer. Students may elect two units for a total of six semester hours. Prerequisite: Junior or senior standing.

CRT 305 Preparing for Employment (3-0)
3 hrs. Fall, Winter
Extensive investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview.

CRT 309 Industry Survey (3-0)
3 hrs. Spring, Summer
Trips are made to representative businesses and industrial establishments to observe such functions as production, transportation, storage, research, and marketing. Company representatives address the classes on the phases listed. Written reports are made of the visits, and a fee for transportation and housing is required from each student.

CRT 318 Male 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, mannequins, store planning, point of purchase, exhibits, showrooms, and special promotion. Prerequisite: CRT 155.

CRT 322 Flat Pattern Design II (5-0)
3 hrs. Winter
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 time 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 for presenting fashion products. Prerequisites: CRT 126, CRT 155.

CRT 331 Food Distribution Managerial Processes (3-0)
3 hrs. Fall, Every fourth Spring beginning Spring 1987
A study of advanced techniques in the development of food distribution personnel. Emphasis will be placed on job understanding, career dynamics, performance review, performance interview, behavior principles, and career discussions including appraising promotability. Classroom practice of these techniques using role-playing procedures. Prerequisite: CRT 231.

CRT 332 Food Distribution Systems Control (3-0)
3 hrs. Fall, Winter, Spring
An analysis of the systems and controls used in the food distribution industry for controlling operations, maximizing profits and minimizing costs, the use of special operating data and ratios to measure performance, budget maneuver, and forecast sales and profits, as well as other strategies and control systems applicable to food distribution. Prerequisite: CRT 132, CRT 225 or equivalent.

CRT 338 Petroleum Jobber Operations (3-0)
3 hrs. Fall
An overall study of petroleum jobber operations with special emphasis on heating oil, including degree day forecasting, delivery dispatching, credit and collection control, sales and cost analyses, employee productivity, and operating expense accounting with the use of electronic processing.

CRT 337 Distribution and Handling of Petroleum Products (3-0)
3 hrs. Winter
A study of wholesale and retail distribution channels used by major and independent companies. The transportation and handling of petroleum products from the oil field to the retail outlet. The analysis of a sales territory and the selection of a service station site.

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 155, CRT 205, CRT 251, CRT 252, CRT 255, CRT 350, and ET 341.

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. Prerequisite: CRT 150, CRT 155, ET 131, ET 141.

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 366 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 food 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
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abroad. Written assignments and planned itineraries. Maximum 2-3 foreign, 1-2 domestic, not to exceed 4 in total. Prerequisite: Department approval.

CRT 410 Teaching Sex Education in the School (3-0)
3 hrs. Fall, Winter, Spring
Methods, materials and curriculum development at various grade levels in sex education in the school program. Prerequisite: CRT 210 or approval of the instructor.

CRT 413 Marriage and Family in Maturity (3-0)
3 hrs. Fall
Marital and family interaction in middle and later years.

CRT 415 Effective Parenting (3-0)
3 hrs. Winter
Preparation for parenthood: Study of the relationships between the child, his/her development, the process of parental development, school, and family relationships. Special attention to the systems theory as it applies to the family.

CRT 420 Textiles II (2-0)
2 hrs. Winter-Odd Years
Investigation of recent fiber developments, new construction techniques and finishes in the textile field. Opportunity for individual investigation and research. Prerequisite: CRT 200.

CRT 425 Merchandising Practicum (2-3)
3 hrs. Fall, Winter, Spring
Lecture/laboratory study of professional concepts used in the operation of a retail boutique. Prerequisite: CRT 202.

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 merchandising security developed through performance objectives. Prerequisite: Junior standing.

CRT 432 Issues in Oil (1-2)
3 hrs. Winter
A study of the current issues affecting the petroleum industry. This is a capstone course for petroleum distribution majors using a seminar approach. Prerequisite: Senior standing or permission of instructor.

CRT 436 Problems in Food Distribution (3-0)
3 hrs. Fall, Winter, Every fourth Spring beginning 1986
An integrating course designed for advanced students using an analytical approach to solving problems of an internal nature in food distribution firms. This is a capstone course for Food Distribution majors using the case problem method. Open only to seniors.

CRT 438 Current Issues in Food Distribution (3-0)
3 hrs. Fall
A study of current issues external to the firm affecting the food distribution industry. It provides an opportunity for the study of relevant issues normally beyond the scope of regular departmental offerings. Open only to seniors.

CRT 450 Residential Design (2-3)
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 341.

CRT 451 Contract Design II (2-3)
3 hrs. Fall
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 450.

CRT 459 Senior Studio (2-3)
3 hrs. Winter
Capstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: CRT 450, CRT 451.

CRT 460 Advanced Nutrition (3-2)
4 hrs. Fall
Recent developments in nutrition through readings and experiences. Students will be required to work as peer educators in the Syracuse University's Weight Control Program. Prerequisites: CRT 260, BIOS 240, CHEM 365.

CRT 461 Diet and Disease (3-2)
4 hrs. Winter
Study of the diatetic 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 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 500 Seminar in Distribution (3-0)
2-4 hrs. Fall, Winter
An intensive study of problems related to distribution involving investigative processes, gathering of data/information, and analysis and presentation of findings. This seminar is especially recommended for seniors and graduates in all programs of distribution.
## Computer Systems Engineering

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Candidates for the Bachelor of Science in Engineering (Computer Systems) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A "C" average or better must be earned in courses presented for graduation with an EE, IE, or ME prefix.

3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

4. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with Fall.

### Pre-engineering requirements are in darker italic print.

#### First Semester—15 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>EE 102</td>
<td>General Communication</td>
<td>3</td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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#### Second Semester—15 hours

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</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>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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#### Third Semester—16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 272</td>
<td>Vector and Multivariate Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>CS 112</td>
<td>Computer Programming II</td>
<td>3</td>
</tr>
<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
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<tr>
<td>AREA II</td>
<td>General Education</td>
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#### Fourth Semester—16 hours

<table>
<thead>
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<tbody>
<tr>
<td>PHYS 212</td>
<td>Introductory Modern Physics</td>
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</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EE 251</td>
<td>Digital Systems I</td>
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#### Fifth Semester—16 hours

<table>
<thead>
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<th>Credits</th>
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<tbody>
<tr>
<td>MATH 145</td>
<td>Discrete Mathematical Structures</td>
<td>4</td>
</tr>
<tr>
<td>EE 221</td>
<td>Electronics I</td>
<td>4</td>
</tr>
<tr>
<td>EE 310</td>
<td>Network Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE 355</td>
<td>Digital Logic II</td>
<td>3</td>
</tr>
<tr>
<td>CS 223</td>
<td>Computer Organization and Assembly Language</td>
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</table>

#### Sixth 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 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>
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</table>

#### Seventh Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EE 380</td>
<td>Probabilistic Methods in Signal and Systems Analysis</td>
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<tr>
<td>CS 331</td>
<td>Design and Analysis of Algorithms and Data Structures</td>
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</tr>
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</table>

#### Eight Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>EE 481</td>
<td>Electrical Engineering Design I</td>
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<tr>
<td>CS 554</td>
<td>Operating Systems</td>
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<tr>
<td>CS 485</td>
<td>Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education</td>
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<tr>
<td>AREA II</td>
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<tr>
<td>ME</td>
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</tbody>
</table>

### 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 where the student is 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 drop period of the semester or session.
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 101 Fundamentals of Electronics and Machines (3-3) 3 hrs. Fall, Winter, Summer
Basic principles of electricity, 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. Prerequisites: MATH 111 or equivalent and high school physics.

EE 102 Electricity and Magnetism (4-0) 4 hrs. Fall, Winter
A study of the fundamental laws and engineering applications of electric and magnetic fields, Maxwell's Equations. Prerequisites: MATH 374, PHY 211.

EE 210 Circuit Analysis (3-0) 3 hrs. Fall, Winter, Spring
Analysis of linear electric circuits using methods based on Kirchoff's laws and network theorems. Simple RL and RC circuits. Sinusoidal steady state analysis. Prerequisites: PHYS 211 or taken concurrently, MATH 123.

EE 211 Machines and Electronic Circuits (3-3) 3 hrs. Fall, Winter, Summer
Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. EE and CSE students may not use credit in EE 211 toward graduation. Prerequisite: EE 210.

EE 221 Electronics I (3-3) 4 hrs. Fall, Winter
Analysis and design of electronic circuits and systems, diode circuits, transistor biasing and stabilization, small and large signal models. Computer-aided analysis and design of multistage circuits. Prerequisites: EE 210, PHYS 211.

EE 250 Digital Logic I (3-3) 3 hrs. Fall, Winter, Summer
Introduction to digital and analog electronics. Design and construction of modern electronic circuits using solid-state devices. Prerequisites: EE 221, EE 251.

EE 280 Probabilistic Methods in Signal and Systems Analysis (3-0) 3 hrs. Fall, Winter
Analysis and design of microcomputer-based digital systems. Prerequisites: EE 221, EE 251.

EE 290 Digital Signal Processing (3-0) 3 hrs. Winter
Introduction to machine and assembly language programming of small computers. Introduction to microcomputer architecture and interfacing. Prerequisites: EE 250, CS 106 or CS 111 or CS 306.

EE 310 Network Analysis (3-3) 3 hrs. Fall, Winter
Introduction to digital and analog communications systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Prerequisites: EE 371, EE 380.

EE 320 Electrical Power Systems (3-0) 3 hrs. Fall
Transmission lines, network analysis, loadflow, stability, fault calculation, transients, and system stability. Prerequisite: EE 330.

EE 350 Digital Systems I (3-3) 3 hrs. Winter
Analysis and design of computer-aided design of computer-aided design. Prerequisites: EE 221, EE 350.

EE 370 Introduction to Probability (3-0) 3 hrs. Fall
First of a two-semester sequence in probability and stochastic processes. Prerequisite: Consent of department chairperson.

EE 380 Power Electronics (3-3) 4 hrs. Fall, Winter
Introduction to digital and analog communications systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Prerequisites: EE 371, EE 380.
course offerings. Maybe taken more than once to introduce students to advanced topics in electrical engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Consent of department.

EE 496 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: EE 361 and EE 221.

EE 501 Introductory Power Systems (3-0) 3 hrs. Fall 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, and JFETs. Prerequisites: EE 361 and EE 221.

EE 530 Power System Analysis I (3-0) 3 hrs. Winter Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

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 perturbational 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. Fall, Winter 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

**Engineering Technology**

- **Harley D. Behm, Chair**
- **Robert J. Aardema**
- **Michael B. Atkins**
- **Philip L. Bruce**
- **John W. Cummings**
- **Thomas L. Deckard**
- **J.S. Duggal**
- **Paul V. Engelmann**
- **Neil D. Opfer**
- **Daniel E. Peacock**
- **Arden D. Priggdon**
- **Roman J. Rabej**
- **Ronald L. Sackett**
- **Fred Z. Sikiris**
- **George K. Stegman**
- **Peter J. Strazdas**
- **Ralph E. Tanner**
- **Roger R. Urich**
- **James Vandefoorder**
- **Charles F. Woodward**
- **Leard L. Wylie**
- **Adjunct Faculty**
- **Richard Heinitz**
- **David P. Krueger**

- **The Department of Engineering Technology offers the following curricula:**
  - **Aircraft Maintenance Engineering**
  - **Electromechanical Technology—B.S. degree**
  - **Automotive Technology and Management—B.S. degree**
  - **Aviation Technology and Operations—B.S. degree**
  - **Construction Science and Management—B.S. degree**
  - **Engineering Graphics—B.S. degree**
  - **Engineering Metallurgy—B.S. degree**
  - **Industrial Design—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 of basic writing, mathematics, and science courses is required before enrollment in upper level (300-400) courses. Students should contact their academic adviser for the list of required courses that applies to their curriculum.

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 permitted 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 adviser as early as possible. The adviser 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 adviser, the curriculum committee, and the department chairman. The academic adviser is located in Room 203B, Kohran Hall, phone (614) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic adviser 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 advisers.

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 aviation 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 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 other types of automotive or aircraft engineering support activity.

### Approved Electives

Electives must be approved by the department academic adviser. 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 adviser 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.’s 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.

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, IE, or ME prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 139 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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>16 hours</td>
<td></td>
</tr>
<tr>
<td>ET 110</td>
<td>Aerospace</td>
<td>3</td>
</tr>
<tr>
<td>ET 117</td>
<td>Aircraft Reciprocating Powerplants</td>
<td>4</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Precalculus Math</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 110</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Second Semester</td>
<td>17 hours</td>
<td></td>
</tr>
<tr>
<td>ET 118</td>
<td>Aircraft Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 105</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
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<tr>
<td>MATH 200</td>
<td>Calculus with Applications</td>
<td>4</td>
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<tr>
<td>PHYS 111</td>
<td>General Physics II</td>
<td>4</td>
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<tr>
<td>Third Semester</td>
<td>16 hours</td>
<td></td>
</tr>
<tr>
<td>ET 119</td>
<td>Reciprocating Powerplant Overhaul</td>
<td>2</td>
</tr>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>EE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
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</tr>
<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
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<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
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<tr>
<td>PEGN</td>
<td>Physical Education</td>
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<tr>
<td>Fourth Semester</td>
<td>18 hours</td>
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<tr>
<td>ET 213</td>
<td>Airframe Hydraulic, Pneumatic, and Auxiliary Systems</td>
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<td>COM 170</td>
<td>Interpersonal Communication I</td>
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<tr>
<td>EE 101</td>
<td>Fundamentals of Electronics and Machines</td>
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<tr>
<td>ET 256</td>
<td>Properties of Materials</td>
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<tr>
<td>ET 281</td>
<td>Statics and Strength of Materials</td>
<td>4</td>
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</table>

Fifth Semester—16 hours
| ET 216 | Aircraft Structural Repair | 3 |
| ET 222 | Fuels and Lubricants | 3 |
| MATH 313 | Aircraft Electrical Systems | 3 |
| ECON 201 | Principles of Economics | 3 |
| MATH 260 | Elementary Statistics | 4 |

Sixth Semester—16 hours
| ET 116 | Aircraft Propellers | 2 |
| ET 311 | Powerplant Systems Evaluation and Testing | 3 |
| ET 316 | Avionics Systems | 3 |
| ET 381 | Thermo-Fluid Dynamics | 4 |
| AREA II | Social/Behavioral Science* | 3 |

Spring/Summer—10 hours
| ET 312 | Powerplant Service and Management | 5 |
| ET 318 | Aircraft Service and Management | 5 |

Seventh Semester—15 hours
| ET 315 | Propulsion System Performance | 3 |
| ET 415 | Aircraft Turbine Powerplants | 3 |
| ME 375 | Experimental Stress Analysis | 3 |
| AREA IV | Non-Western World* | 3 |

Eighth Semester—15 hours
| ET 418 | Systems Reliability and Maintainability | 3 |
| ET 419 | Advanced Maintenance Systems | 3 |
| IE 423 | Conference Leadership | 3 |
| AREA I | Humanities/Fine Arts* | 3 |

* 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 service where technical knowledge of automobile construction and operation is necessary.

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, IE, or ME prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

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<tr>
<th>Semester</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>16 hours</td>
<td></td>
</tr>
<tr>
<td>ET 121</td>
<td>Automotive Chassis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Precalculus Mathematics</td>
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</tr>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>CS 105</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>ET 150</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>Second Semester</td>
<td>15 hours</td>
<td></td>
</tr>
<tr>
<td>ET 124</td>
<td>Automotive Engines</td>
<td>3</td>
</tr>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ET 316</td>
<td>Calculus with Applications</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 110</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
<td>1</td>
</tr>
</tbody>
</table>

Third Semester—17 hours
| ET 222 | Fuels and Lubricants | 3 |
| ECON 201 | Principles of Economics | 3 |
| EE 101 | Fundamentals of Circuits and Electronics | 3 |
| PHYS 111 | General Physics II | 4 |
| CHEM 103 | General Chemistry I | 4 |

Fourth Semester—16 hours
| ET 221 | Automatic Transmissions | 3 |
| EE 101 | Fundamentals of Electronics and Machines | 3 |
| ACTY 210 | Principles of Accounting | 3 |
| ET 281 | Statics and Strength of Materials | 4 |
| AREA I | Humanities/Fine Arts* | 3 |

Fifth Semester—16 hours
| ET 224 | Automotive Fuel and Electrical Systems | 3 |
| ACTY 211 | Principles of Accounting | 3 |
| ET 256 | Properties of Materials | 4 |
| COM 104 | Public Speaking | 3 |
| BIS 242 | Business Communication | 3 |

Sixth Semester—17 hours
| MGMT 300 | Fundamentals of Management | 3 |
| MATH 216 | Business Statistics | 3 |
| ET 381 | Thermo-Fluid Dynamics | 4 |
| AREA II | Social/Behavioral Science* | 3 |
| Approved Elective | | 4 |
| PEGN | Physical Education | 1 |

Seventh Semester—15 hours
| ET 326 | Automotive Diagnosis | 3 |
| Approved Elective | | 2 |
| FCL 320 | Business Finance | 3 |
| AREA IV | Non-Western World* | 4 |
| MKTG 370 | Marketing | 3 |

Eighth Semester—16 hours
| ET 421 | Automotive Analysis | 3 |
| IE 422 | Conference Leadership | 3 |
| FCL 340 | Legal Environment | 3 |
| AREA I | Humanities/Fine Arts* | 4 |
| Approved Elective | | 3 |

* At least two of these courses must be at the 300-400 level.

Aviation Technology and Operations
Bachelor of Science Degree
The aviation technology and operations curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The technical management option leads to careers in areas such as technical sales or service, production, and general aviation management. The professional pilot option prepares general aviation pilots who are competitive in both technical and business backgrounds. The aviation maintenance management option emphasizes aircraft systems, reliability and maintainability, licensing requirements, and repair facility management.

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 one of the following programs. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>16 hours</td>
<td></td>
</tr>
<tr>
<td>ET 222</td>
<td>Fuels and Lubricants</td>
<td>3</td>
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<tr>
<td>ECON 201</td>
<td>Principles of Economics</td>
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<tr>
<td>EE 101</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 111</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
<td>4</td>
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</tbody>
</table>
A. TECHNICAL MANAGEMENT OPTION—128 hours

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>ET</td>
<td>110 Aerospace</td>
</tr>
<tr>
<td>PHYS</td>
<td>106 Elementary Physics</td>
</tr>
<tr>
<td>MATH</td>
<td>200 Calculus with Applications</td>
</tr>
<tr>
<td>IE</td>
<td>102 Technical Communication</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Second Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>118 Aircraft Structures</td>
</tr>
<tr>
<td>CS</td>
<td>106 BASIC for Engineers</td>
</tr>
<tr>
<td>MATH</td>
<td>260 Elementary Statistics</td>
</tr>
<tr>
<td>ET</td>
<td>142 Engineering Graphics</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Third Semester</td>
<td>17 hours</td>
</tr>
<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
</tr>
<tr>
<td>EE</td>
<td>100 Fundamentals of Circuits and Electronics</td>
</tr>
<tr>
<td>COM</td>
<td>104 Public Speaking</td>
</tr>
<tr>
<td>BIS</td>
<td>242 Business Communication</td>
</tr>
<tr>
<td>AREA IV</td>
<td>Non-Western World</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>18 hours</td>
</tr>
<tr>
<td>ET</td>
<td>213 Airframe Hydraulic, Pneumatic and Auxiliary Systems</td>
</tr>
<tr>
<td>EE</td>
<td>222 Fuels and Lubricants</td>
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<tr>
<td>ET</td>
<td>118 Aircraft Structures</td>
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<tr>
<td>EE</td>
<td>100 Fundamentals of Electronics and Machines</td>
</tr>
<tr>
<td>ET</td>
<td>205 Aviation Safety</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>17 hours</td>
</tr>
<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
</tr>
<tr>
<td>EE</td>
<td>100 Fundamentals of Circuits and Electronics</td>
</tr>
<tr>
<td>GEOG</td>
<td>105 Our Physical Environment</td>
</tr>
<tr>
<td>MATH</td>
<td>260 Elementary Statistics</td>
</tr>
<tr>
<td>IE</td>
<td>106 BASIC for Engineers</td>
</tr>
<tr>
<td>Third Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>118 Aircraft Structures</td>
</tr>
<tr>
<td>EE</td>
<td>100 Fundamentals of Circuits and Electronics</td>
</tr>
<tr>
<td>GEOG</td>
<td>225 Introduction to Meteorology and Climatology</td>
</tr>
<tr>
<td>COM</td>
<td>104 Public Speaking</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>18 hours</td>
</tr>
<tr>
<td>ET</td>
<td>213 Airframe Hydraulic, Pneumatic and Auxiliary Systems</td>
</tr>
<tr>
<td>ET</td>
<td>222 Fuels and Lubricants</td>
</tr>
<tr>
<td>EE</td>
<td>101 Fundamentals of Electronics and Machines</td>
</tr>
<tr>
<td>ET</td>
<td>205 Aviation Safety</td>
</tr>
<tr>
<td>BIS</td>
<td>242 Business Communication</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
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<tr>
<td>ET</td>
<td>301 Commercial Flight</td>
</tr>
<tr>
<td>AREA II</td>
<td>Social/Behavioral Science</td>
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<tr>
<td>ACTY</td>
<td>201 Accounting Concepts and Applications</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
<tr>
<td>Sixth Semester</td>
<td>14 hours</td>
</tr>
<tr>
<td>ET</td>
<td>300 Navigation Systems</td>
</tr>
<tr>
<td>ET</td>
<td>303 Commercial Flight II</td>
</tr>
<tr>
<td>ET</td>
<td>317 Air Transportation</td>
</tr>
<tr>
<td>GMTG</td>
<td>300 Fundamentals of Management</td>
</tr>
<tr>
<td>ET</td>
<td>302 Aircraft Systems and Operations</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Seventh Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>313 Aircraft Electrical Systems</td>
</tr>
<tr>
<td>ET</td>
<td>305 Commercial Flight III</td>
</tr>
<tr>
<td>MKTG</td>
<td>370 Marketing</td>
</tr>
<tr>
<td>FCL</td>
<td>340 Legal Environment</td>
</tr>
<tr>
<td>AREA IV</td>
<td>Non-Western World</td>
</tr>
<tr>
<td>Eighth Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>415 Aircraft Turbo Powerplants</td>
</tr>
<tr>
<td>ET</td>
<td>402 Aerodynamics and Flight Principles</td>
</tr>
<tr>
<td>ET</td>
<td>405 Flight Operations Analysis</td>
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<tr>
<td>IE</td>
<td>402 Supervision of Industrial Operations</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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</tr>
<tr>
<td>ET</td>
<td>110 Aerospace</td>
</tr>
<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
</tr>
<tr>
<td>CHEM</td>
<td>103 General Chemistry</td>
</tr>
<tr>
<td>GEOG</td>
<td>105 Our Physical Environment</td>
</tr>
<tr>
<td>MATH</td>
<td>200 Calculus with Applications</td>
</tr>
<tr>
<td>IE</td>
<td>102 Technical Communication</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Second Semester</td>
<td>17 hours</td>
</tr>
<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
</tr>
<tr>
<td>CHEM</td>
<td>103 General Chemistry</td>
</tr>
<tr>
<td>GEOG</td>
<td>105 Our Physical Environment</td>
</tr>
<tr>
<td>MATH</td>
<td>200 Calculus with Applications</td>
</tr>
<tr>
<td>IE</td>
<td>106 BASIC for Engineers</td>
</tr>
<tr>
<td>Third Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>ET</td>
<td>118 Aircraft Structures</td>
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<tr>
<td>EE</td>
<td>100 Fundamentals of Circuits and Electronics</td>
</tr>
<tr>
<td>GEOG</td>
<td>225 Introduction to Meteorology and Climatology</td>
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<tr>
<td>COM</td>
<td>104 Public Speaking</td>
</tr>
<tr>
<td>Fourth Semester</td>
<td>18 hours</td>
</tr>
<tr>
<td>ET</td>
<td>213 Airframe Hydraulic, Pneumatic and Auxiliary Systems</td>
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<tr>
<td>ET</td>
<td>222 Fuels and Lubricants</td>
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<td>EE</td>
<td>101 Fundamentals of Electronics and Machines</td>
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<tr>
<td>ET</td>
<td>205 Aviation Safety</td>
</tr>
<tr>
<td>BIS</td>
<td>242 Business Communication</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>ET</td>
<td>216 Aircraft Structural Repair</td>
</tr>
<tr>
<td>ET</td>
<td>311 Powerplant Systems Evaluation and Testing</td>
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<tr>
<td>ET</td>
<td>313 Aircraft Electrical Systems</td>
</tr>
<tr>
<td>ACTY</td>
<td>201 Accounting Concepts and Applications</td>
</tr>
<tr>
<td>AREA II</td>
<td>Social/Behavioral Science</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
<tr>
<td>Sixth Semester</td>
<td>15 hours</td>
</tr>
<tr>
<td>GMTG</td>
<td>300 Fundamentals of Management</td>
</tr>
<tr>
<td>ET</td>
<td>316 Avionics Systems</td>
</tr>
<tr>
<td>ET</td>
<td>310 Airport Management</td>
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<tr>
<td>ET</td>
<td>317 Air Transportation</td>
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<td>COM</td>
<td>104 Public Speaking</td>
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<td>FCL</td>
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C. AVIATION MAINTENANCE MANAGEMENT OPTION—136 hours

<table>
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<tr>
<th>Semester</th>
<th>Courses</th>
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<tr>
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<tr>
<td>ET</td>
<td>110 Aerospace</td>
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<tr>
<td>ET</td>
<td>117 Aircraft Reciprocating Powerplants</td>
</tr>
<tr>
<td>PHYS</td>
<td>106 Elementary Physics</td>
</tr>
<tr>
<td>MATH</td>
<td>200 Calculus with Applications</td>
</tr>
<tr>
<td>CS</td>
<td>106 BASIC for Engineers</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Second Semester</td>
<td>16 hours</td>
</tr>
<tr>
<td>CHEM</td>
<td>103 General Chemistry</td>
</tr>
<tr>
<td>IE</td>
<td>102 Technical Communication</td>
</tr>
<tr>
<td>ET</td>
<td>142 Engineering Graphics</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
<tr>
<td>Third Semester</td>
<td>17 hours</td>
</tr>
<tr>
<td>ET</td>
<td>213 Airframe Hydraulic, Pneumatic and Auxiliary Systems</td>
</tr>
<tr>
<td>ET</td>
<td>222 Fuels and Lubricants</td>
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<tr>
<td>EE</td>
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<td>280 Transportation in the U.S.</td>
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<tr>
<td>ET</td>
<td>216 Aircraft Structural Repair</td>
</tr>
<tr>
<td>ET</td>
<td>311 Powerplant Systems Evaluation and Testing</td>
</tr>
<tr>
<td>ET</td>
<td>313 Aircraft Electrical Systems</td>
</tr>
<tr>
<td>ACTY</td>
<td>201 Accounting Concepts and Applications</td>
</tr>
<tr>
<td>AREA II</td>
<td>Social/Behavioral Science</td>
</tr>
<tr>
<td>AREA I</td>
<td>Humanities/Fine Arts</td>
</tr>
<tr>
<td>Fifth Semester</td>
<td>15 hours</td>
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<tr>
<td>GMTG</td>
<td>300 Fundamentals of Management</td>
</tr>
<tr>
<td>ET</td>
<td>316 Avionics Systems</td>
</tr>
<tr>
<td>ET</td>
<td>310 Airport Management</td>
</tr>
<tr>
<td>ET</td>
<td>317 Air Transportation</td>
</tr>
<tr>
<td>COM</td>
<td>104 Public Speaking</td>
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<tr>
<td>FCL</td>
<td>340 Legal Environment</td>
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<tr>
<td>Spring/Summer</td>
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<tr>
<td>ET</td>
<td>312 Powerplant Service and Management</td>
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<td>ET</td>
<td>318 Aircraft Service and Management</td>
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<table>
<thead>
<tr>
<th>Seventh Semester</th>
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<tbody>
<tr>
<td>ET</td>
<td>315 Propulsion Systems</td>
</tr>
<tr>
<td>ET</td>
<td>416 Maintenance Regulations</td>
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<td>MKTG</td>
<td>370 Marketing</td>
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<tr>
<td>BIS</td>
<td>242 Business Communication</td>
</tr>
<tr>
<td>AREA IV</td>
<td>Non-Western World</td>
</tr>
<tr>
<td>Eighth Semester</td>
<td>14 hours</td>
</tr>
<tr>
<td>ET</td>
<td>418 Systems Reliability and Maintainability</td>
</tr>
<tr>
<td>ET</td>
<td>415 Aircraft Turbo Powerplants</td>
</tr>
<tr>
<td>IE</td>
<td>402 Supervision of Industrial Operations</td>
</tr>
<tr>
<td>AREA V</td>
<td>Optional Elective</td>
</tr>
</tbody>
</table>

* At least two of these courses must be at the 300-400 level.
Construction Science and Management

Bachelor of Science Degree

The construction science and management curriculum prepares students for entry positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 129 semester hours as well as University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in required courses with an EE, ET, or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 129 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, with two spring and/or summer sessions.

<table>
<thead>
<tr>
<th>First Semester — 16 hours</th>
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</thead>
<tbody>
<tr>
<td>ET 131 Introduction to Building Practices</td>
</tr>
<tr>
<td>ET 141 Introduction to Technical Drawing</td>
</tr>
<tr>
<td>CS 105 Introduction to Computers</td>
</tr>
<tr>
<td>CHEM 103 General Chemistry I</td>
</tr>
<tr>
<td>IE 102 Technical Communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester — 15 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 108 Precalculus Mathematics</td>
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<tr>
<td>PHYS 106 Elementary Physics</td>
</tr>
<tr>
<td>ET 142 Engineering Graphics</td>
</tr>
<tr>
<td>ET 150 Introduction to Manufacturing</td>
</tr>
<tr>
<td>COM 104 Public Speaking</td>
</tr>
<tr>
<td>AREA I Humanities/Fine Arts*</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester — 15 hours</th>
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<tbody>
<tr>
<td>ET 235 Structural Framing</td>
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<tr>
<td>ET 233 Building Codes</td>
</tr>
<tr>
<td>GEOL 130 Physical Geology</td>
</tr>
<tr>
<td>MATH 200 Calculus with Applications</td>
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<td>PEGN Physical Education</td>
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<table>
<thead>
<tr>
<th>Fourth Semester — 14 hours</th>
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<tbody>
<tr>
<td>ET 281 Statics and Strength of Materials</td>
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<tr>
<td>ET 256 Properties of Materials</td>
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<tr>
<td>ACTY 210 Principles of Accounting</td>
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<tr>
<td>ECON 201 Principles of Economics</td>
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<table>
<thead>
<tr>
<th>Spring Session — 6 hours</th>
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<tbody>
<tr>
<td>ET 236 Construction Measurements and Layout</td>
</tr>
<tr>
<td>ET 237 Concrete Construction and Masonry</td>
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</table>

<table>
<thead>
<tr>
<th>Fifth Semester — 15 hours</th>
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</thead>
<tbody>
<tr>
<td>ET 335 Soil Mechanics and Foundations</td>
</tr>
<tr>
<td>ET 337 Heating, Ventilation, and Air Conditioning</td>
</tr>
<tr>
<td>ACTY 211 Principles of Accounting</td>
</tr>
<tr>
<td>BIS 242 Business Communication</td>
</tr>
<tr>
<td>AREA II Social/Behavioral Science*</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sixth Semester — 16 hours</th>
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<tbody>
<tr>
<td>ET 339 Plumbing and Electrical Practices</td>
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<tr>
<td>MATH 216 Business Statistics</td>
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<tr>
<td>MKTG 370 Marketing</td>
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<td>FCL 330 Real Estate Fundamentals</td>
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<td>AREA IV Non-Western World*</td>
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<table>
<thead>
<tr>
<th>Spring/Summer — 1 hour</th>
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<tbody>
<tr>
<td>ET 399 Field Experience</td>
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</table>

<table>
<thead>
<tr>
<th>Seventh Semester — 15 hours</th>
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</thead>
<tbody>
<tr>
<td>ET 433 Specifications and Estimating</td>
</tr>
<tr>
<td>ET 441 Residential Architectural Design</td>
</tr>
<tr>
<td>FCL 340 Legal Environmental</td>
</tr>
<tr>
<td>MGMT 300 Fundamentals of Management</td>
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<tr>
<td>Approved Elective</td>
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</table>

<table>
<thead>
<tr>
<th>Eighth Semester — 16 hours</th>
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</thead>
<tbody>
<tr>
<td>ET 435 Commercial Construction Methods</td>
</tr>
<tr>
<td>ET 437 Advanced Estimating and Bidding</td>
</tr>
<tr>
<td>ET 439 Scheduling and Project Management</td>
</tr>
<tr>
<td>FCL 320 Business Finance</td>
</tr>
<tr>
<td>AREA I Humanities/Fine Arts*</td>
</tr>
<tr>
<td>* At least two of these courses must be at the 300-400 level.</td>
</tr>
</tbody>
</table>

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 of the thrust of the program toward business, supervision, or technical areas such as cast metals, 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.

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 126 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

<table>
<thead>
<tr>
<th>First Semester — 17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 142 Engineering Graphics</td>
</tr>
<tr>
<td>ET 150 Introduction to Manufacturing</td>
</tr>
<tr>
<td>MATH 118 Precalculus Mathematics</td>
</tr>
<tr>
<td>CHEM 103 General Chemistry I</td>
</tr>
<tr>
<td>CS 105 Introduction to Computers</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester — 17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 144 Descriptive Geometry</td>
</tr>
<tr>
<td>ET 154 Machining Fundamentals</td>
</tr>
<tr>
<td>MATH 200 Calculus with Applications</td>
</tr>
<tr>
<td>PHYS 110 General Physics I</td>
</tr>
<tr>
<td>IE 102 Technical Communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Semester — 17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 246 Introduction to Computer Aided Design</td>
</tr>
<tr>
<td>ET 248 Technical Illustration</td>
</tr>
<tr>
<td>EE 100 Fundamentals of Circuits and Electronics</td>
</tr>
<tr>
<td>PHYS 111 General Physics II</td>
</tr>
<tr>
<td>COM 104 Public Speaking</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fourth Semester — 17 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 242 Production Drafting</td>
</tr>
</tbody>
</table>

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 of the program toward business, supervision, or technical areas such as cast metals and metal fabrication.

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 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

<table>
<thead>
<tr>
<th>First Semester — 15 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 142 Engineering Graphics</td>
</tr>
<tr>
<td>MATH 122 Calculus I</td>
</tr>
<tr>
<td>CHEM 101 General Chemistry I</td>
</tr>
<tr>
<td>OR CHEM 102 General Chemistry I</td>
</tr>
<tr>
<td>IE 102 Technical Communication</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester — 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 223 Calculus II</td>
</tr>
<tr>
<td>CS 105 Introduction to Computers</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry</td>
</tr>
<tr>
<td>PHYS 210 Mechanics and Heat</td>
</tr>
<tr>
<td>PHYS 110 General Physics I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fifth Semester — 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 342 Machine Drafting</td>
</tr>
<tr>
<td>MATH 260 Elementary Statistics</td>
</tr>
<tr>
<td>CS 306 Introductory Programming</td>
</tr>
<tr>
<td>ECON 201 Principles of Economics</td>
</tr>
<tr>
<td>Approved Elective</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sixth Semester — 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 346 Programming for Computer Aided Design</td>
</tr>
<tr>
<td>ET 381 Thermo-Fluid Dynamics</td>
</tr>
<tr>
<td>Approved Electives</td>
</tr>
<tr>
<td>AREA IV Non-Western World*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seventh Semester — 16 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 446 CAD Applications</td>
</tr>
<tr>
<td>ET 481 Metrology</td>
</tr>
<tr>
<td>ET 483 Project Design and Control</td>
</tr>
<tr>
<td>IE 422 Conference Leadership</td>
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<tr>
<td>Approved Elective</td>
</tr>
<tr>
<td>AREA II Social/Behavioral Science*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eighth Semester — 12 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 449 Drafting/Design Management</td>
</tr>
<tr>
<td>ET 485 Senior Project</td>
</tr>
<tr>
<td>Approved Elective</td>
</tr>
<tr>
<td>AREA I Humanities/Fine Arts*</td>
</tr>
<tr>
<td>* At least two of these courses must be at the 300-400 level.</td>
</tr>
<tr>
<td>Semester</td>
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<tr>
<td>Third Semester—17 hours</td>
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<td>Fourth Semester—17 hours</td>
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<tr>
<td>Fifth Semester—16 hours</td>
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<tr>
<td>Sixth Semester—16 hours</td>
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<tr>
<td>Seventh Semester—15 hours</td>
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<tr>
<td>Eighth Semester—16 hours</td>
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</tbody>
</table>

**Industrial Design Bachelor of Science Degree**

The curriculum in industrial design is a blend of technology, business, art, and general studies with courses in mechanical design, drafting, illustration, processing, design philosophy, and practices. This program prepares designers with the aesthetic and technical potential to set new directions in product development and design, based on knowledge of materials, processes, quality, and production standards.

**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.

| First Semester—15 hours | ET 142 | Engineering Graphics | 3 |
| | MATH 118 | Precalculus Mathematics | 4 |
| | CHEM 103 | General Chemistry I | 4 |
| | ART 101 | Foundation Drawing | 3 |
| | ET 143 | Industrial Design Studio | 1 |
| | SECOND SEMESTER—17 hours | ET 144 | Descriptive Geometry | 3 |
| | ET 147 | Industrial Design Studio | 1 |
| | ET 150 | Introduction to Manufacturing | 3 |
| | ART 102 | Foundation 2D Design | 3 |
| | PHYS 110 | General Physics I | 1 |
| | IE 102 | Technical Communication | 3 |
| | THIRD SEMESTER—17 hours | ET 248 | Technical Illustration | 3 |
| | ET 243 | Industrial Design Studio | 1 |
| | ET 245 | Design for Manufacturing | 3 |
| | CS 105 | Introduction to Computers | 3 |
| | ART 103 | Theory of Art | 3 |
| | MATH 200 | Calculus with Applications | 4 |
| | FOURTH SEMESTER—17 hours | ET 242 | Production Drafting | 3 |
| | ET 281 | Statics and Strength of Materials | 3 |
| | AREA I | Humanities/Fine Arts | 4 |
| | ET 353 | Physical Metallurgy I | 4 |
| | ME 375 | Experimental Stress Analysis | 4 |
| | IE 328 | Quality Assurance and Control | 3 |
| | AREA I | Humanities/Fine Arts | 3 |
| | APPROVED ELECTIVE | | |
| | FIFTH SEMESTER—16 hours | ET 246 | Introduction to Computer Aided Design | 3 |
| | ET 256 | Properties of Materials | 4 |
| | ET 154 | Machining Fundamentals | 3 |
| | ECON 201 | Principles of Economics | 3 |
| | ACTY 210 | Principles of Accounting | 3 |
| | SIXTH SEMESTER—15 hours | ET 250 | Plastics Properties and Processing | 3 |
| | FCL 340 | Legal Environment | 3 |
| | ET 343 | Industrial Design Studio | 2 |
| | PEGN | Physical Education | 1 |
| | AREA II | Social/Behavioral Science | 3 |
| | PAPR 150 | Introduction to Graphic Arts | 3 |
| | SEVENTH SEMESTER—16 hours | ART 245 | Graphic Design | 3 |
| | ART 240 | Painting | 3 |
| | MGMT 451 | Administrative Behavior | 3 |
| | ET 347 | Industrial Design Studio | 2 |
| | AREA IV | Non-Western World | 4 |
| | PEGN | Physical Education | 1 |
| | EIGHTH SEMESTER—15 hours | ET 445 | Product Design and Development | 3 |
| | ET 447 | Industrial Design Studio | 2 |
| | ART 248 | Photography | 3 |
| | MKTG 370 | Marketing | 3 |
| | AREA I | Humanities/Fine Arts | 4 |
| | * 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.

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 136 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

| First Semester—16 hours | ET 150 | Introduction to Manufacturing | 3 |
| | ET 142 | Engineering Graphics | 3 |
| | MATH 118 | Precalculus Mathematics | 3 |
| | CS 105 | Introduction to Computers | 3 |
| | IE 102 | Technical Communication | 3 |
| | SECOND SEMESTER—16 hours | ET 154 | Machining Fundamentals | 3 |
| | CHEM 103 | General Chemistry I | 4 |
| | PHYS 110 | General Physics I | 4 |
| | MATH 200 | Calculus with Applications | 4 |
| | PEGN | Physical Education | 1 |
| | THIRD SEMESTER—17 hours | ET 100 | Fundamentals of Circuits and Electronics | 3 |
| | ET 246 | Introduction to Computer Aided Design | 3 |
| | PHYS 110 | General Physics I | 4 |
| | COM 104 | Public Speaking | 3 |
| | AREA I | Humanities/Fine Arts | 3 |
| | PEGN | Physical Education | 1 |
| | FOURTH SEMESTER—18 hours | EE 101 | Fundamentals of Electronics and Electronics | 3 |
| | ET 242 | Production Drafting | 3 |
| | ET 281 | Statics and Strength of Materials | 3 |
| | ET 256 | Properties of Materials | 4 |
| | ET 246 | Introduction to Computer Aided Design | 3 |
| | ET 445 | Product Design and Development | 3 |
| | ET 447 | Industrial Design Studio | 2 |
| | PAPR 150 | Introduction to Graphic Arts | 3 |
| | FIFTH SEMESTER—16 hours | ECON 201 | Principles of Economics | 3 |
| | ET 250 | Plastics Properties and Processing | 3 |
| | ET 352 | Metal Casting | 3 |
| | ET 381 | Thermo-Fundamentals | 4 |
| | IE 328 | Quality Assurance and Control | 3 |
| | SIXTH SEMESTER—16 hours | IE 320 | Engineering Cost Analysis | 3 |
| | IE 326 | Operations Planning and Control | 3 |
| | ET 350 | Computer-Aided Manufacturing | 4 |
| | APPROVED ELECTIVE | | |
| | AREA II | Social/Behavioral Science | 3 |
| | SEVENTH SEMESTER—17 hours | ET 357 | Fabrication and Pressworking | 3 |
| | ME 375 | Experimental Stress Analysis | 3 |
| | ET 456 | Advanced Manufacturing Systems | 3 |
| | ET 483 | Project Design and Control | 3 |
| | APPROVED ELECTIVE | | |
| | AREA I | Humanities/Fine Arts | 4 |
| | * At least two of these courses must be at the 300-400 level. | |

**CAST METALS OPTION**

(136 hours)

Replaces ET 357 plus 9 hours of approved electives with:

| ET 353 | Physical Metallurgy I | 4 |
| ET 455 | Advanced Metal Casting | 3 |
| ET 452 | Die Casting | 3 |
| IE 300 | Co-op Internship (in Cast Metals Industry) | 3 |
### Wood Products Option (total hours for graduation—155)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 132</td>
<td>Wood Processing</td>
<td>3</td>
</tr>
<tr>
<td>ET 230</td>
<td>Machine Woodworking</td>
<td>3</td>
</tr>
<tr>
<td>ET 322</td>
<td>Wood Finishing</td>
<td>3</td>
</tr>
<tr>
<td>ET 432</td>
<td>Production Woodworking</td>
<td>3</td>
</tr>
</tbody>
</table>

### Plastics Option (total hours for graduation—155)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 131</td>
<td>Introduction to Building Practices</td>
<td>3</td>
</tr>
<tr>
<td>ET 350</td>
<td>Production Thermoplastic Processing</td>
<td>3</td>
</tr>
<tr>
<td>ET 450</td>
<td>Engineering Polymers and Composites</td>
<td>3</td>
</tr>
<tr>
<td>ET 451</td>
<td>Plastics Assembly and Testing</td>
<td>3</td>
</tr>
<tr>
<td>ET 459</td>
<td>Mold Design and Construction</td>
<td>3</td>
</tr>
</tbody>
</table>

### 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/or PHYS 106. 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ET 150</td>
<td>Introduction to Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ET 256</td>
<td>Properties of Materials</td>
<td>3</td>
</tr>
</tbody>
</table>

#### APPROVED ELECTIVES—6 hours

Select two (2) courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 100</td>
<td>Fundamentals of Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>EE 101</td>
<td>Fundamentals of Electronics and Machines</td>
<td>3</td>
</tr>
<tr>
<td>IE 250</td>
<td>Digital Logic</td>
<td>3</td>
</tr>
<tr>
<td>IE 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>IE 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
</tr>
<tr>
<td>ET 154</td>
<td>Machining Fundamentals</td>
<td>3</td>
</tr>
<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>
</tr>
</tbody>
</table>

### Engineering Technology Courses (ET)

#### Federal Aviation Administration written examination for private pilots.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 110</td>
<td>Aeroscience (3-0)</td>
<td>3 hrs. Fall</td>
</tr>
</tbody>
</table>

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 106 or taking concurrently. 

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 116</td>
<td>Aircraft Propellers (1-3)</td>
<td>2 hrs. Winter</td>
</tr>
</tbody>
</table>

Theory, operation, troubleshooting, and servicing of reciprocating and turbine engines. For students seeking the A and P license. Prerequisite: ET 110 or consent of department.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 117</td>
<td>Aircraft Reciprocating Powerplants (3-2)</td>
<td>4 hrs. Fall, Winter</td>
</tr>
</tbody>
</table>

Reciprocating aircraft engine principles, designs, and operations. Laboratory work includes disassembly and inspection of engines and components. Prerequisite: ET 110 or concurrent. 

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 118</td>
<td>Aircraft Structures (2-2)</td>
<td>3 hrs. Fall, Winter</td>
</tr>
</tbody>
</table>

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. 

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 119</td>
<td>Reciprocating Powerplant Overhaul (9-6)</td>
<td>2 hrs. Fall</td>
</tr>
</tbody>
</table>

Comprehensive laboratory study of aircraft reciprocating powerplants involving inspection, repair, and overhaul procedures for students seeking the A and P license. Prerequisite: ET 117. 

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 121</td>
<td>Automotive Chassis (2-3)</td>
<td>3 hrs. Fall, Winter</td>
</tr>
</tbody>
</table>

The design, operation, and service of automotive suspension, wheel alignment, steering, brakes, clutches, standard transmissions, drivelines, differentials, and air conditioning units. Laboratory work will involve disassembly, inspection, calculation of loads, and operation needed to restore to service. 

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 124</td>
<td>Automotive Engines (2-3)</td>
<td>3 hrs. Fall, Winter</td>
</tr>
</tbody>
</table>

The design, dynamic characteristics, elementary thermodynamics, and basic service techniques for automotive engines. Theory is supplemented by 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. 

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 131</td>
<td>Introduction to Building Practices (3-0)</td>
<td>3 hrs. Fall, Winter</td>
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</table>

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. 

<table>
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<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 132</td>
<td>Wood Processing (2-3)</td>
<td>3 hrs. Fall, Winter</td>
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</tbody>
</table>

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. 

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ET 141</td>
<td>Introduction to Technical Drawing (2-3)</td>
<td>3 hrs. Fall, Winter</td>
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</tbody>
</table>

Principles of graphic communication in engineering and technology. Topics include orthographic projection, sketching, engineering lettering, sections, dimensioning practices, auxiliary views, pictorial drawing (oblique and isometric), and charts and graphs. Students are expected to develop a basic degree of skill in each of these areas. Current ANSI standard practices are followed. 

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ET 142</td>
<td>Engineering Graphics (3-2)</td>
<td>3 hrs. Fall, Winter</td>
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</tbody>
</table>

Essentials of engineering graphics including technical drawing, applied geometry, orthographic projection, sections, dimensioning, tolerancing, threads and fasteners, weldments, detail and assembly drawing, charting, and basic elements of descriptive geometry. All work is according to most current ANSI drafting and dimensioning standards. Previous technical drawing is recommended. 

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 143</td>
<td>Industrial Design Studio (0-3)</td>
<td>1 hr. Fall, Winter</td>
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</table>

Industrial design methods, sketching and introduction to rendering. 

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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 144</td>
<td>Descriptive Geometry (2-3)</td>
<td>3 hrs. Winter</td>
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</tbody>
</table>

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. 

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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 147</td>
<td>Industrial Design Studio (0-3)</td>
<td>1 hr. Fall, Winter</td>
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</table>

Advanced sketching, rendering, introduction to model building. Prerequisite: ET 143. 

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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ET 150</td>
<td>Introduction to Manufacturing (3-0)</td>
<td>3 hrs. Fall, Winter</td>
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</tbody>
</table>

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. 

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</thead>
<tbody>
<tr>
<td>ET 152</td>
<td>General Metals (2-3)</td>
<td>3 hrs. Fall, Winter</td>
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Metalworking technology principles and practices. Includes cutting, joining, forming, fabricating, and finishing techniques. Prerequisite: ET 150. 

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</thead>
<tbody>
<tr>
<td>ET 154</td>
<td>Machining Fundamentals (2-3)</td>
<td>3 hrs. Fall, Winter</td>
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</tbody>
</table>

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. 

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 183</td>
<td>Principles of Auto Maintenance (2-0)</td>
<td>2 hrs. Fall, Winter</td>
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</tbody>
</table>

A course to help the consumer become aware of automobile maintenance which can help minimize the cost and maximize automobile dependability and service life. May not be applied toward graduation requirements in automotive curricula. 

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ET 190</td>
<td>Childhood/Adulthood Crafts and Adapted Techniques (2-3)</td>
<td>3 hrs. Fall, Winter</td>
</tr>
</tbody>
</table>

Studies of crafts with emphasis on elementary, special therapeutic, and recreational activities adapted toward graduation requirements in engineering and technology. 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 205 Aviation Safety (2-0)
2 hrs. Winter
Physiological and psychological factors relating to flight safety emphasizing cause and effect of airplane accidents and related problem-solving processes. Includes a systems approach to safety program development and management. Prerequisite: ET 110 or consent of department.

ET 213 Airframe Hydraulic, Pneumatic, and Auxiliary Systems (2-4)
4 hrs. Fall, Winter, Spring
Course 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. Fall, Winter
Major structural repair methods including procedures for metal, plastics, composites, and welded structures. Prerequisites: ET 118, ET 200.

ET 221 Automatic Transmissions (2-2)
3 hrs. Fall, Winter
Torque converters, pumps, controls, gear trains, and holding devices used in automatic transmissions. Emphasis will be placed on principles of design, 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 106.

ET 222 Fuels and Lubricants (2-2)
3 hrs. Fall, Winter
A study of petroleum products and their application to the fuel and lubricant requirements of automobiles and aircraft. Laboratory tests are conducted to ascertain octane requirements, octane numbers, viscosity, volatility, flash and fire point, grease penetration, API degree, and dropping point of greases. Prerequisite: CHEM 101 or CHEM 102 or CHEM 103.

ET 224 Automotive Fuel and Electrical Systems (3-4)
4 hrs. Fall, Winter
Theory and practice in diagnosing, adjusting and troubleshooting 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: EE 101.

ET 230 Machine Woodworking (2-3)
3 hrs. Fall, Winter
Project analysis and design including the development of process route sheets. Specifications and function of common woodworking machines, theory, and laboratory experiences in their safe operation. Prerequisite: ET 132.

ET 233 Building Codes (3-0)
3 hrs. Fall
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. Fall
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. Spring
Construction surveying, building layout and structural alignment. Includes route alignment, topographic surveys, earthwork volume surveys, and preparation of reports. Prerequisites: ET 141, IE 102, MATH 200.

ET 237 Concrete Construction and Masonry (2-3)
3 hrs. Spring
Design and control of concrete mixtures. Form design, control and concentration of concrete, and reinforced concrete problems are presented. 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 Finish (2-3)
3 hrs. Winter
Installation of interior wall, floor, and ceiling coverings, interior trim, cabinet construction, hanging doors, and working with plastic laminate is practiced. Also includes kitchen layout and design activities. Prerequisites: ET 230.

ET 241 Interior Design Graphics I (2-3)
3 hrs. Fall
Designed to acquaint the student with basic architectural office techniques and to develop a degree of skill in mechanically prepared, parallel, and angular perspective drawing, proportion in perspective sketching, sketching techniques, and shades and shadows in renderings. Prerequisite: ET 141.

ET 242 Production Drafting (2-3)
3 hrs. Fall, Winter
Engineering documentation as it relates to product development, the design and material specifications of components, manufacturing process considerations, geometric tolerancing, metrology, checking, standards, and family of parts processing. Emphasis will be placed on the role that CAD plays in the production process. Prerequisites: ET 142, ET 246, ET 154 or concurrent.

ET 243 Industrial Design Studio (0-3)
1 hr. Fall, Winter
Assimilation of market, manufacturing, and design information leading to presentation renderings and models. Prerequisite: ET 147.

ET 245 Design for Manufacturing (2-3)
3 hrs. Winter
Design procedures applied to product development. Consideration of function, materials, and design in ultimate product performance. An understanding of the team approach to product design and development in the manufacturing environment. Prerequisite: ET 150.

ET 246 Introduction to Computer-Aided Design (2-3)
3 hrs. Fall, Winter
Principles of computer graphics technology and its applications in CAD, systems hardware and software components, and CAD systems operation. An introduction to program structure and FORTRAN programming techniques for 2D software development. Prerequisites: ET 142, CS 105.

ET 247 Industrial Design Studio (0-3)
1 hr. Fall, Winter
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. Fall
Paraline 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 Plastic Properties and Processing (2-3)
3 hrs. Fall, Winter
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. Prerequisites: ET 150, CHEM 103.

ET 254 Advanced Machining (2-3)
3 hrs. Winter
Advanced theory and practice in the application of machine tool metalworking processes. Prerequisite: ET 154.

ET 258 Properties of Materials (3-3)
4 hrs. Fall, Winter, Spring
Relationship of chemical and physical properties of solids; internal structure and response to their environment. Prerequisites: CHEM 103, PHYS 108 or PHYS 110.

ET 280 Transportation in the United States (3-0)
3 hrs. Fall
A survey of transportation in the U.S. including ground, air, and sea transport systems. Historical origins, current status and problems, and alternatives for the future are discussed.

ET 281 Statics and Strength of Materials (4-0)
4 hrs. Fall, Winter, Spring
Forces on structures, moments, equilibrium, Stresses and deformations in axially-loaded members, torsion members and beams. Elementary design of structural members. Prerequisite: MATH 200.

ET 297 Elementary Flight I (0-3)
1 hr. Fall, Winter, Spring, Summer
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. Fall
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. Fall, Winter, Spring, Summer
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 (1-0)
1 hr. Fall, Winter
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. Fall, Winter, Spring, Summer
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 environments. Prerequisite: ET 301.
ENGINEERING TECHNOLOGY 203

ET 341 Interior Design Graphics II (2-3) 3 hrs. Winter
Study of angular and parallel perspective in interior design. Further emphasis is placed on shadows, shadows, and shadowlining in drawings rendered in pencil, ink, and color as they apply to client and commercial presentation drawings. Likelihood and design techniques are included. Introduction to computer aided planning. Prerequisite: ET 241.

ET 342 Machine Drafting (2-3) 3 hrs. Fall
Advanced study in the design and representation of machine components. Mechanical components for motion and power transmission are analyzed according to application and design constraints. CAD/CAM is incorporated at all phases of the design process. Prerequisites: ET 144, ET 242, ET 354.

ET 343 Industrial Design Studio (1-3) 2 hrs. Fall
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. Fall
Basic practices, standards, and components will be applied to tooling and considerations for group technology. Prerequisite: ET 342.

ET 346 Programming for Computer-Aided Design (2-3) 3 hrs. Winter
Software development for interactive CAD. Topics include the principles of display technologies, creating graphic entities, storing and retrieving object data, 3D graphic displays with transformations and hidden-line removal, and menu development and software documentation. Prerequisites: ET 246, CS 306.

ET 347 Industrial Design Studio (1-3) 2 hrs. Winter
Design and development of an industrial trade show with sketches, renderings and model. Presentation will include market and cost studies. Prerequisite: ET 247.

ET 348 Tool Design II (2-3) 3 hrs. Winter
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 350 Production Thermoplastic Processing (2-3) 3 hrs. Winter
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 Chemical Metallurgy (4-0) 4 hrs. Fall
Introduction to chemical thermodynamics, thermodynamic properties of the liquid and the solid states, extractive metallurgy, solidification of alloys, and electrochemistry. Prerequisites: ET 256, MATH 123.

ET 352 Metal Casting (2-3) 3 hrs. Fall, Winter, Spring
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. Winter
Introduction to the electron theory of metals, crystallography, and the defect structure of metals and their application to solid state diffusion, deformation and fracture, and oxidation and corrosion of metals.
Prerequisites: CHEM 101, CHEM 102, or CHEM 103; MATH 123 or MATH 200; PHYS 110.

ET 357 Fabrication and Pressworking (2-3)
3 hrs. Fall
Principles of design 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. Winter, Spring
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. Winter
Production methods and design using modern techniques of electron beam welding, inertia welding, and application of lasers for welding. Use of various protective enclosures, plasma arc welding, automated electronic welding, welding techniques. Prerequisites: ET 256, ET 281.

ET 381 Thermo-Fluid Dynamics (4-0)
4 hrs. Fall, Winter, Summer
Fundamentals of fluid mechanics, thermodynamics, and heat transfer using a unified approach. Prerequisites: ET 281, PHYS 110.

ET 382 Structural Theory and Design (3-0)
3 hrs. Winter
Design of beams, trusses, retaining walls, floor systems and columns in steel, reinforced concrete, and timber. Prerequisite: ET 281.

ET 387 CAD/CAM Fundamentals (2-3)
3 hrs.
Application of computer graphics to drafting and design, translation of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in EGR and MFT.)

ET 399 Field Experience
1-3 hrs. Fall, Winter, Spring, Summer
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.

ET 400 Aerodynamics and Flight Principles (2-0)
2 hrs. Winter
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 200, CS 106.

ET 402 Multi-Engine Flight (0-1.3)
1 hr. Fall, Winter, Spring, Summer
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.

ET 403 Flight Instruction Fundamentals (1-5)
3 hrs. Fall, Winter, Spring, Summer
A study of airplane performance skills, flight maneuvers, critical situations, and airplane type differences emphasizing instructional methods and techniques. Features flight instruction, solo flight practice, ground instruction, and actual teaching experience after certification.
Prerequisites: ET 205, ET 305, ET 400.

ET 404 Instrument Flight Instructing (1-1)
1 hr. Fall, Winter, Spring, Summer
Techniques of flight instruction applied to instrument flying. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument enroute procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Prerequisite: ET 403.

ET 405 Flight Operations Analysis (3-0)
3 hrs. Winter
Advanced flight 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.

ET 415 Aircraft Turbine Powerplants (3-3)
4 hrs. Fall, Inertia
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.

ET 416 Maintenance Regulations (2-0)
2 hrs. Fall
Regulatory impact on maintenance practices, legal considerations, specific requirements for licensing and certification of airmen, repair stations, and aircraft. Prerequisites: ET 312, ET 318.

ET 418 System Reliability and Maintainability (3-0)
3 hrs. Winter
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.

ET 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.

ET 421 Automotive Analysis (2-2)
3 hrs. Winter
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 355.

ET 432 Production Woodworking (2-3)
3 hrs. Fall
Prerequisite: ET 230.

ET 433 Specifications and Estimating (3-0)
3 hrs. Fall
Reading and interpretation of the contract documents for construction. Plans and specifications for a variety of structures will be utilized. Principles and theories of estimating, classifications of work and quantity survey techniques applied to different types of structures and projects will be covered. Estimating quantities and listing of work items in a standard quantity survey will be practiced. Computer application in construction estimating will be emphasized. Prerequisites: ET 335, ET 337, ET 339.

ET 434 Wood Technology (1-3)
2 hrs.
Wood and wood products as engineering materials in construction and manufacturing. Characteristics, methods of identification, and performance testing of structures. Prerequisite: Consent of department.

ET 435 Commercial Construction Methods (3-0)
3 hrs. Winter
An introduction to the principles and practices that are peculiar to heavy construction. Covers excavating equipment, cranes, dewatering, drainage, and paving. Elevation methods of commercial buildings will be studied. Structural steel frame practices, vertical transportation, curtainwalls, and membrane type roofs are included.
Prerequisites: ET 335, ET 362.

ET 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. Topics represent special needs of the participants. Prerequisite: Consent of department.

ET 437 Advanced Estimating and Bidding (3-0)
3 hrs. Winter
An analysis and determination of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for construction costs. Costs for equipment, labor materials, subcontracts, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed.
Prerequisite: ET 433.

ET 439 Scheduling and Project Management (3-0)
3 hrs. Winter
The planning and control of construction projects. Construction scheduling techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: ET 433, MGMT 200, MGMT 300.

ET 441 Residential Architectural Design (2-3)
3 hrs. Fall
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 141, ET 131.

ET 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.
ET 443 Commercial Architectural Design (2-3) 3 hrs. Spring  Experience in designing light commercial structures. Study of systems planning, traffic flow and area utilization, exterior design, structural analysis and material selection, site design and documentation. Prerequisite: ET 441.

ET 445 Product Design and Development (2-3) 3 hrs. Winter  The team approach to the design and development of a product with complete analysis and documentation. The final presentation will include a model and written and oral reports. Prerequisites: ET 242, ET 243, ET 256.

ET 446 CAD Applications (2-3) 3 hrs. Fall  Applications programming for computer graphics. Investigation of existing graphics packages and advanced software design. Development of program applications in each student's major area of interest. Prerequisite: ET 345.

ET 447 Industrial Design Studio (1-3) 2 hrs. Winter  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. Winter  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. Winter  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 452 Die Casting (2-3) 3 hrs. Winter  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. Winter, Spring  Installation, adjustment, and maintenance of equipment. Machinery monitoring, diagnostics, and maintenance systems. Prerequisite: Senior standing.

ET 454 Physical Metallurgy II (2-2) 3 hrs. Winter  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. Fall  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  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 Metal Fabrication (3-0) 3 hrs. Winter  Fundamentals of elasticity and plasticity theory and the mechanical forming methods and industrial processes of metal fabrication: rolling, forging, extrusion, and drawing. Prerequisites: ET 256, ET 281; MATH 200.

ET 458 Advanced Manufacturing Systems (3-0) 3 hrs. Winter  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 461 Metrology (2-3) 3 hrs. Winter  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 483 Project Design and Control (1-0) 1 hr. Fall  Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. Prerequisite: Senior status and Department approval.

ET 485 Senior Project (1-6) 3 hrs. Winter  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 487 Manufacturing Productivity Techniques (3-0) 3 hrs. Application of modern processes, principles of productive tooling and inspection methods to quality production. The impact of emerging materials on processing techniques, organization, and systems for automation.

ET 496 Topics in Engineering Technology 1-6 hrs. Fall, Winter, Spring, Summer  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. Fall, Winter, Spring, Summer  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 498 Studies in Engineering Technology 1-3 hrs. Fall, Winter, Spring, Summer  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

Kailash M. Befna, Chair  
Robert E. Boughner  
Asenal M. Genaidy  
Turan Gupta  
Abdelaziz Houshyar  
Bruce D. Fischer  
David M. Lyth  
Richard E. Munsterman  
Bob E. White  
Frank K. Wolf  
Robert M. Wygant  

**Adjunct Faculty**  
Joseph W. Petro  
Keith H. Edmondson  

**Affiliate Faculty**  
Brian L. Akers  
David M. Martin  

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.

### Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in such areas as manufacturing, product development, quality control, and maintenance management in major companies.

### Academic Advising

Students should contact the Industrial Engineering departmental adviser as early as possible. The adviser 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 adviser, curriculum committee, and department chair. The departmental adviser 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 and the student does not attend the first class meeting (lecture or lab), unless prior arrangements have been made with the instructor. Students not attending classes are responsible for processing drop slips with the Registration Office if fees are to be refunded. Prerequisites are designed to both increase the probability of successful completion of the course as well as to ensure 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, experience, and understanding in science, mathematics, humanities, and engineering so that graduates may find employment in production and service industries. This program is also a basis for graduate study. Industrial engineering involves the design, installation, and improvement of systems integrating people, materials, equipment, and energy; An industrial engineer might work in facilities planning and design, plant automation, quality assurance, plant safety, or employee/employer relations. Jobs are available in manufacturing and in service-related industries such as hotels, banks, food, transportation, and hospitals.

### Admission

1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section. The pre-engineering course requirements for this curriculum are in darker print in the schedule below.
2. Students seeking admission to this 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 requirements, all students must complete a sequence of six 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 "E", "I", 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 133 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

### First Semester—15 hours

| MATH 122 Calculus I | 4 |
| CHEM 101 OR 102 General Chemistry I | 4 |
| IE 102 Technical Communication | 3 |
| ET 142 Engineering Graphics | 3 |
| PEGN Physical Education | 1 |

### Second Semester—17 hours

| MATH 123 Calculus II | 4 |
| PHYS 210 Mechanics and Heat | 4 |
| IE 206 Engineering Computations | 2 |
| ACTY 201 Accounting Concepts and Applications | 3 |
| AREA I General Education* | 3 |
| PEGN Physical Education | 1 |

### Third Semester—18 hours

| MATH 272 Vector and Multivariate Calculus | 4 |
| PHYS 211 Electricity and Light | 4 |
| ECON 201 Principles of Economics | 3 |
| IE 261 Engineering Statistics | 3 |
| ME 253 Statics and Mechanics of Materials | 4 |

### Fourth Semester—17 hours

| PHYS 212 Introductory Modern Physics OR CHEM 120 General Chemistry II | 4 |
| IE 205 Work Design | 3 |
| IE 262 Probability for Engineers | 3 |
| EE 210 Circuit Analysis | 4 |
| ME 250 Materials Science I OR ME 258 Dynamics | 3 |

### Fifth Semester—17 hours

| MATH 374 Introduction to Linear Algebra and Differential Equations | 4 |
| IE 307 Computer Controlled Manufacturing Systems | 4 |
| IE 310 Engineering Economy | 3 |
| IE 316 Report Preparation | 3 |
| EE 211 Machines and Electrical Circuits | 3 |

### Sixth Semester—17 hours

| IE 308 Comp Controlled Manufacturing Design Lab | 2 |
| IE 311 Introduction to Operations Research | 3 |
| IE 318 Statistical Quality Control | 3 |
| ME 232 Thermodynamics I | 3 |
| IE Approved Elective** | 3 |
| AREA II General Education* | 3 |

### Seventh Semester—16 hours

| IE 410 Senior Seminar | 1 |
| IE 414 Material Handling and Facilities Design | 4 |
| IE 416 Operations Control in Industry | 4 |
| Approved Elective (Humanities, Fine Arts, Social Sciences, or Behavior Sciences)* | 3 |
| AREA IV General Education* | 4 |

### Eighth Semester—16 hours

| IE 402 Supervision of Industrial Operations OR IE 403 Industrial Labor Relations | 3 |
| IE 415 Senior Industrial Engineering Design Project | 4 |
| IE 430 Simulation Modeling and Analysis | 3 |
IE 442 Ergonomics .......................... 3
AREA I General Education* .............. 3
*At least two of these courses must be at the 300-400 level.
**See Departmental Adviser for a list of approved electives.

Manufacturing Administration

Bachelor of Science Degree

The Manufacturing Administration curriculum provides academic background in humanities, social sciences, communication, and technical subjects related 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. Employment may be in the general areas of manufacturing and service industries.

A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas* listed below:

CAD/CAM ................................. 3
Plastics ................................. 3
Metal Casting ........................... 3
Metal Working ............................ 3
IE Staff ................................. 3
Technical Sales .......................... 3
Small Business Management ............. 3
In addition, the student may also want to pursue an MBA in the Haworth College of Business by earning in:
Accountancy ............................. 3
Finance ................................. 3
Law ....................................... 3
General Business Management ......... 3
Marketing ............................... 3
Management ............................. 3
International Business ................. 3

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, 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.

First Semester—14 hours
MATH 111 Algebra II ...................... 3
CHEM 103 General Chemistry I ........ 4
IE 102 Technical Communication ...... 3
ET 150 Introduction to Manufacturing 3
PEGN 110 General Physics I ............ 4

Second Semester—16 hours
MATH 200 Calculus with Applications . 4
COM 170 Interpersonal Communication 3
ET 142 Engineering Graphics .......... 3
ECON 201 Principles of Economics .... 3
Free Elective ........................... 3

Third Semester—17 hours
MATH 260 Elementary Statistics ....... 4
PHYS 111 General Physics II .......... 4
CHEM 103 General Chemistry I ....... 4

Fourth Semester—14 hours
PHY 111 General Physics II .......... 4
ACTY 210 Principles of Accounting ... 3
PEGN 110 General Physics I .......... 4
Technical Elective* .................... 3
Free Elective ........................... 3

Fifth Semester—16 hours
IE 305 Work Analysis .................. 3
IE 320 Engineering Cost Analysis ...... 3
IE 326 Operations Planning and Control 3
IE 322 Safety in Industry ............ 3
ET 256 Properties of Materials ...... 4

Sixth Semester—16 hours
IE 328 Quality Assurance and Control .. 3
IE 316 Report Preparation ............. 3
FCL 340 Legal Environment .......... 3
Technical Elective* .................... 3
AREA I General Education** .......... 4

Seventh Semester—13 hours
IE 422 Conference Leadership .......... 3
IE 405 Senior MAD Design Project .... 4
Technical Elective* .................... 3
AREA IV General Education** ........ 4

Eighth Semester—16 hours
IE 402 Supervision of Industrial Operations 3
IE 403 Industrial Labor Relations ...... 3
IE 404 Plant Layout and Material Handling .. 4
Technical Elective* .................... 3
AREA I General Education** .......... 4

Spring Semester of Senior Year—6 hours
IE 420 Modern Industrial Practices .... 6

* See departmental adviser for a list of approved electives in each specialized area. Also see Technical Elective Requirements below.
** Specific coursework must be approved by the appropriate Haworth College of Business adviser.
*** 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 Adviser 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. Fall
Principles of objective presentation of factual material, logical organization, summarization, ethical practices, information gathering techniques, oral communication, and listening through practical applications.

IE 205 Work Design (2-3) 3 hrs. Fall
Design of jobs and working environments in business and industry. Topics include techniques for job design, human factors, engineering, work measurement, and economic analysis. A semester project requiring the design of a work station is required. Prerequisite: MATH 123.

IE 206 Engineering Computations (2-0) 2 hrs. Winter
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. Winter
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 292 Probability for Engineers (3-0) 3 hrs. Winter
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. Fall, Winter, Spring, Summer
A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student’s activities will be required. May be elected for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

IE 305 Work Analysis (3-0) 3 hrs. Fall, Winter, Spring
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. Fall
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 (0-0) 2 hrs. Winter
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. Fall, Winter, Spring
Application of principles of engineering economy for establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk costs, and replacement models. Prerequisites: CS 106 or CS 306 or IE 206, MATH 123.
IE 311 Introduction to Operations Research (3-0)
3 hrs. Winter
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. Fall, Winter
Learning techniques and procedures for preparation of technical documents. Intensiﬁcation of 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. Winter
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. Fall, Winter
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. Fall, Winter, Spring
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. Fall, Winter
Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisites: MATH 216 or MATH 260 or MATH 366.

IE 328 Quality Assurance and Control (3-0)
3 hrs. Fall, Winter, Spring, or Summer
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 402 Supervision of Industrial Operations (3-0)
3 hrs. Fall, Winter, Spring
Supervisory duties and responsibilities of foremen, engineers, and technicians in industrial operations. Prerequisite: Junior standing.

IE 403 Industrial Labor Relations (3-0)
3 hrs. Fall, Spring or Summer
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. Winter
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 industrial engineering courses. NOT FOR ENGINEERING CREDIT. Prerequisites: IE 305, IE 326, senior standing.

IE 405 Senior MAD Design Project (2-6)
4 hrs. Fall, Winter
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. Fall
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. Fall
Methodology for planning and designing manufacturing and 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. Fall, Winter
Student project teams will be assigned system design problems with participating southwestern Michigan ﬁrms. Each team will design a solution to the problem and be responsible for writing a justiﬁcation for their design proposal, and will make a formal oral presentation to representatives of the client ﬁrm. Prerequisite: IE 414.

IE 416 Operations Control in Industry (3-3)
4 hrs. Fall
The function of production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IE 206, IE 261, IE 262.

IE 420 Modern Industrial Practices (4-6)
6 hrs. Spring
Students will observe and analyze actual supervisory and managerial functions in industrial and service establishments. Conference and project procedures will be included 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. Fall, Winter
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. Winter
Use of computer simulation as a modeling tool, with emphasis on discrete-event simulation. Both FORTRAN based simulation languages and GPSS are used. Statistical analysis of both input data and simulation results. Prerequisites: IE 206, IE 262.

IE 442 Ergonomics (2-3)
3 hrs. Winter
Design of industrial tasks with respect to physiological, anatomical, biomechanical, and psychological capabilities. Emphasis is placed on health and safety. A design project is required. Prerequisites: IE 205, IE 261, IE 316.

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. Fall, Winter, Spring, Summer
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. Fall, Winter, Spring
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. Fall, Winter, Spring, Summer
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. Fall, Winter, Spring, Summer
Independent study 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. Winter
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. Spring
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. Spring
Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with
MECHANICAL ENGINEERING

M. Jerry Kenig, Chair
Judah Ari-Gur
Christopher S.K. Cho
Jay Easwaran
Meshulam Groper
Philip J. Gucheleer
Jerry H. Hamelin
Jerome H. Hemmye
Raymond N. House, Jr.
James B. Matthews
Iskender Sahin
Richard C. Schubert
Rameshwar P. Sharma
William J. Stiefel, III
Jay Easwaran
Jerome H. Hemmye
Iskender Sahin
Raymond N. House, Jr.
James B. Matthews
Richard C. Schubert
Rameshwar P. Sharma
Molly W. Williams

Adjunct Faculty
Phina Ari-Gur

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 mechanical 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 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 adviser as early as possible. Advisers 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 adviser, the curriculum committee, and the department chair. The academic advisers are located in Room 2038, 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, Duramettric 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 scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.
- Mechanical Engineering Presidential Scholar Award—presented to an outstanding mechanical engineering student who is selected using University-wide criteria which includes senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which mechanical engineers may be found.

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 of six credit hours in the
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 Manufacturing Productivity (3-3) 4 hrs. Fall, Winter, Spring
Design, fabrication, and analysis of production tools. Computer applications to cost estimation, manufacturing, and the fundamentals of robotics. Prerequisites: CS 106, ET142.

ME 232 Thermodynamics I (3-0) 3 hrs. Fall, Winter, Spring
Fundamental laws of classical thermodynamics including ideal and non-ideal processes. Applications are studied in relationship to the traditional thermodynamic cycles and to alternate energy systems such as solar and wind energy. Prerequisites: MATH 123, PHYS 210.

ME 250 Material Science I (2-3) 3 hrs. Fall, Winter
First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics are developed and used in the selection of materials for various design requirements. Prerequisites: CHEM 101 or 102, MATH 122.

ME 253 Statics and Mechanics of Materials (4-0) 4 hrs. Fall, Winter
Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and buckling. (Not for students required to take ME 257).
Prerequisites: ME 232, ME 257, ME 362, and writing requirement.

ME 255 Dynamics (3-0) 3 hrs. Fall, Winter, Spring
Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moments of inertia and friction. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and buckling. (Not for students required to take ME 257).
Prerequisites: ME 123, CS 106.

ME 256 Fluid Mechanics (3-0) 3 hrs. Fall, Winter, Spring
Analysis of fluid systems and problems involving compressible and incompressible fluids, turbulent and laminar flows, subsonic and supersonic flows are covered. Pipe systems, flow orifices, and open channels. (Credit may not be earned in both ME 356 and ET 381.)
Prerequisites: ME 258, MATH 374.

ME 258 Mechanism Analysis (3-0) 3 hrs. Fall, Winter
Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications. Prerequisite: ME 258.

ME 259 Dynamics of Machinery (3-0) 3 hrs. Fall, Winter
Analysis of static, dynamic, and combined forces in the design of machines. Balancing of machines including multicylinder engines. Gyroscopic forces. Computer applications. Prerequisite: ME 358.

ME 260 Control Systems (3-0) 3 hrs. Fall, Winter, Spring
Theory and analysis of linear closed-loop control systems containing electronic, hydraulic, and mechanical components. Differential equations. LaPlace transforms,
Nyquist and Bode diagrams are covered. Prerequisites: ME 258, MATH 374, EE 211.

**ME 382 Theory of Engineering Experimentation (3-0)**
3 hrs. Fall, Winter, Spring
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. Fall, Winter, Spring
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 358 may be taken concurrently.)

**ME 375 Experimental Stress Analysis (2-3)**
3 hrs. Winter
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 281, ET 256.

**ME 434 Internal Transfer (3-0)**
3 hrs. Fall, Winter, Summer
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. Fall, Winter
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. Fall
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. Fall, Winter, Spring
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. Fall, Winter, Spring
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 Laboratory (1-3)**
2 hrs. Fall, Winter, Spring
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 365.

**ME 439 Mechanical Systems Laboratory (1-3)**
2 hrs. Fall, Winter, Spring
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 440 Computer Applications in Engineering (3-0)**
3 hrs. Fall
Application of computer methods in the solution of engineering problems. Methods covered include finite difference, finite element, and polynomial curve fitting. Prerequisite: Engineering student with senior class standing and knowledge of FORTRAN computer programming or consent of department.

**ME 451 Design of Solar Systems (3-0)**
3 hrs. Winter
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 452 Machine Design II (2-3)**
3 hrs. Fall, Winter, Spring
The application of mechanical engineering concepts to the mechanical synthesis process. Computer-aided design, computer modeling, and optimization applied to the synthesis of a system. Prerequisites: ME 362, ME 365.

**ME 454 Air Pollution Control Systems (3-0)**
3 hrs. Winter—Odd Years
The nature of air pollution and the methods of monitoring and controlling emissions, sampling and analysis techniques and devices are studied. Prerequisites: PAPR 261 or equivalent.

**ME 459 Mechanical Engineering Project Planning (1 hr. Fall, Winter, Spring)**
Selection of a design project to meet the Mechanical Engineering Department 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 453 or ME 438. Concurrent enrollment in ME 453 or ME 438 will be allowed.

**ME 460 Mechanical Engineering Project (1-6)**
3 hrs. Fall, Winter. Course may be taken in the Spring with approval of Department Chair. 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, ME 438, ME 437, admission to the Mechanical Engineering program.

**ME 490 Independent Research and Development (1-4)**
1-4 hrs. Fall, Winter, Spring
Individual research or special project. Available only by special arrangement with an instructor and approval by the department chair. Prerequisite: Consent of department.

**ME 495 Topics in Mechanical Engineering: Variable Topics (1-4)**
1-4 hrs. Fall, Winter, Spring, Summer
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 Readings (1-6)**
1-6 hrs. Fall, Winter, Spring, Summer
An independent studies assignment, the description and purpose of which will be set forth on a form available at the department office. Prerequisite: Consent of department.

**ME 499 Independent Studies (1-6)**
1-6 hrs. Fall, Winter, Spring, Summer
An independent studies assignment available only by special arrangement with an instructor and approved by the department chair. Prerequisite: Consent of department.

**ME 531 Energy Management (3-0)**
3 hrs. Winter
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisites: ME 360, ME 453.

**ME 558 Mechanical Vibrations (3-0)**
3 hrs. Winter
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 hrs. Winter) Static and dynamic force analysis of mechanisms such as linkages, cams, and shafts; dynamics of reciprocating engines, balancing, and spatial mechanisms. Prerequisite: ME 358.**

**ME 560 Engineering Analysis (3-0)**
3 hrs. Fall
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 hrs. Winter)**
Basic concepts of 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 hrs. Winter)**
Finite difference methods for initial value and boundary value problems 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics. Prerequisite: MATH 506 or equivalent.

**ME 571 Gas Dynamics (3 hrs. Winter)**
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 hrs. Winter)**
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. Spring—Even Years
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.

First Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 122 Calculus I</td>
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<tr>
<td>CHEM 101 General Chemistry I</td>
<td>4</td>
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<td>OR</td>
<td></td>
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<tr>
<td>CHEM 102 General Chemistry I</td>
<td>4</td>
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<tr>
<td>PAPR 100 Introduction to Pulp and Paper Manufacturing</td>
<td>3</td>
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<tr>
<td>CS 106 BASIC for Engineers</td>
<td>1</td>
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<td>AREA I General Education*</td>
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<td>PEGN Physical Education</td>
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Second Semester—16 hours

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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 123 Calculus II</td>
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<td>CHEM 120 General Chemistry II</td>
<td>4</td>
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<tr>
<td>PAPR 101 Lab Problems in Pulp and Paper Manufacturing</td>
<td>4</td>
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<tr>
<td>IE 102 Technical Communication</td>
<td>3</td>
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<tr>
<td>ECON 201 Principles of Economics</td>
<td>3</td>
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<td>PEGN Physical Education</td>
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Third Semester—18 hours

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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IE 261 Engineering Statistics</td>
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<td>PHYS 210 Mechanics and Heat</td>
<td>4</td>
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<tr>
<td>PAPR 203 Pulp Manufacture</td>
<td>4</td>
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<tr>
<td>CHEM 222 Quantitative Analysis</td>
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<td>AREA I General Education*</td>
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Fourth Semester—18 hours

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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 272 Vector and Multivariate Calculus</td>
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<tr>
<td>PHYS 211 Electricity and Light</td>
<td>4</td>
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<tr>
<td>PAPR 204 Paper Manufacture</td>
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<tr>
<td>PAPR 261 Industrial Environmental Engineering</td>
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Fifth Semester—16 hours

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<tr>
<td>PAPR 305 Mechanics and Optics of Fiber Systems</td>
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<tr>
<td>PAPR 306 Process Engineering I</td>
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<tr>
<td>PAPR 333 Chemistry of Wood and Pulp</td>
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<tr>
<td>CHEM 360 Organic Chemistry I</td>
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<td>PAPR 440 Current Topics in Paper and Pulp</td>
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<td>PAPR 352 Fiber Resource Conservation and Recycling</td>
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<tr>
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Seventh Semester—17 hours

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<td>MATH 374 Introduction to Linear Algebra and Differential Equations</td>
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<td>PAPR 340 Converting Processes</td>
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<tr>
<td>PAPR 470 Senior Thesis I</td>
<td>2</td>
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<tr>
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Eighth Semester—18 hours

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<tr>
<td>PAPR 360 Printing Processes</td>
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<tr>
<td>PAPR 430 Polymer and Surface Chemistry</td>
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<tr>
<td>PAPR 471 Senior Thesis II</td>
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<tr>
<td>CHEM 431 Physical Chemistry II</td>
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<tr>
<td>CHEM 436 Physical Chemistry Lab</td>
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<td>Technical Elective**</td>
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* At least two of these courses must be at the 300-400 level.
** Technical-Professional Electives—5 hours

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.

Work Experience

Industrial experience in the programs is encouraged through employment by paper, printing or related companies for at least one of the three summers, as well as through employment in the outstanding pilot plants of the department. An extensive recycled fiber pilot plant is also available. The pilot plants and laboratory facilities are among the best in the world.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found in the beginning of the College of Engineering and Applied Sciences' section of the catalog.

A minor in paper science may be earned by completing the following 19 semester hours of departmental courses: PAPR 100, PAPR 101, PAPR 203, PAPR 204, PAPR 340 and PAPR 342.

Paper Science

Bachelor of Science Degree

Requirements

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements 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.

First Semester—16 hours

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<td>CHEM 101 General Chemistry I</td>
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<td>OR</td>
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<tr>
<td>CHEM 102 General Chemistry I</td>
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<tr>
<td>PAPR 100 Introduction to Pulp and Paper Manufacturing</td>
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<tr>
<td>CS 106 BASIC for Engineers</td>
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<td>AREA I General Education*</td>
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<tr>
<td>MATH 123 Calculus II</td>
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<td>CHEM 120 General Chemistry II</td>
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<tr>
<td>PAPR 101 Lab Problems in Pulp and Paper Manufacturing</td>
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<tr>
<td>IE 102 Technical Communication</td>
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<td>ECON 201 Principles of Economics</td>
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<tr>
<td>IE 261 Engineering Statistics</td>
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<td>PHYS 210 Mechanics and Heat</td>
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<tr>
<td>PAPR 203 Pulp Manufacture</td>
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<tr>
<td>CHEM 222 Quantitative Analysis</td>
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</table>

* At least two of these courses must be at the 300-400 level.
** Technical-Professional Electives—5 hours

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 the curriculum are in dark print in the schedule below.

2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Paper Engineering Program Requirements

Candidates for the Bachelor of Science in Engineering (paper) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences). The sequence must 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. Students must earn a "C" or better grade in PAPR 203, 204, 261 and 306.

3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

4. Complete the following program of 136 semester credit hours which includes the courses in one of the following elective sequences: Pulp and Paper Processes or Environmental Processes. One sequence must be elected and taken in its entirety. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.
## PAPER AND PRINTING SCIENCE AND ENGINEERING 213

### 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

### Second Semester—16 hours
- **CHEM 120 General Chemistry II** 4
- **CS 106 BASIC for Engineers** 1
- **PEGN Physical Education** 1

### Third Semester—18 hours
- **MATH 123 Calculus II** 4
- **IE 102 Technical Communication** 3
- **AREA I General Education** 3
- **AREA II General Education** 3

### Fourth Semester—18 hours
- **PULP AND PAPER PROCESSES** 18 hours
  - **CHEM 103 General Chemistry** 4
  - **CS 105 Introduction to Computers** 3
  - **ENGL 105 Recommended** 3

### Fifth Semester—16 hours
- **ECON 201 Principles of Economics** 3
- **PHYS 211 Electricity and Light** 4
- **PAPR 450 Solid Waste Treatment** 3
- **AREA III General Education** 3

### Sixth Semester—17 hours
- **MATH 216 Business Statistics** 3
- **PAPR 250 Lithographic Presswork** 3
- **PAPR 251 Computer Typesetting** 3
- **PAPR 256 Introduction to Gravure** 3

### Seventh Semester
- **PAPR 310 Science/Engineering Experience** 1
- **PAPR 340 Converting Processes** 3
- **PAPR 472 Senior Engineering Problem I** 2
- **AREA I General Education** 3

### Eighth Semester
- **PAPR 350 Marketing Research** 3
- **PAPR 374 Advertising** 3
- **PAPR 462 Application of Control** 3
- **AREA II General Education** 4

### 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.

**MARKETING OPTION**

- **First Semester—17 hours**
  - **MATH 116 Finite Mathematics** 3
  - **PAPR 150 Introduction to Graphic Arts** 3
  - **PAPR 157 Line and Halftone Photography** 3
- **SECONDARY ELECTIVES**
  - **AREA I General Education** 3
  - **AREA II General Education** 3
  - **PEGN Physical Education** 1

**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
- **SECONDARY ELECTIVES**
  - **AREA I General Education** 3
  - **AREA II General Education** 3
  - **PEGN Physical Education** 1
Second Semester—16 hours
CHEM 103 General Chemistry I............................................. 4
PAPR 253 Imaging ..................................................................... 3
BIS 102 Introduction to Information Processing ................... 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

Fourth Semester—16 hours
PAPR 357 Color Separation Processes ...................................... 3
ACTY 201 Accounting Concepts and Applications ..................... 3
IE 305 Work Analysis ............................................................ 3
PAPR 350 Introduction to Graphic Arts ...................................... 2

Fifth Semester—15 hours
PAPR 160 Introduction to Industrial Environmental Control ......... 3
PAPR 340 Converting Processes .............................................. 3
PAPR 352 Estimating .............................................................. 3
MGMT 350 Fundamentals of Management ............................... 3
IE 326 Operations Planning 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

Seventh Semester—17 hours
PAPR 359 Gravure Presswork ................................................ 3
PAPR 466 Printing Production Management ............................. 3
IE 403 Industrial Labor Relations ............................................ 3
AREA II General Education ................................................... 3
AREA IV General Education .................................................. 3

Eighth Semester—14 hours
PAPR 358 Flexographic Presswork ........................................ 3
PAPR 454 Advanced Lithographic Technology ......................... 3
IE 322 Safety in Industry ...................................................... 3
Approved Elective .................................................................. 2
General Education Elective .................................................... 3
* Where judged appropriate by the department, an approved replacement course for PAPR 150 will be used.
** At least two of these courses must be at the 300-400 level.
*** Elective to be selected with the approval of the Printing curriculum advisor.

Paper and Printing Science and Engineering Courses (PAPR)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

PAPR 100 Introduction to Pulp and Paper Manufacture (2-3) 
3 hrs. Fall
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. Prerequisites: High school chemistry, CHEM 101 or CHEM 102 concurrent.

PAPR 101 Laboratory Problems in Pulp and Paper Manufacture (Arr.)
1 hr. Winter
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.

PAPR 102 Introduction to Pulp and Paper Manufacture (2-0)
2 hrs. Fall
A lecture 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. (Credit may not be earned in PAPR 102 by paper science and engineering department majors.) Prerequisite: High school chemistry, CHEM 101 or CHEM 102 concurrent.

PAPR 150 Introduction to Gravure Arts (2-3) 
3 hrs. Fall, Winter, Spring
An introductory course describing the printing industry. Work is undertaken in copy preparation, composition, photocopy, presswork, and bindery. A comparison of all printing methods will be included. Lithography and screen process printing will be stressed.

PAPR 151 Typographic Layout and Design (2-3) 
3 hrs. Fall
The principles of design and typography are studied and applied to the completion of a printed job. Practical experience in the elements of design, tools, and methods used by the graphic artist are included. Prerequisite: PAPR 150 concurrent.

PAPR 157 Line and Halftone Photography (2-3) 
3 hrs. Fall
The fundamentals of black and white reproduction photography will be stressed. Line and halftone information and laboratory experience will include photosensitive materials, lenses and light, copy selection and preparation, camera and processing techniques, densitometry and exposure calculation devices. Prerequisite: PAPR 150.

PAPR 160 Introduction to Industrial Environmental Control (3-0) 
3 hrs. Winter
Designed for non-science majors to present the major concepts and tools of environmental control as they relate to industrial and municipal air, water, and solid waste problems. Topics covered include the nature and effects of pollution, reduction of effluents, processes of treatment, measuring of characteristics, governmental regulations, and economics.

PAPR 203 Pulp Manufacture (3-3, Alternate Weeks) 
4 hrs. Fall
An advanced study of the processes involved in the production of paper-making fibers. Areas covered include wood yard operations, pulping, bleaching, stock preparation, chemical recovery, and alternate fiber sources. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises and field trips. Prerequisites: PAPR 100 or PAPR 354, CHEM 101 or CHEM 102.

PAPR 204 Paper Manufacture (3-3, Alternate Weeks) 
4 hrs. Winter
An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, fourdriner and multi-ply operation, pressing and drying. Internal and surface treatment of the paper is discussed along with the effects of additives and fiber types. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises, pilot plant operation, and field trips. Prerequisite: PAPR 100.

PAPR 250 Lithographic Presswork (2-3) 
3 hrs. Fall, Winter
Experience will be given on basic offset equipment regarding lithographic principles, press operations, mechanical adjustments, simple chemical reactions, as well as the advantages and disadvantages of lithography. Other areas to be studied are multi-color processes,inks, and papers. Prerequisite: PAPR 150.

PAPR 251 Computer Typesetting (2-3) 
3 hrs. Fall, Winter
A study of computerized typesetting. Advantages, limitations, and operations of photo composition methods and equipment will be stressed. Economic and planning implications of the composition area will also be explored. Prerequisites: PAPR 150, BIS 102, or CS 105.

PAPR 253 Imaging (3-3) 
3 hrs. Winter
Emphasis will be placed on determining correct page impositions. Register requirements, step and repeat procedures, color stripping, proofing and other related skills will be covered. Lithographic platemaking and processes will be emphasized. Prerequisite: PAPR 157.

PAPR 255 Introduction to Flexography (3-0) 
3 hrs. Winter
A study of the flexographic printing process focusing on the process, application, technology, and hardware. Prerequisite: PAPR 150.

PAPR 259 Introduction to Gravure Printing (3-0) 
3 hrs. Fall
A study of gravure printing focusing on the process, application, technology, and hardware. Prerequisite: PAPR 150.

PAPR 261 Industrial Environmental Engineering (3-0) 
3 hrs. Winter
The effects, regulations, and control processes for gas, liquid, and solid by-products of industries and municipalities are discussed. Legal and economic implications will be included in evaluation of applicable emission reduction and control techniques or processes. Prerequisites: CHEM 101 or CHEM 102, PHYS 210.

PAPR 306 Paper Physics (3-3) 
4 hrs. Fall
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. Fall
Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of gases, liquids and solids, thermochemistry, 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 210.

PAPR 307 Process Engineering II (3-3)
4 hrs. Winter
A continuation of 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. Fall
Full-time employment in a pulp, paper, printing, or related industry that provides first-hand experience in a job capacity directly related to the student's major. A written report is required. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing.

PAPR 333 Chemistry of Wood and Pulp (3-0)
3 hrs. Fall
Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, accessory carbohydrates, extractives, and spent liquor utilization. Prerequisite: PAPR 203.

PAPR 340 Converting Processes (2-3)
3 hrs. Fall
Covers 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 plant. Laboratory time will be devoted to converting plant visits and evaluation techniques. Prerequisite: PAPR 204.

PAPR 342 Coating Processes (3-3)
4 hrs. Winter
A lecture/lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphic arts will also be covered. Prerequisite: PAPR 305.

PAPR 350 Water Quality and Microbiology (2-3)
3 hrs. Fall
A study of the physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. Prerequisite: CHEM 101 or CHEM 102.

PAPR 351 Water Quality and Microbiology (2-0)
2 hrs. Fall
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. Winter
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. Winter
A study of the fundamental principles, design considerations, and use of the unit processes and operations employed in waste water treatment. Physical, physicochemical, and biological treatments are considered. Prerequisite: PAPR 350.

PAPR 354 Paper Industry Processes (2-3)
3 hrs. Winter
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. Winter
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. Winter
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. Fall
This lecture/lab course will emphasize traditional cylinder manufacturing, proofing and gravure press operation. Press components, register controls, ink variables, doctor blades, and electrost will be stressed. Prerequisite: PAPR 259.

PAPR 360 Printing Processes (1-3)
2 hrs. Winter
A course designed to provide Paper Science and Engineering students with a working knowledge of the various printing processes and their related printing performance factors of paper. Prerequisite: PAS or PAE majors only.

PAPR 362 Estimating (3-0)
3 hrs. Fall
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. Fall, Winter
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 adviser. Prerequisite: Junior standing.

PAPR 430 Polymer and Surface Chemistry (3-0)
3 hrs. Winter
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 385.

PAPR 440 Current Topics in Pulp and Paper (1-5-0)
1 hr. Fall, Winter
This course will be handled on a seminar basis using guest speakers, University staff, and students. Its purpose is to add depth and breadth to the background of students. Concurrent registration in five of the following courses: 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. Fall-odd Years
The practice, technology, and economics of the treatment of solid wastes generated by municipal and industrial sources are studied. Discussion will include treatment, disposal, in-process utilization, and conversion to useful by-products for solid and semi-solids wastes. Prerequisite: Junior standing.

PAPR 451 Air Pollution Control (2-3)
3 hrs. Fall-Even year
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. Winter
Provides the student with practical problems in press setup. Emphasizes plate imaging, register controls, inks, substrates, and litho press systems. Folding and tab systems are also included. Prerequisites: PAPR 250, CHEM 103.

PAPR 460 Pulp and Paper Process Design (3-3)
4 hrs. Winter
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 307.

PAPR 462 Computer Estimating (2-0)
2 hrs. Winter
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. Fall
Managerial procedures used in printing industries to forecast, price, 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 (0-4-0 Min.)
2 hrs. Fall, Winter
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 adviser 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. Fall, Winter
A continuation of PAPR 470, including completion of laboratory work and preparation of a final formal report. An 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. Fall, Winter
This course is intended to increase the ability of an engineering student to analyze and solve a design problem. An individual adviser 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. Prerequisite: PAPR 470.

PAPR 473 Senior Engineering Problem II (0-6 Min.)
3 hrs. Fall, Winter
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 470.

PAPR 481 Instrumentation and Process Control (3-0)
3 hrs. Fall
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. Winter
The use of instrument systems and digital computers to control pulping and papermaking processes. Deals with the design of combination control processes, digital computer components, and computer control strategies in the paper industry. Prerequisite: PAPR 481.

PAPR 496 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.
Fall, Winter, Spring, Summer
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.

VOCATIONAL EDUCATION

Jack T. Humbert, Coordinator

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, distributive 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 the Department of Consumer Resources and Technology section.

Vocational Advising

An adviser is available to assist in individual program planning, recommend 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 departmental vocational advisers. Vocational advisers by area are:

MAJORS

Secondary Education in Marketing
Home Economics
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

MINORS

Distributive Education
Occupational Foods
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 adviser at 383-3962.

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 an internship or work experience)
   CRT 130 Food Distribution Industry 3
   CRT 135 Introduction to Petroleum Industry 3
   ECON 201 Principles of Economics (Micro) 3
   ACTY 210 Principles of Accounting 3
   CRT 270 Professional Selling 3

2. Home Economics Education—36 hours
   CRT 209 Consumer Education 3
   CRT 214 Human Growth and Development 3
   CRT 260 Nutrition 3
   CRT 415 Effective Parenting 3
   VE 542 Occupational Education 3
   CRT Electives (adviser planned) 22

3. Vocational Technical—30 hours
   Technical course sequence is planned in consultation with an adviser in one of the following areas: drafting, graphic arts, metalworking, power/auto, woodworking. (4,000 work hours required; may necessitate internship or work experience)

D. TEACHABLE MINOR—20 hours

E. PROFESSIONAL VOCATIONAL EDUCATION—12 hours
   VE 342 Course Planning and Construction 3
   VE 344 Teaching Practical Arts and Vocational Education 3
   VE 512 Principles of Vocational Education 3
   VE 543 Coordination Techniques in Cooperative Education 3

F. PROFESSIONAL TEACHER EDUCATION—20 hours
   CRT 214 Human Growth and Development 3
   ED 301 Teaching and Learning (Secondary) 3
   ED 322 The Teaching of Reading (Secondary) 3
   ED 410 Seminar in Education 2
   ED 475 Directed Teaching (Secondary) 9

G. ELECTIVES—Based on MAJOR SEQUENCE requirements

H. PHYSICAL EDUCATION—2 hours

Vocational Minors

SECONDARY EDUCATION IN MARKETING—24 hours
(4,000 work hours required; may necessitate an internship or work experience)
   CRT 130 Food Distribution Industry 3
   CRT 135 Introduction to Petroleum Industry 3
   CRT 320 Visual Merchandising 3
   MKTG 370 Marketing 3
   MKTG 374 Advertising 3
   VE 342 Course Planning and Construction CR
   VE 344 Teaching Practical Arts and Vocational Education 3
   VE 512 Principles of Vocational Education 3
   VE 543 Coordination Techniques in Cooperative Education 3

FOOD OCCUPATIONS—24 hours
See Food Occupations Minor adviser in the Department of Consumer Resources and Technology in the College of Engineering and Applied Sciences for course requirements and work hours required.
See the appropriate adviser 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 foregoing vocational minor sequences in consultation with the appropriate adviser.

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.

VE 543 Coordination Techniques in Cooperative Education (3-0)
3 hrs. Winter
This is a study of duties and responsibilities of the teacher-coordinator. The organization and establishment of training programs, supervision of trainees on the job, development of individual training programs, establishing working relationships between school, business, and home, and participation in activities in the community, especially adapted to prospective coordinators.
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
- 520 Independent Study in Art History
- 521 Topics in Art History
- 581 History of Ancient Art
- 583 History of Medieval Art
- 585 History of Renaissance Art

**MUSIC**

**DANCE**

**THEATRE**

**THEATRE**—17 hrs.
- THEA 272 Music Theatre History (3)
- THEA 372 Music Theatre Script Analysis and Critique (Prereq: Adviser consent) (3)
- MUS 395 Performance Development and Technique (Prereq: Adviser consent) (3)
- DANC 495 Performance Workshop (Prereq: MUS 395, 4 semesters, 2 hrs. ea.) (6)

**REQUIRED COURSES IN MUSIC**

**THEATRE**—10 hrs.
- DANC 101 Beginning Ballet I (1)
- DANC 102 Beginning Jazz I (1)
- DANC 103 Beginning Modern I (must take fall semester of freshman year) (1)
- DANC 104 Beginning Tap I (1)
- DANC 106 Recreational Dance (1)
- DANC 111 Beginning Ballet II (Prereq: DANC 101) (1)

**INTERDISCIPLINARY PROGRAM**

**Music Theatre Performer**

Bachelors of Fine Arts Degree
81 credit hours

**REQUIRED COURSES IN DANCE**
- 272 Music Theatre History (3)
- 372 Music Theatre Script Analysis and Critique (Prereq: Adviser consent) (3)
- 395 Performance Development and Technique (Prereq: Adviser consent) (3)
- 495 Performance Workshop (Prereq: MUS 395, 4 semesters, 2 hrs. ea.) (6)

**REQUIRED COURSES IN THEATRE**
- 101 Beginning Ballet I (1)
- 102 Beginning Jazz I (1)
- 103 Beginning Modern I (must take fall semester of freshman year) (1)
- 104 Beginning Tap I (1)
- 106 Recreational Dance (1)
- 111 Beginning Ballet II (Prereq: DANC 101) (1)
ART

Phillip Vander Weg Chair
Jenny Abramson
T.D. Argyropoulos
John M Carney
Joseph V. DeLuca
Kathryn Field
Jordan G. Grinwis
Edward Hardness
Tricia Hennessy
Richard J. Keaveny
Donald E. King
John Link
Paul S. Mergen
John M. Methaney
Bruce Nafetl
Mary Eleanor Neale
Barbara Renshousen
Curtis A. Rhodes
John Riepen
Louis B.M. Rizzolo
Paul A. Robbert

The Department of Art offers many programs with various purposes and objectives. These are described under the heading of each program.

The department is accredited by the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

The various programs are designed to promote the education of good artists and artists-teachers and to increase artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by visiting artists, and studios for advanced BFA candidates. There are approximately 420 undergraduate and 25 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 of Science with a major in art teaching. All three programs are within the art curriculum, which is composed of the General Education requirements of the University and the art major requirements of the B.A., 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 credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of "C" or better is earned, will transfer in most cases. Many beginning level art courses will transfer with direct WMU course equivalents. Some beginning and most intermediate level courses will receive general "art credit".

If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours needed for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general "art credit", you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to Screening Committee, Department of Art, Western Michigan University, Kalamazoo, MI 49008, or call (616) 387-2440.

Advising

All art majors and minors are required to see an art adviser 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

Grading

Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

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 adviser. 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.

Studios

Advanced undergraduates are occasionally given studios. All other students may work in the regular classroom studios at night and on Saturdays. The department and its instructors cannot be responsible for student work left in studios after the end of each semester or term. Studio classes are usually limited to 15 to 20 students.

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 the 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 in.

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. Fifty-five 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)
15 hours in Art History, including 220 and 221
6 hours in Advanced Drawing (210)
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 adviser.

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 Major

**Bachelor of Arts or Bachelor of Science**

64 credit hours

This program is designed for the liberal arts-oriented students who wish 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)
18 hours in Art History, including 220 and 221
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, or 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 Fine Arts (231, 240)
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 adviser.

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.

### Basic Program

Courses required of all majors and minors in art as prerequisites to other advanced courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
</tr>
</thead>
<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>
</tr>
</tbody>
</table>

### 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 illusory 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 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 Critical Arts minors, or 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. Prerequisite: ED 230, The Nature of Creativity. For the Integrated Critical Arts Minor only. This course waves the ART 150 requirement for the Elementary Education majors.
ART 201 Non Art Major: Drawing
3 hrs.
This course is a non-professional enrichment experience in basic drawing. The course objectives are 1) to learn basic drawing techniques and their relationships to various media such as graphite, charcoal, and conte crayon, 2) to learn proper usage of papers and drawing tools, and 3) to develop personal expression through drawing. Not applicable to art majors or minors.

ART 202 Non-Art Major: Acrylic Painting
3 hrs.
This course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to develop a basic understanding of color and composition, 2) to learn the fundamentals of 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 basic techniques of clay construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors.

ART 207 Non Art Major: Jewelry
3 hrs.
This course is a non-professional enrichment experience in basic jewelry. The course objectives are 1) to learn the proper use of metal-making tools and equipment, 2) to learn the basic techniques of making hand-wrought jewelry, and 3) to develop an awareness of the technical and creative range of metal as a medium for body decoration. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 208 Non Art Major: Watercolor
3 hrs.
This course is a non-professional enrichment experience in basic watercolor. The course objectives are 1) to learn the proper use of watercolor brushes and tools, 2) to learn basic techniques for manipulating watercolor, and 3) to understand presentation models for finished watercolor paintings. A class fee will be charged for materials and information handouts. Not applicable to art majors or minors.

ART 209 Non Art Major: Textile Arts
3 hrs.
This course is a non-professional enrichment experience in basic textiles. The course objectives are 1) to learn fundamental on and off loom textile construction techniques, and 2) to explore other related techniques such as macrame, hooking, quilting, felting, and dyeing. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 210 Life Drawing
3 hrs.
The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 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.

ART 230 Ceramics
3 hrs.
A course devoted to a survey of pottery processes, such as hand building, 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 234 Textile Design
3 hrs.
An introductory survey of textiles to include weaving, spinning, stitching, hooking, macramé, silk screen printing, tie-dye and batik. Prerequisite: ART 101, ART 102, ART 103 and ART 231, or ART 231 concurrently.

ART 238 Jewelry and Metalsmithing
3 hrs.
A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class. Prerequisite: ART 101, ART 102, ART 103, and ART 231 or ART 231 concurrently.

ART 240 Painting I
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 ART 240 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 aesthetic possibilities of the medium. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 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 ART 240 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 ART 240 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 ART 240 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 ART 240 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 ¼ of the class meetings. Prerequisite: ART 210.

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 334 Textiles
3 hrs. Advanced work in textile design allowing for specialization with a material or technique surveyed in ART 234. Prerequisite: ART 234.

ART 338 Jewelry and Metalworking
3 hrs. Intermediate level metalworking smithing. 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 develop and adapt media and/or techniques specific to individual aesthetic intentions. Prerequisite: ART 241.

ART 342 Watercolor
3 hrs. Advanced problems in watercolor techniques to include composition. Prerequisite: ART 242.

ART 343 Lithography
3 hrs. An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover and adapt media and/or techniques 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, figurative, 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 stencil techniques with the introduction of photo-stencil methods. The artist-students should begin to discover and apply methods of technique appropriate to their aesthetic intent. Prerequisite: ART 246.

ART 348 Photography
3 hrs. Introduction to the view camera, color processing, printing, and various studio lighting techniques involved in product photography. Emphasis is placed upon exploring the potential of color photography and the development of individual imagery. Prerequisite: ART 248 and ownership of a 35mm or 2 2/4 x 2 1/2 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 352 and art major status.

ART 490 Graduation Presentation—Painting/Watercolor
1 hr. Preparation and presentation of graduating exhibition in painting/watercolor, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. 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 adviser. 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 adviser. 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 adviser. 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 adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 534 Textiles Workshop
1-6 hrs. Study of contemporary topics and trends in textile arts. Students will be exposed to how artists express their ideas through current and ongoing visiting artist programs, exhibitions and workshops. Prerequisite: ART 334. Repeatable for credit.

ART 530 Ceramics Workshop
1-6 hrs. Continuation of ART 330. 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 their own individual sculptural direction, with bronze and aluminum casting related techniques. Prerequisite: ART 331. Repeatable for credit.

ART 534 Textiles Workshop
1-6 hrs. Continuation of ART 334 with advanced work in textiles design. Prerequisite: ART 334. Repeatable for credit.
ART 535 Multi-Media Workshop
1-6 hrs.
Various forms of art that deviate from conventional media, such as light, kinetic, and performance art. The student is expected to have a solid background in one of the traditional art forms, such as ceramics, painting, sculpture, printmaking, drawing, graphic design, metals, or textiles. Permission of instructor is required. Repeatable for credit.

ART 538 Jewelry and Metalsmithing Workshop
1-6 hrs.
Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 338. Repeatable for credit.

ART 540 Painting Workshop
1-6 hrs.
Continuation of ART 340. Prerequisites: ART 340. Repeatable for credit.

ART 541 Printmaking Workshop
1-6 hrs.
An advanced workshop for experienced graphic students; all printmaking media available; emphasis on development of personal concepts and refinement of methods appropriate to individual needs through research. Prerequisite: Any ART 300 level printmaking course. Repeatable for credit.

ART 542 Watercolor Workshop
1-6 hrs.
Continuation of advanced watercolor techniques with emphasis on experimentation. Prerequisite: ART 342. Repeatable for credit.

ART 544 Hand Papermaking
1-6 hrs.
A continuation of ART 244 and ART 344. Prerequisite: ART 344.

ART 545 Graphic Design
3 hrs.
Continuation of ART 445. Prerequisite: ART 445. Repeatable for credit.

ART 548 Photography
1-6 hrs.
Professional development through research in advanced projects. Prerequisite: ART 348. Repeatable for credit.

ART 552 Preparation for Art Teaching
3 hrs.
A course dealing with: the current problems in issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisites: ART 452 and art major status.

ART 553 Independent Studies in Art Education
1-6 hrs.
An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) Prerequisites: ART 252, ART 352, ART 452, ART 552 and permission of the art education chairperson. 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 art programming in the elementary public school. Repeatable for credit.

ART 581 History of Ancient Art
3 hrs.
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria, and Rome to the Early Christian period. Prerequisite: ART 220.

ART 583 History of Medieval Art
3 hrs.
Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (3rd-13th Centuries). Prerequisite: ART 220.

ART 585 History of Renaissance Art
3 hrs.
The development of art through the early Renaissance to the Late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, Da Vinci, Michelangelo, Titian, Van Eyck, Brueghel and Durer. Prerequisite: ART 221.

ART 586 History of Baroque Art
3 hrs.
Art of the late 17th, 18th, and early 19th centuries. Major artists and architects discussed are Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini, and Neumann. Prerequisite: ART 221.

ART 587 History of American Art Colonial to 1900
3 hrs.
Art in the United States from the Colonial Period to 1900. Emphasized are Federal and Georgian 18th Century styles; 19th Century Realism, Romanticism and Nativism genesis and development of distinctly "American" consciousness and styles. Prerequisite: ART 221.

ART 588 History of 19th Century European Art
3 hrs.
Major developments such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisite: ART 221.

ART 589 History of European Art 1900-1945
3 hrs.
Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Major developments including Fauvism, Cubism, Expressionism, and Surrealism are discussed. Prerequisite: ART 221.

ART 590 History of 20th Century Art 1945 to Present
3 hrs.
Major trends in art since World War II are discussed. Included are Abstract Expressionism, Pop and Op Art, the New Realists, and Conceptual Art. Prerequisite: ART 221.

ART 591 History of Prints
3 hrs.
Major developments in printmaking, including orgins of woodcut and engraving, Renaissance and Baroque master etchers and engravers (Durer, Rembrandt). Lithography in the 19th century (Delacroix, Daumier, Toulouse-Lautrec). 20th century printmaking.

ART 593 History of American Art: 1900-1945
3 hrs.
Art of the United States and Canada from 1900 to present; Realism, introduction of European Modernism; Nativist and American Modernist traditions of the 20's, 30's, and 40's. Prerequisite: ART 221.

ART 597 History of Modern Architecture
3 hrs.
Major developments in architecture since c.1750 with emphasis on late 19th and 20th century developments in domestic and commercial architecture and city planning in the West and in Asia. Especial consideration given the works and influences of Wright, LeCorbusier, and Mies van der Rohe.
DANCE
Nina Nelson, Chair
Jane Bliss
Wendy Cornish
Clara Gamble
Eugene Mills
Lindsey Thomas

The Department of Dance seeks to fulfill its responsibility to further the development of the art in Michigan through: creating and publicly producing dance which reflects the highest aesthetic standards; sponsoring events which enrich the dance life of the community; and providing an outreach of dance experiences which have artistic and educational value. 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. 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 degree program offers the student the opportunity to explore the diversity of the dance profession and requires the selection of a minor or second major 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 Dance Minor is designed for students who wish to continue their dance exposures as an avocation or as an enhancement of other 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, 106, 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 forms may be obtained by writing to the Office of Admissions and Orientation. Enrollment in the Bachelor of Fine Arts degree program is contingent upon admission to the University and approval of the Department of Dance. Department approval is obtained through technique audition classes in ballet, jazz, and modern. No audition is required for enrollment in the Bachelor of Science or Bachelor of Arts degree program or the Dance Minor, however students enrolling in these programs will be required to audition for advanced placement in ballet, jazz, and/or modern. Audition schedules and detailed information are available from the Department of Dance upon request. The Department welcomes the opportunity to confer with prospective students, parents and counselors regarding educational goals and plans.

Transfer Credit
Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic adviser 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 adviser. It is the responsibility of the student to make an appointment with the adviser each semester in order to prepare for the next semester’s registration. Each student should meet with the adviser during their senior year to secure a Graduation Audit Statement before registration for the final undergraduate semester.

The dance academic adviser is also available to counsel students on selection of appropriate majors/minors, selection of General Education courses, and determination of specific 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 in effect at the time the student is admitted. Requirements cannot be added during the student’s enrolment, 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 Studio COURSES
Ballet courses are taught according to the Russian method and piano accompaniment is provided. Modern courses are taught according to the principles of the Normative technique associated with Erick Hawkins. These are not regularly accompanied by a musician in order to allow for kinetic, rhythmic and ensemble training consistent with the Normative approach. Jazz courses utilize technique principles of both ballet and modern through a stylistic blend of lyrical and percussive movement. 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 passion for dance in a technique class does not imply automatic progression to the next level.

SCHOLARSHIPS
Scholarships 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 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 on 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, school evenings, guest presentations, special class-related performances, University musicals and operas, and the department performing ensemble, 565 University Dance Theatre. Students must be enrolled in at least one Studio technique course during the fall semester. Limited scholarships may be available for this purpose. Information will be posted and announced in appropriate classes.

GRADUATION AUDIT STATEMENT
Before registration for the final undergraduate semester, students who intend to graduate must meet with the academic adviser to confirm that all requirements have been completed. A Graduation Audit Statement must be completed prior to registration for the final undergraduate semester. Students have the opportunity to confer with prospective students, parents and counselors regarding educational goals and plans.

CONCLUSION
The dance department and dance faculty are committed to providing an educational environment in which students are encouraged to continue their education and to explore the diversity of the dance profession. The university is committed to providing dance experiences which have artistic and educational value. The university also promotes the practice of dance, providing an outreach of dance experiences which have artistic and educational value. The university also promotes the practice of dance, providing an outreach of dance experiences which have artistic and educational value.

The university is committed to providing dance experiences which have artistic and educational value.
have completed and/or be currently enrolled in at least one Studio course in ballet, jazz and modern; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance coursework and dance-related activities. Any student discontinued from the program may reapply for the BFA after a minimum of one additional semester at WMU.

By the end of the student’s junior year, the BFA student must create and perform a solo dance in a public showing which demonstrates his/her choreographic, technical, and performance skills. At this time, the student must also submit an essay addressing his/her strengths and weaknesses in 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.

**REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—31 total hours**

31 hours from dance major technique courses and performance courses, including at least two courses from each area: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330). At least six hours must be elected from Performance (560, 565). The student must complete at least one semester of two of the following courses: DANC 310, 320, 330.

**REQUIRED COURSES IN DANCE MINOR—10 total hours**

DANC 180 Choreography I (Prereq: consent of adviser) 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 THEORETICAL STUDIES—21 total hours**

DANC 140 Dance History I 3
DANC 240 Dance History II (Prereq: 140) 3
DANC 340 Special Studies in Dance History (Prereq: 240) 2
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
MUS 185 Music Fundamentals for Dancers 1
MUS 265 Musical Style and Form for Dancers (Prereq: MUS 185) 3

**RELATED STUDIES—18 total hours**

The Department of Dance believes that the professional-trained 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 adviser in selecting 18 hours from the courses listed below, some of which may also meet General Education requirements:

ANTH 223 Cultural Anthropology 3
ANTH 370 Culture and Communication 3
ART 140 Studio Experience (2-D) 3
ART 220 History of Art 3
ART 240 History of Art 3
BIOS 112 Introduction to Biomedical Sciences 3
BIOS 211 Human Anatomy (Prereq: BIOS 112) 4
ENGL 105 Thought and Writing: Variable topics 4

**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 adviser to receive the faculty feedback and discuss future curricular planning.

A grade of "C" or better is mandatory in all required courses.

**REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—18 total hours**

Eighteen hours from dance major technique courses and performance courses, including at least one course from each area: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330); Performance (560, 565). The student must complete at least one semester of one of the following courses: DANC 310, 320, 330.

**REQUIRED COURSES IN CHOREOGRAPHY/THEORY—7 total hours**

DANC 180 Choreography I (Prereq: consent of adviser) 2
DANC 181 Dance Improvisation 1
DANC 280 Choreography II (Prereq: 180, 181) 2
DANC 380 Choreography III (Prereq: 280) 2
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
MUS 185 Music Fundamentals for Dancers 1
MUS 265 Musical Style and Form for Dancers (Prereq: MUS 185) 3

**RECOMMENDED COURSES IN RELATED STUDIES**

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).

**Dance Minor**

24 hours

**REQUIRED COURSES IN DANCE MINOR—12 total hours**

DANC 140 Dance History I 3
DANC 240 Dance History II (Prereq: 140) 3
DANC 295 Kinesiology for the Dancer 3
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
MUS 185 Music Fundamentals for Dancers 1
MUS 265 Musical Style and Form for Dancers (Prereq: MUS 185) 3

**Required Courses in Choreography/Theory—6 total hours**

DANC 140 Dance History I 3
DANC 180 Choreography I (Prereq: consent of adviser) 2
DANC 181 Dance Improvisation 1

**Electives—6 total hours**

Six hours to be elected from the following courses, in consultation with the dance academic adviser:

DANC 240 Dance History II (Prereq: 140) 3
DANC 280 Choreography II (Prereq: 180, 181) 3
DANC 290 Teaching of Dance in the Elementary School 3
DANC 295 Kinesiology for the Dancer 3
DANC 340 Special Studies in Dance History (Prereq: 240) 2
DANC 380 Choreography III (Prereq: 280) 2
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
DANC 560 Performance (Prereq: Adviser consent) 3
DANC 565 University Dance Theatre (Prereq: by audition) 3
DANC 568 Dance Production 2
DANC 589 Dance Management 2
MUS 185 Music Fundamentals for Dancers 1
MUS 265 Musical Style and Form for Dancers (Prereq: MUS 185) 3

**Dance Courses (DANC)**

DANC 101 Beginning Ballet I ($99) 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 106 Recreational Dance 1 hr.
Investigation of folk, square and social forms of dance, with a concentration on overlapping dance skills.
DANC 110 Ballet Technique I 2 hrs.
An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on developing control, balance, musicality and strength of movement through the Russian method of training. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Adviser consent.
DANC 111 Beginning Ballet II 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, with application to rhythmic combinations involving the use of stylized movements. 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: Adviser consent.

DANC 130 Modern Technique I  
2 hrs.  
An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, basic vocabulary and integrated movement combinations. Students will continue in DANC 130 until advanced to DANC 230 by the instructor. Repeatable for credit. Prerequisite: Adviser consent.

DANC 140 Dance History I  
3 hrs.  
A survey of the purposes, functions, and manifestations of dance from primitive cultures through the 19th 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 180 Choreography I  
2 hrs.  
A practical experience in dealing with the basic elements of dance composition. Emphasis will be placed on solo choreographic studies. Prerequisite: Adviser consent.

DANC 181 Dance Improvisation  
1 hr.  
Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student’s creative individuality and sense of ensemble.

DANC 210 Ballet Technique II  
2 hrs.  
A development of ballet technique at the intermediate level. Emphasis is on increased strength and flexibility, jumps, turns, and an introduction for women to pointe technique. Students will continue in DANC 210 until advanced to DANC 310 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique I instructor.

DANC 220 Jazz Technique II  
2 hrs.  
A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 220 until advanced to DANC 320 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique I instructor.

DANC 230 Modern Technique II  
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 240 Dance History II  
3 hrs.  
A survey of the purposes, functions, and manifestations of dance from the beginning of the 20th century to the present. Relationships are made between dance and general cultural developments of the times. Prerequisite: DANC 140.

DANC 280 Chorography 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 activity. Prerequisite: DANC 180 and DANC 181. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.

DANC 310 Ballet Technique III  
2 hrs.  
Ballet technique for the advanced/pre-professional student in the classical idiom. Emphasis is placed on complex movement sequences, ensemble awareness, pointe technique and men’s combinations. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique II instructor.

DANC 320 Jazz Technique III  
2 hrs.  
Jazz technique at the advanced/pre-professional level with work on quick-study and theatrical skill. Combinations will address a variety of jazz styles and develop the student’s own dynamic style. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique II instructor.

DANC 330 Modern Technique III  
2 hrs.  
Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully represent complex movement combinations within the technique. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.

DANC 340 Special Studies in Dance History  
2 hrs.  
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 adviser 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 240.

DANC 380 Chorography III  
2 hrs.  
Concert and musical theatre choreography in the student’s area of concentration. Prerequisite: DANC 280.

DANC 385 Introduction to Dance Notation  
2 hrs.  
A study of dance notation systems which provide practical methods of recording human movement for purposes of analysis and reading. The course includes reading (interpretation), theory, and practice at the introductory level. Prerequisites: DANC 110, 130, and MUS 185.

DANC 390 Teaching Dance in the Secondary School  
3 hrs.  
An investigation into procedures for presenting course material to the dance forms most commonly taught at the secondary school level. Prerequisites: DANC 106, DANC 230.

DANC 400 Practicum  
1-4 hrs.  
An individual approach to a practical field experience in dance. The student must file an approved application for his/her project with the dance academic adviser prior to registration for the course. Through reading and practice, the student will have an opportunity to explore a topic of interest in dance. Prerequisite: Approved application required.

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 adviser. 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 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 525 Special Studies in Dance  
1-4 hrs.  
A study of areas in dance not included in existing courses. Examples of possible topics include: pedagogy, repertoire, Afro-American dance, pre-classic dance forms, and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 6 hours. Prerequisite: Adviser consent.

DANC 560 Performance Variable  
1 hr.  
An experience in student or faculty choreographed dance works, in projects not encompassed in specific dance courses. Application with approval of dance faculty committee must be filed with the dance adviser one month prior to performance. Registration occurs after performance has been completed. Prerequisite: Adviser consent.

DANC 585 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 studio course at the 200 or 300 level. Repeatable for credit.
Prerequisite: Audition or consent of company director.

DANC 588 Dance Production
2 hrs.
The study of the production aspects of dance including sound, lighting, costume, make-up, and stage management. Practical applications will include first-hand experience in creating tape collages with special effects, designing lighting, costumes and make-up.

DANC 589 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 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. Topical topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approved application required.

MUSIC
Don Gibson, Director
William Appel
John Campos
Curtis Curtis-Smith
Lisa Derry
Patrick Dunningan
Delores Gauthier
Marylyn Y. Heim
Robert Humiston
Milvern K. Ivey
Stephen Jones
Renata Artman Knicf
Thomas Knicf
Trent P. Kynaston
David Little
Kathryn Loew
James McCarthy
Judy Moonnet
Richard O’Hearn
Charles E. Osborne
Johnny Pherigo
David Pockco
Marion Pfratnici
Phyllis Rappoport
Robert J. Ricci
Mary Scovel
David A. Sheldon
Richard Sudderndorf
Bruce Uchimura
Robert L. Whaley
Brian Wilson
Steve M. Wolfbnergter
Bradley Wong
Joseph T. Work
Joyce Zastrow
Stephen Zegree
Ramom Zupko

In America today the responsibility to carry on a vital tradition of the musical profession falls increasingly upon the university. The music faculty of Western Michigan University seeks to fulfill this responsibility through creative performance, composition, scholarship, and community service. Above all, we strive in our teaching to produce students who share the excitement of music as a living art, who possess the wisdom to appreciate and the courage to defend the highest artistic ideals, who will bring the finest in music to all with skill and dedication.

The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NAAMS and the National Council for Accreditation of Teacher 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 is highly professional, offering the student an opportunity to elect a major in performance, composition, jazz studies, music education, music history, music theory, and music therapy. The Bachelor of Arts and Bachelor of Science degrees afford the student the opportunity to major in music and minor in some non-music area of study. 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. The student may proceed by making application to the University at which time notification will be sent about the audition program in the School of Music, or a request may be made for an opportunity to audition 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 upon academic abilities reflected in grade point average and various scholastic test scores as they are available. Efforts are made to evaluate the student on the basis of 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.

Students who are considering becoming a music major should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 160, which is required of all music majors in their first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered at the time the student is initially advised about classes.

The School of Music has been gratified with its audition and testing program. The program has helped many students make a more intelligent choice regarding their educational career. Many have been helped toward avoiding entering a field in which they do not have the necessary foundation or talent to be successful, while others have been encouraged to pursue an education in music in order to develop fully talents that they have discovered through the audition. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Adviser in the School of Music. The School
welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

TRANSFER CREDIT

Music credit from another institution is normally acceptable providing course substance is equivalent to 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 non-four-year institution toward music curriculum requirements. If the "Performance Electives" requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in major ensembles. Advisers will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

All music credit to be transferred is tentative and is contingent upon the successful completion of one semester's work at Western. 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 met in order to remain in that major. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must earn a minimum grade point average of 3.25 in the first two courses that apply to the major area of concentration. The student who elects music education or music therapy as a major must maintain a grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for directed 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 Adviser in the School of Music.

ADVISORY

Adviser: Margaret J. Hamilton
Appointments: 2146 Dalton Center (616-387-4872)

The School of Music provides counseling for all music students through a full-time student advising service. 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 with a single music student adviser. Only when a student pursues a minor outside of the School of Music is an appointment required with another adviser.

The office of the music student adviser is primarily maintained for the purpose of providing academic counseling. Personal guidance is often provided by the adviser, and matters which are beyond his/her qualifications will be referred to persons and offices on- and off-campus which are capable and qualified to assist.

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

Special (non-academic) requirements for graduation fall in the area of recital performance and recital attendance. Since these are non-academic areas, completion of these requirements is not reflected on the student's transcript and therefore, requires graduation clearance from the music adviser.

The requirement for recital attendance: All music majors are required to attend music convocations each semester they are in residence. Each student is allowed to be absent from one convocation per semester. Without exception, only one absence per semester will be excused. Any absences beyond "one" will be recorded in the student's file. Absences must be made up by attending other pre-approved School of Music concerts and recitals in which the student is not a participant. Absences in the student's record that have not been made up will prevent graduation. Music majors are required to enroll in MUS 101 Music Convocation as specified in the curriculum. The requirement(s) for recital performance are as follows:

1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.

2. Bachelor of Music candidates with a major in areas other than music performance must present at least one successful solo performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's applied teacher. Prerequisite to the presentation of Junior and/or Senior Recitals is an approved hearing of that recital by the student's area faculty. Recitals should be scheduled in the Concerts Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed.

Common areas of competency are applied music, secondary instruments, and music theory. Regular examinations are scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect two alternatives for fulfilling degree requirements:

1. request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice or
2. receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these scholarships 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 adviser 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.

PROGRAMS

When a student is admitted to the music major, 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 commonly of all music majors, regardless of professional or vocational interests in the field. Core requirements will normally be taken in the first two years. For students who are interested in an in-depth introduction to the two professions for which this university offers certification courses (music education and music therapy), an opportunity will be provided for them to register for Field Experience courses.

Core Requirements—Bachelor of Music Degree

<table>
<thead>
<tr>
<th>Hrs.</th>
<th>Music Convocation 101 (7 semesters)</th>
<th>.0</th>
<th>*Applied Music 200, 300 (see Electives below)</th>
<th>.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Music 160, 161, 260, 261</td>
<td>.11</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Aural Comprehension 162, 163, 259</td>
<td>.3</td>
<td></td>
<td></td>
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<tr>
<td>Theory Elective (see Electives below)</td>
<td>.2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>*Music History and Literature 270, 271, and one History/Literature Elective (see Electives below)</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Performance Elective (see Electives below)</td>
<td>.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Keyboard Fundamentals 120-121</td>
<td>.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conducting 215</td>
<td>.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education Electives</td>
<td>.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major Area of Concentration</td>
<td>.13-.41</td>
<td></td>
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<tr>
<td>Free Electives to make a minimum of 122 hours</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Music Clearance (verification of completion of recital performance and attendance requirements).

EXCEPTIONS TO CORE REQUIREMENTS

Music Therapy majors complete only 8 hours of Applied Music 200 (including successful completion of a Sophomore Hearing); only 4 hours of Performance Electives; and only 8
Electing a Major Area of Study—Bachelor of Music Degree

Music majors will elect a major area of concentration in their fourth semester of study. All areas of concentration are open to the music major and the student may freely elect the area of his or her choice by completing a form provided by the music adviser at the Sophomore Meeting. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:

1. Providing the student has a minimum grade point average of 3.0 in the Core music courses—required in the first two years.

2. Providing the student has a minimum grade point average of 3.25 in "Core" courses which are in the same area as the elected major (i.e., performance music majors must have at least a 3.25 average in the applied music courses which are required in the first two years, and performance music majors must be approved for this major by taking a performance qualifying examination which should normally be passed not later than the Sophomore Hearing; music history majors must have at least a 3.25 average in music theory and literature courses required in the first two years; music theory—3.25 in theory courses; composition—3.25 in composition courses).

3. 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 approval is denied and the student does not qualify for any other major area of concentration, the music adviser will outline the course work in music which may be applied toward the Bachelor of Arts or Bachelor of Science degrees with a major in music.

Music Education: Choral/General Major

Grants certification to teach music at any grade level (K-12).....................17 Hrs.
General Music Methods 336 ....................2
Choral Techniques 339 ....................2
Methods Elective I ....................2
Teaching and Learning in Music 348 ....................2
Conducting 330 ....................2
Instrument elective ....................1
Methods Elective II ....................2
Second Instrument ....................4
General Music Methods 336 ....................2
Choral Techniques 339 ....................2
Methods Elective I ....................2
Teaching and Learning in Music 348 ....................2
Conducting 330 ....................2
Instrument elective ....................1
Methods Elective II ....................2
Second Instrument ....................4
General Music Methods 336 ....................2
Choral Techniques 339 ....................2
Methods Elective I ....................2
Teaching and Learning in Music 348 ....................2
Conducting 330 ....................2
Instrument elective ....................1
Methods Elective II ....................2
Second Instrument ....................4
Plano, Keyboard Musicianship 220, 221, 320, 321 and pass the performance exam administered by the Keyboard and Professional Education area. 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 voice.

College of Education Courses ........................20
Human Development 250 ....................3
Teaching/Learning in Jr. and Sr. High Schools 301 ....................3
School and Society 395 ....................3
Seminar in Student Teaching 410 ....................2
Directed Teaching ....................9
Physical Education ..............................2
Students can complete this requirement by completing two semesters of Marching Band 109

Note: State law requires that students who graduate with a degree carrying elementary or secondary teaching certification must take a Teaching of Reading course (ED 322 Teaching of Reading (Elementary) satisfies this requirement for elementary certification. ED 322 Teaching of Reading (Secondary) satisfies this requirement for secondary certification.

Before the student will be recommended for directed teaching, she/he 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).....................18 hrs.
Instrumental Methods 1 (344) ....................2
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 ....................2
Conducting 331 ....................2
Band ..............................6
Complete these courses: Flute/ Saxophone (145); Oboe/Bassoon (142); Trumpet/French Horn (143); Trombone/Tuba (144); Percussion (130); Clarinet (133)
String—Complete three courses from those listed above for band emphasis and complete three semesters of study on a minimum of two string instruments other than own major string instrument, or complete MUS 228 and 229 plus four courses from those listed above for band emphasis.

Note: Those who test out of any of the above must fulfill their class instrument requirements by completing one or more of the following: String Class—Cello, Double Bass (128); String Class—Violin, Viola (129); Vocal Techniques for Music Educators (117); Music 130, 133, 142, 143, 144, 145.
Methods Elective I ....................2
Select from the following: Music for the Special Student 385; Technology in Music Education 386
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
**College of Fine Arts**

### Music Therapy Major

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core (minus Music History/literature elective) Courses in Music Theory</td>
<td></td>
</tr>
<tr>
<td>281, 289, 290, 380, 381, 383, 472, 473, 479, 480, 481</td>
<td>22</td>
</tr>
<tr>
<td>* Keyboard Musicianship 220, 221, 320, 322</td>
<td>4</td>
</tr>
<tr>
<td>Voice Class 122</td>
<td></td>
</tr>
<tr>
<td>Instruments of the Band and Orchestra 279 and Instruments of the Music</td>
<td></td>
</tr>
<tr>
<td>Classroom 280, 281</td>
<td></td>
</tr>
<tr>
<td>Professional electives: select from 123, 128, 129, 130, 133, 142, 143</td>
<td></td>
</tr>
<tr>
<td>144, 145, 336, 386, 555, 558, Applied Music 300, Performance Electives</td>
<td></td>
</tr>
<tr>
<td>(selected from electives listed under Core Requirements)</td>
<td></td>
</tr>
<tr>
<td>Psychology 100 and 250</td>
<td>6</td>
</tr>
<tr>
<td>Special Education 230</td>
<td>5</td>
</tr>
<tr>
<td>* All music therapy majors who have passed a piano competency exam must be</td>
<td></td>
</tr>
<tr>
<td>exempted from any Keyboard Musicianship requirements except MUS 322.</td>
<td></td>
</tr>
</tbody>
</table>

The student must achieve a 3.0 grade point average in the therapy major in order to recommend for MUS 481. In completing the General Education requirements the therapy major must complete BIOS 112 and SPPA 200. In completing Physical Education requirements the therapy major must 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”).

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music (in addition to Core requirements) 200</td>
<td>4</td>
</tr>
<tr>
<td>Applied Music (in addition to Core requirements) 300</td>
<td>10</td>
</tr>
<tr>
<td>Performance Electives (in addition to Core Requirements; see Electives</td>
<td>2</td>
</tr>
<tr>
<td>above)</td>
<td></td>
</tr>
<tr>
<td>Chamber Music 218</td>
<td>2</td>
</tr>
<tr>
<td>Composition 262</td>
<td>2</td>
</tr>
<tr>
<td>Advanced History/Literature (in addition to Core Requirements)</td>
<td></td>
</tr>
<tr>
<td>Counterpoint 560</td>
<td>2</td>
</tr>
<tr>
<td>Music Electives</td>
<td>5</td>
</tr>
<tr>
<td>Senior Recital (required for Music Clearance)</td>
<td>0</td>
</tr>
</tbody>
</table>

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”).

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music (in addition to Core Requirements) 200</td>
<td>4</td>
</tr>
<tr>
<td>Applied Music (in addition to Core Requirements) 300</td>
<td>10</td>
</tr>
<tr>
<td>Performance Electives (in addition to Core Requirements; see Electives</td>
<td>2</td>
</tr>
<tr>
<td>above)</td>
<td></td>
</tr>
<tr>
<td>Counterpoint 560</td>
<td>2</td>
</tr>
<tr>
<td>Music Electives</td>
<td>5</td>
</tr>
<tr>
<td>Senior Recital (required for Music Clearance)</td>
<td>0</td>
</tr>
</tbody>
</table>

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 ART 120, ENGL 150, and THEA 100.

### Music History

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER 200, 201</td>
<td>8</td>
</tr>
<tr>
<td>Introduction to Musicology 570-571</td>
<td>6</td>
</tr>
<tr>
<td>Musicology and Research 575-576</td>
<td>4</td>
</tr>
<tr>
<td>Music History/Literature Electives (see Electives above)</td>
<td>10</td>
</tr>
<tr>
<td>Composition 560-561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 262, Seminar in Music</td>
<td></td>
</tr>
<tr>
<td>Theory 565, Orchestration 567/568, Improvisation 518, Medieval Music</td>
<td></td>
</tr>
<tr>
<td>565, Renaissance Music 566)</td>
<td>4</td>
</tr>
</tbody>
</table>

All Bachelor of Music: Music history candidates must pass a piano proficiency examination as outlined below.

### Jazz Studies

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music (in addition to Core Requirements) 200</td>
<td>2</td>
</tr>
<tr>
<td>Jazz Ensembles 118, 119, 210, 212, 218</td>
<td>4</td>
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<td>Counterpoint 560, 561</td>
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<td>Professional Electives (choose from Piano 100, Conducting 330/331,</td>
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<td>567/568, Musical Acoustics 566, Electronic Media 594)</td>
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</tbody>
</table>

### 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 rather than attempt to achieve a performance level with a few compositions. Sight-reading ability is also expected.

Functional skills related to the student’s major shall be examined as follows:

### Composition

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<th>Requirement</th>
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3. Ability to demonstrate in context the following:
   - All diatonic triads and seventh chords, including all inversions.
   - Chromatic chords including the following: secondary dominants, borrowed chords, augmented sixth chords, augmented dominant seventh chords, the Neapolitan sixth chord, diminished seventh chords, and half-diminished seventh chords.

Music History
1. Two compositions of contrasting style at the level of Bach's Two-Part Inventions or Bartók 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 of piano 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 ............................................ Hrs.
1. General Education Electives ................................... 35
2. Physical Education (Marching Band 109 substitutes) .................. 2
3. A major in music:
   Music Convocation 101 (6 semesters) .................................. 0
   Applied Music 200 (must pass sophomore hearing) ............... Basic Music 160-161, 260-261 ......................................... 11
   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
4. A minor in another department in University ......................... (minimum) 15
   (Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.)
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. See adviser for specific details.

For the student who is enrolled in the General Curriculum of the College of Arts and Sciences, there will be an option to complete requirements for a Bachelor of Arts degree or a Bachelor of Science degree. 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 36 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.

Elementary Education Minor (See College of Education)
Grants certification to teach in elementary grade room (K-5) and music (K-9)

Minimum hours required for this curriculum: .................................................. 122

Course Requirements
General Education Requirement: ......................................................... 35

Music Major
Music Convocation 101 (4 semesters) .............................................. 0
Basic Music 160-161 ................................................................. 6
Aural Comprehension 162-163-259 ............................................. 3
Basic Music 261 (20th Cent. Techn.) ........................................... 2
Music History and Literature 270-271 ........................................ 8
Conducting 215 ................................................................. 1
Keyboard Musicianship 220-221-320-321 ................................ 4
Note: All students in this curriculum will complete four semesters of keyboard, and/or pass an examination given by the Keyboard and Professional Education areas. No class piano course is to be counted twice. Students who do not qualify for entry in 220 must complete 120 and/or 121 as a deficiency.

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.

Elementary Education Minor (See College of Education)
Grants certification to teach in elementary grade room (K-5) and music (K-9)

Minimum hours required for this curriculum: .................................................. 122

Course Requirements
General Education Requirement: ......................................................... 35

Music Major
Music Convocation 101 (4 semesters) .............................................. 0
Basic Music 160-161 ................................................................. 6
Aural Comprehension 162-163-259 ............................................. 3
Basic Music 261 (20th Cent. Techn.) ........................................... 2
Music History and Literature 270-271 ........................................ 8
Conducting 215 ................................................................. 1
Keyboard Musicianship 220-221-320-321 ................................ 4
Note: All students in this curriculum will complete four semesters of keyboard, and/or pass an examination given by the Keyboard and Professional Education areas. No class piano course is to be counted twice. Students who do not qualify for entry in 220 must complete 120 and/or 121 as a deficiency.

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.
MUS 109 Marching Band 1 hr.
The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters. (Credit in Marching Band may be substituted for P.E. credit) Membership is by audition.

MUS 110 Symphonic Band (Director: R. Suddendorf) 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 (Director: R. Dunnigan) 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 is by audition.

MUS 112 University Chorale (Director: M. Ivey) 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 (Director: P. Dunnigan) 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 is by audition.

MUS 114 Wind Ensemble (Director: P. Dunnigan) 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. The ensemble maintains an active performance schedule on campus and throughout the surrounding west Michigan area. Membership is open to all students by audition.

MUS 119 Gold Company (Director: S. Zegree) 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 (Director: T. Knific) 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 is by audition.

MUS 211 Studio Accompanying (Coch: P. Rappeport) 1 hr.
A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied study composing per week. This course may be repeated for credit not to exceed a total of two semester hours.

MUS 212 Jazz Orchestra (Director: T. Kynaston) 1 hr.
The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition.

MUS 218 Instrumental Chamber Music 1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

MUS 317 Opera Workshop (Director: W. Appel) 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 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.

MUS 519 Vocal Chamber Ensemble 1 hr.
Small vocal ensemble(s) which emphasize research and limited performance of specialized repertoire of one or various periods of music. Admission by permission of instructor.

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 to be placed on the reserve list, after which the course must be requested by the students through the standard preregistration or final registration procedures. Only students enrolled in other classes at Western are eligible to receive applied music instruction. Generally, 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.

Except for MUS 099, final examinations are required of all students in applied music. Examinations will be heard and graded by a panel of members of the music faculty.

Students who register for one hour of credit per semester receive one 25-minute lesson per week; two credit hours, one 40-minute lesson; four credit hours, one 60-minute lesson. The more credit a student receives in applied music, the more is expected in practice time and materials.

A $7 fee is required for those enrolled in applied music at the 200, 300, 500, and 600 level in order to bring guest artists / performers to campus for additional musical instruction and enrichment.

MUS 088 Music Education Practicum Liability Insurance 0 hr.
Course to provide liability insurance coverage for students participating in music education practicum courses. A fee is assessed at current rates to provide this coverage for September through August.

MUS 089 Music Therapy Practicum Liability Insurance 0 hr.
Course to provide liability insurance coverage for students participating in music therapy practicum courses. A fee is assessed at current rates to provide this coverage for September through August.

MUS 099 Applied Music 0 credit ($75 fee)
Private lessons for any student who wishes to register. No tuition is paid, but a special fee is charged. No audition or final examination is required. Beginning students will be accepted. Instructors will be School of Music professors or qualified students.
MUS 101 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 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 medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings 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 course 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 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 direct application of production principles. Application of vocal production principles will be made using the speaking voice in the classroom. Prerequisite: Music Education major.

MUS 120 Keyboard Fundamentals 1 hr. The course covers basic fundamentals of piano technique, sight-reading, transposition and simple harmonization of melodies using primary harmonies. The course must be taken concurrent with or following MUS 160. Prerequisite: MUS 159 or music reading ability.

MUS 121 Keyboard Fundamentals 1 hr. A continuation of 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 17th and 18th century Italian songs as well as other standard literature, with a minimum of five songs to be memorized during the semester. Prerequisite: MUS 122.

MUS 124 Guitar Class I 2 hrs. This class will enable the student with no previous experience to use the guitar as an accompanying instrument. The course will provide basic instruction in the fundamentals of music reading as well as the fundamentals of guitar. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: MUS 124 or instructor consent.

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

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 reed-making. For music majors only.

MUS 133 Clarinet Class 1 hr. Fundamentals of clarinet pedagogy and performance. For music majors only.

MUS 134 Bassoon Class 1 hr. Fundamentals of bassoon pedagogy, performance, and reed-making, and instrument maintenance. 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 Tubas 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 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 reading materials will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on both a visual and 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 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 19th 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 musical forms and forms of jazz and pop. Implications for the future will be considered.

MUS 159 Fundamentals of Music 2 hrs. A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythmic/metric aspect of music. This course is open to all students as an introductory study in music theory.

MUS 160 Basic Music 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 185 Music Fundamentals for Dancers 1 hr. After the basic concepts of staffs, clefs, pitch names, scales and meters have been learned, this course will emphasize rhythmic skills for score-reading. Concurrent with the development of these skills would be instruction in the basics of traditional musical forms: phrase, cadence, section, binary and ternary, and minuet forms. Prerequisite: Dance majors only.

MUS 190 Accompanying 1 hr. Supervised experience in accompanying vocal and instrumental music, both solo and ensemble.

MUS 215 Conducting 1 hr. A course in the fundamentals of conducting, including beat patterns, various gestures for attack, release, phrasing, etc., use of the left hand, and score-reading. The student will be afforded a variety of experiences, i.e., conducting exercises for videotaping, conducting practice laboratories, etc. Prerequisite: MUS 160, MUS 162.

MUS 220 Keyboard Musicianship 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 Musicianship 1 hr. A continuation of MUS 220. Prerequisite: MUS 220, or instructor consent.

MUS 230 Italian and Latin Diction 1 hr. A phonetic approach to the pronunciation of these languages designed for singers and choir 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: 20th 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 262 Composition 2 hrs. Beginning work in composition, with emphasis on the development of short works utilizing small instrumental combinations. Attention is given to melodic, harmonic and rhythmic devices. Prerequisite: MUS 161, or permission of instructor.

MUS 263 Composition 2 hrs. A continuation of MUS 262. Prerequisite: MUS 262.

MUS 264 Jazz Composition 2 hrs. The fundamental aspects of composition in the jazz idiom, including harmonic progression, melodic design and rhythmic formulation. Intensive study will be made of well-known standard tunes as well as classic jazz compositions. All periods will be studied so that the student will have a well-grounded familiarity with basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complex sectional forms. All compositions created in class will be performed by class members or the appropriate ensemble outside of class. Prerequisite: MUS 260 or concurrently.

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 18th Century.

MUS 271 Music History and Literature 4 hrs. A survey of Western music from 1700 to 1900.

MUS 279 Instruments of the Band and Orchestra 1 hr. Students survey the string, woodwind, brass and percussion instruments commonly used in the band and orchestra. The major aim of the course is to make the student aware of the unique sound which characterizes each instrument and how that sound is produced. In developing perception and discrimination in this regard, the student investigates such things as the acoustical properties of the instruments, the correct formation of the embouchure for the brasses and woodwinds, the techniques of bowing string instruments, and the physical
attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various percussion instruments commonly used in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds. Prerequisite: Instructor consent.

MUS 280 Instruments of the Music Classroom 1 hr. Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom. Prerequisite: Acceptance into Music Education curriculum.

MUS 281 Introduction to Music Therapy 1 hr. An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 194.

MUS 285 Musical Style and Form for Dancers 3 hrs. The course surveys composers and musical styles 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 individuals and groups. Class time will be of 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, sightreading, transposition and open score reading, as well as general piano techniques and some functional piano skills. Prerequisite: "C" or better in MUS 320 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 improvisation 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 with students performing on major instruments. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 334 Jazz and Popular Solo Voice 1 hr. The course will focus on the study of performance of songs in the popular and jazz idioms. Vocal phrasing, emotional expression, vocal style, scat-singing, stage presence and use of microphones will be discussed. Prerequisites: MUS 160 or equivalent and consent of instructor. Voice majors must have sophomore standing.

MUS 336 General Music Methods 2 hrs. A study and survey of sequential musical experiences in general music classes in grades K-6. 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 088 concurrent or proof of liability insurance.

MUS 338 Choral Techniques 2 hrs. A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child’s and adolescent’s voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationale for 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 groups will be examined. Job seeking and professional growth will be discussed. Prerequisite: MUS 339 or MUS 344; MUS 088 concurrent or proof of liability insurance.

MUS 344 Instrumental Methods I 2 hrs. Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Students will participate in designing a beginning instrumental music program and a system for initiating goals for program development. Administrative duties 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 088 concurrent or proof of liability insurance.

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 088 concurrent or proof of liability insurance.

MUS 346 Marching Band Techniques 2 hrs. The student will be required to learn the process of administering a complete marching band program. Course content will include philosophies of marching band programs, techniques of marching band organization and marching band show construction.

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 088 concurrent or proof of liability insurance.

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
MUS 368 Style Analysis
4 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 369 Seminar in Music Composition
2 hrs.
Original work in composition accompanied by study and analyses of advanced 20th century compositions 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 20th 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 is designed to provide students with disabilities, federal and state requirements, the students with opportunities to apply principles developed in the class as a part of course requirements. Prerequisites: MUS 336 or MUS 344, MUS 088 concurrent or proof of liability insurance.

MUS 386 Technology in Music Education
2 hrs.
This course will prepare the students to utilize educational technology in the music classroom. The course will develop a background in using video tapes, computers, experimental techniques, synthesizers, and drum machines. Included in the course will be ways to manage music classrooms utilizing technology, as well as planning ways to utilize technology to enrich musical learning. Evaluation of software and current hardware available to the music teacher will be included. Prerequisite: Music Education major.

MUS 395 Performance Development and Technique
3 hrs.
A workshop format utilizing exercises, scene rehearsals and performances in order to develop a student's 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 adviser.

MUS 450 Music Appreciation: The Symphony
3 hrs.
The course will present an overview of the symphony orchestra, its history, and its influence on Western civilization. Special emphasis will be placed on understanding the role of the orchestra in the development of Western music. Prerequisite: MUS 161.

MUS 472 Clinical Practicum in Music Therapy
1 hr.
A lecture/lab course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual/ group clients 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. Prerequisite: MUS 089 concurrent or proof of liability insurance.

MUS 473 Clinical Practicum in Music Therapy
2 hrs.
A continuation of MUS 472. Prerequisite: MUS 472. Reserve time for clinical participation. Prerequisite: MUS 089 concurrent or proof of liability insurance.

MUS 479 Influence of Music on Behavior
3 hrs.
A study of the relationship between music and personality and the function of music in personality adjustment and development. The study of research methods will be pursued through analysis and evaluation of published studies, and skills essential to research shall be developed. Prerequisite: MUS 472. Reserve time for clinical participation. Prerequisite: MUS 089 concurrent or proof of liability insurance.

MUS 480 Music Therapy Methods and Materials
3 hrs.
Survey of materials available for use in music therapy programs and methods of adapting such materials to institutional use. Study of publications and techniques developed specifically for use in music therapy programs. Prerequisite: MUS 472. Reserve time for clinical participation. Prerequisite: MUS 089 concurrent or proof of liability insurance.

MUS 481 Music Therapy Internship
2 hrs.
A six-month internship at an approved facility. Prerequisite: Consent of department. MUS 089 concurrent or proof of liability insurance.

MUS 490 Undergraduate Workshop in Special Problems
1-3 hrs.
Design 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. Course may be elected as many as three times.

Open to Undergraduate 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 540 Elementary School Music
2 hrs.
Emphasizes the place of music in the curriculum and the use of music in the day-to-day activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

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 544 Music Education Materials: (topic) 2 hrs.
A study of the theoretical basis for and practice in analyzing and evaluating music for use in music education programs. This course may be repeated for a maximum of 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 161, "C" or better.

MUS 556 Advanced Jazz Arranging 2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, string, woodwinds, percussion in relation to traditional and contemporary trends within the medium. Prerequisite: MUS 555 and MUS 264 or concurrently.

MUS 558 Jazz Improvisation I 2 hrs.
A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 161, "C" or better.

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 15th, 16th and 17th 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 562 Advanced Composition 2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 362.

MUS 563 Advanced Composition 2 hrs.
A continuation of MUS 562. Prerequisite: MUS 562.

MUS 564 Seminar in Electronic Music Composition 2 hrs. ($30 fee)
Organization of 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 multitrack tape recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project, which will receive periodic guidance and criticism from the instructor. May be repeated for credit. Lab fee required. Prerequisite: MUS 263 or permission of 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; tuning and temperament; auditorium and room acoustics; psychoacoustics. In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 161.

MUS 567 Orchestration 2 hrs.
A study of the characteristics of instruments, and of arranging for the various individual 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 Musicoogy 3 hrs.
History, purposes, scope of musicoogy: leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field. Prerequisite: MUS 571.

MUS 571 Introduction to Musicoogy 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 harmonic polyphony. Prerequisite: MUS 270 and MUS 271.

MUS 573 Classical Music (1750-1800) 2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Prerequisites: MUS 270 and MUS 271.

MUS 574 Romantic Music (1800-1910) 3 hrs.
Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Prerequisite: MUS 270 and MUS 271.

MUS 575 Musicology and Research 2 hrs.
Presentation of musicoological material in formal writing as well as informal classroom lecture; specific research projects with emphasis on selection and qualitative judgment of materials used. Prerequisite: MUS 576 Musicology and Research 2 hrs. (S) or MUS 576 Musicology and Research 2 hrs. (C)

MUS 576 Musicology and Research 2 hrs.
A continuation of MUS 575. Prerequisite: MUS 575.

MUS 577 Symphony 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 more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Prerequisite: MUS 558 or department's consent.

MUS 585 Medieval Music 2 hrs.
A survey of music in Western Europe from the end of Antiquity to the early 15th 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 15th century to the early 17th century. Developments in the major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and MUS 271.

MUS 590 Studies in Pedagogy 1-4 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: MUS 300 level applied voice or permission of instructor.

MUS 594 Electronic Media 2 hrs. ($30)
The purpose of this course is to expose the student to the equipment used in various recording situations and its operation, as well as discussing the artistic use of this equipment. Although predominately a techniques course, areas which affect the creative aspects of the final recording will be discussed (such as microphone placement, tasteful vs. inappropriate editing, etc.). In addition to the recording aspects, other electronic instruments
used in performances will be surveyed, including synthesizers of various types (both keyboard and non-keyboard) and traditional electronic instruments (guitars, electronic organs, electronic pianos, and various sound modification devices).

MUS 595 Workshops in Music Education
1-4 hrs.

Intensive, short-term courses that address the instructional and pedagogical issues found in today's schools, as well as issues of specific concern for current teachers in the field of music. Topics will be from all areas of music education. Prerequisite: adviser's 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 adviser.

MUS 598 Readings in Music
1-4 hrs.

Instructional and pedagogical issues found in graduate and professional training programs. Topics will be from all areas of music education. Prerequisite: adviser's consent.

THEATRE

D. Terry Williams, Chair
Helen L. Bray
James Daniels
Dennis Faustino
C. J. Gianakaris
Russell J. Grandstaff
S. Mark Hoffman
David Karsten
Greg D. Roehnck
Lydia Stillwell
Vern Stilwell
Von H. Washington
Judith K. Masse, 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 theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools or professional theatre intern/apprentice programs.

Opportunities for participation in the production program begin with the freshman year. The department produces 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.

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.

Advising

Adviser: Dr. Vern Stillwell
Shaw Theatre: (616)387-3220

Theatre academic advisor will assist any student enrolled in the University with course selections in theatre. Appointments are made through the department secretary. Theatre majors and minors must confer with the theatre adviser, 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.

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 or advanced, specialized professional training. It offers a program combining a broad background in theatre with concentration in performance or design and technical production.

Required Courses

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<th>Course</th>
<th>Hrs.</th>
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<tr>
<td>THEA 120 Stagecraft I</td>
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<td>THEA 141 Improvisation</td>
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<tr>
<td>THEA 142 Acting I</td>
<td>3</td>
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<tr>
<td>THEA 170 Script Analysis</td>
<td>3</td>
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<td>THEA 232 Scenic Design</td>
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<td>THEA 290 Theatre Practicum</td>
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<td>THEA 331 Costume Design</td>
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<td>THEA 332 Lighting and Sound Design</td>
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<td>THEA 351 Directing I</td>
<td>3</td>
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<tr>
<td>THEA 370 Theatre History I</td>
<td>3</td>
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<tr>
<td>THEA 371 Theatre History II</td>
<td>3</td>
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<tr>
<td>THEA 470 Development of Theatre Art</td>
<td>3</td>
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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.
Third Year—Fall
THEA 341, 351, 370, 290
Third Year—Winter
THEA 332, 342, 352, 371
Fourth Year—Fall
THEA 441, Direct Lab Show (Elective), THEA 290
Fourth Year—Winter
THEA 470, 442

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS

First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290
First Year—Winter (These courses may be taken either semester)
THEA 141, 142, ENG 252 (General Education; prerequisite THEA 370), THEA 290
Second Year—Fall
THEA 220, 231, 370, 290
Theatre Education Major

THEA 142 Acting I 3
THEA 371 Theatre History II 3
THEA 141 Improvisation 3
THEA 120 Stagecraft I 3

It is required to teach and direct theatre programs in secondary schools.

39 credit hours

THEA 232 Scenic Design 3
THEA 331 Costume Design 3
THEA 170 Script Analysis 3
THEA 120 Stagecraft I 3
THEA 352 Directing II 3

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 170 Script Analysis 3 hrs.

The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production.

THEA 220 Stagecraft II 3 hrs.

A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scenery painting; lighting technology; and laboratory work on University Theatre productions. Prerequisite: THEA 120. (Lab fee required for materials.)

THEA 230 Stage Makeup 3 hrs.

Study and practice of the basic principles and techniques of stage makeup.

THEA 231 Drafting and Color Media 3 hrs.

A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special techniques of drafting for the theatre and in the use of various color media for design renderings and scale models. Prerequisite: THEA 120.

THEA 351 Directing I 3 hrs.

A course in scenicography covering the design of stage settings and properties expressed through color renderings and/or the scenic model, including further development of skills in drafting for the theatre. Prerequisite: THEA 120.

THEA 241 Voice and Movement I 3 hrs.

Development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 141 and THEA 142.

THEA 242 Voice and Movement II 3 hrs.

Continued development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisite: THEA 241.

THEA 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 aspects are integrated with the life and times of the people involved.

THEA 290 Theatre Practicum 1-8 hrs.

Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor).

Theatre Minor

24 credit hours

Required Courses Hrs.
THEA 120 Stagecraft I 3
THEA 142 Acting I 3
THEA 170 Script Analysis 3
THEA 232 Scenic Design 3
THEA 290 Theatre Practicum 3
THEA 331 Costume Design 3
THEA 332 Lighting and Sound Design 3
THEA 351 Directing I 3
THEA 471 Methods of Teaching Theatre in High School 3

A grade of "C" or better is required in all courses.

Theatre Education Minor

Bachelor of Arts or Bachelor of Science 39 credit hours

This program is designed for students planning to enter the University theatre programs in secondary schools.

Required Courses Hrs.
THEA 120 Stagecraft I 3
THEA 142 Acting I 3
THEA 170 Script Analysis 3
THEA 232 Scenic Design 3
THEA 331 Costume Design 3
THEA 332 Lighting and Sound Design 3
THEA 351 Directing I 3
THEA 352 Directing II 3
THEA 370 Theatre History I 3
THEA 371 Theatre History II 3
THEA 470 Development of Theatre Art 3
THEA 471 Methods of Teaching Theatre in High School 3

A grade of "C" or better is required in all courses.

SUGGESTED COURSE OF STUDY FOR THEATRE EDUCATION MAJORS (THN)

First Year-Fall (These courses may be taken either semester) THEA 120, 170
First Year-Winter (These courses may be taken either semester) THEA 141, 142,
Second Year-Fall THEA 331
Second Year-Winter THEA 232, ENG 352 (General Education; prerequisite to THEA 370)
Third Year-Fall THEA 351, 370
Third Year-Winter THEA 332, 352, 371, 471
Fourth Year-Fall Student Teaching
Fourth Year-Winter THEA 470

Theatre Courses (THEA)

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

THEA 100 Introduction to Theatre 3 hrs.
Considers theatre as a part of the individual's cultural heritage and liberal arts background. Students attend theatre performances and have opportunities to participate in University Theatre. (Lab fee required for play attendance.)

THEA 110 Explorations in Performance 3 hrs.
Instruction and practice in the various forms of performance for non-theatre majors.

THEA 200 Stagecraft II 3 hrs.
A beginning course in technical production including familiarization with theatrical equipment and materials; the planning and
THEA 331 Costume Design
3 hrs.
A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Prerequisite: THEA 120 (THEA 231 recommended).

THEA 332 Lighting and Sound Design
3 hrs.
A course in the design of theatrical lighting and sound and in the practical application of those designs to the stage, including laboratory work on University Theatre productions. Prerequisites: THEA 120, 232, 331. (Lab fee required for materials.)

THEA 341 Acting II
3 hrs.
This course integrates theories and practices of improvisation, acting I, and voice and movement I and II in the process of role study and development. Satisfactory staff evaluation of this course is required to elect more advanced acting courses. Prerequisite: THEA 242.

THEA 342 Acting III
3 hrs.
The application of role study and analysis to character development in the preparation and performance of full-length plays. Prerequisite: THEA 341.

THEA 351 Directing I
3 hrs.
Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the proscenium stage. Prerequisites: THEA 141, THEA 142, THEA 170, THEA 232.

THEA 352 Directing II
3 hrs.
A continuation of THEA 351. Students prepare and direct scenes and one short play using non-proscenium staging. Prerequisite: THEA 351.

THEA 370 Theatre History I
3 hrs.
Survey of theatre history from the beginnings to 1642. Playwrights, acting styles, theatre production, theatre architecture, and audience taste are studied. Prerequisite: ENGL 252.

THEA 371 Theatre History II
3 hrs.
Survey of theatre history from 1642 to the 20th century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Prerequisite: THEA 370.

THEA 372 Music Theatre Script Analysis and Critique
3 hrs.
Students will learn how to analyze the libretti and scores of opera, operetta, musical comedy, ballet, and dance theatre. Students are required to attend and submit critiques of several live productions.

THEA 380 Professional Theatre Internship
3 or 6 hrs.
Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with major professional theatres. Students must arrange an internship application and number of credits with the department's Internship Coordinator. A maximum of six credit hours may be accumulated. Prerequisite: Consent of Internship Coordinator.

THEA 400 Special Topics in Theatre
3 hrs.
An investigation of topics of special interest related to theatre. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime, puppetry, script writing, advanced directing, theatre administration, touring theatre, advanced improvisation, stage management, technical direction. Prerequisites: Variable.

THEA 420 Advanced Technical Problems
3 hrs.
An investigation of the application of modern materials and techniques to the problems of the technical production of scenery, costumes, properties, lighting and/or sound in the theatre. Prerequisites: THEA 220, or 232, or 331, or 332.

THEA 431 Advanced Design
3 hrs.
A course for advanced students in the design of scenery, costumes, properties, and/or lighting; the professional drafting of those designs for technical production; and the preparation of the designer's resume and portfolio. Prerequisites: THEA 232, or THEA 331 or THEA 332.

THEA 441 Acting Studio
3 hrs.
An advanced course in the art of acting with emphasis on the individual needs of the student actor. May be repeated for a maximum of 6 credit hours, only 3 of which are applicable toward major. Prerequisite: THEA 342.

THEA 442 Period Styles of Acting
3 hrs.
Study and practice of acting in plays from selected major periods of theatre activity prior to the 20th century. Topics may include Greek, commedia dell' arte, Shakespeare, Moliere, Restoration, and examples from 18th and 19th 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, syllabus, 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 adviser, and departmental chair.
Goals of the College

1. The goals of the College of General Studies will be compatible with the goals of the University.

2. The most comprehensive goal of the College 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 College 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 College of General Studies acknowledges positively more than one mode of inquiry and encourages exploration of interdisciplinary interests and programs of study.

5. The College 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 College 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 type of investigation 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 341 Library Resources II
2 hrs.
Students are asked to select a section of the course that emphasizes either the humanities, the social sciences or the sciences. Students will be introduced through lectures, exercises and a term project to some of the standard reference sources and the basic library research methods in the field emphasized in their section of the course. The course is intended to be of immediate use to students who have specific library needs related to courses in their fields. The course is also intended to provide a broad acquaintance with aids to research in the various disciplines, which are useful for general as well as specialized inquiry, resulting in insight as well as skill. Does not count for General Education credit. Cannot be repeated for credit.

GENL 499 Independent Study in General Studies
1-8 hrs.
Various extra-classroom activities, including independent reading or research under the direction of a faculty member or projects associated with field experience or travel of recognized educational value. Prior arrangement with a faculty member and prior approval of the Chair of the General Studies Faculty and the office of the Dean of the College. May be repeated for credit. This course will not be accepted for General Education credit without the approval of the Coordinator of General Education Advising.
Humanities courses are concerned with expressions of human values in their cultural contexts. In every culture there are people who ask: What is the meaning of our lives? What is human life worth? Humanities courses examine, usually through a historical perspective, a variety of intellectual, emotional, spiritual, and imaginative responses to those questions. The values associated with such responses are explored in order to provide perspectives for the student’s own judgments.

**Humanities Courses (GHUM)**

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

- **GHUM 102 Direct Encounter with the Arts**
  4 hrs.
  A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students’ participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks.

- **GHUM 105 Introduction to Humanities**
  4 hrs.
  A study of one or more of the following themes: love, death, heroism, morality, and freedom, as they have appeared in myth, philosophy, religion, and the arts.

- **GHUM 300 Arts and Ideas (variable subsections)**
  4 hrs.
  A. Classical to Renaissance
  This course, by showing the key stages in the interplay of religion, science, philosophy, and the arts from the age of Socrates to the Renaissance, explores the background of the modern look. It will show that the values and perceptions of life that seem so natural to us today are the results of centuries of insight and controversy.

  B. Renaissance to Modern Times
  A continuation of GHUM 300A, from the Renaissance to the Twentieth Century. May be taken separately; GHUM 300A is a prerequisite.

- **GHUM 302 American Culture**
  4 hrs.
  A study of significant concepts in American life focusing on the relationship of the individual to society as seen from the perspectives of literature, the arts, and social and political theory.

- **GHUM 310 Minority Culture**
  4 hrs.
  An interdisciplinary study of minority cultures in terms of their relations with the majority culture and their ability to maintain a separate identity. Topics include: language and culture, social and political issues, and the role of media in the development of cultural identity.

- **GHUM 315 Human Communication**
  4 hrs.
  An investigation of the processes by which people use symbols to communicate ideas, ideas of various communications specialists.

- **GHUM 316 Mass Media: Messages and Manipulation**
  4 hrs.
  An examination of mass communication in general and of particular mass media. Students will consider the processes, effects, and functions of mass media, and their personal responses to these, through considering relevant scholarship from such diverse fields as sociology, history, psychology, anthropology, art, and literature.

- **GHUM 402 Beyond 2000: Utopian Visions and Futurism**
  4 hrs.
  A lecture/discussion course which introduces the student to the classic literature of utopias and contemporary futurology, covering utopias of escape and reconstruction from Plato to Skinner, the anti-utopias of Huxley and Orwell, and futuristic views of the world of the 21st century.

- **GHUM 409 Women: Past, Present and Future**
  4 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 will be interdisciplinary: historical for background, biological to explore facts versus myths, artistic models, literary tradition, changing social forces and the contemporary world of female consciousness.

- **GHUM 410 Critical Times**
  4 hrs.
  An interdisciplinary study of selected short periods of cultural change. Emphasis will be on the unity of the period and on how significant events, issues and attitudes are reflected in literature, the media, and popular arts. Examples are the Progressive Era, the Twenties, the Vietnam Era.

- **C. Twentieth Century**
  A continuation of 300A and 300B, with the emphasis on a comprehensive examination of selected arts of modern Western culture (four from among the following: architecture, dance, film, literary arts, music, painting, and sculpture) demonstrating their relationship to the major intellectual and social currents of the twentieth century. May be taken separately from GHUM 300A and GHUM 300B, neither of which is a prerequisite.

- **GHUM 502 American Culture**
  4 hrs.
  An interdisciplinary study of minority cultures in terms of their relations with the majority culture and their ability to maintain a separate identity. Topics include: language and culture, social and political issues, and the role of media in the development of cultural identity.

- **GHUM 510 Minority Culture**
  4 hrs.
  An interdisciplinary study of minority cultures in terms of their relations with the majority culture and their ability to maintain a separate identity. Topics include: language and culture, social and political issues, and the role of media in the development of cultural identity.

- **GHUM 515 Human Communication**
  4 hrs.
  An investigation of the processes by which people use symbols to communicate ideas, ideas of various communications specialists.

- **GHUM 516 Mass Media: Messages and Manipulation**
  4 hrs.
  An examination of mass communication in general and of particular mass media. Students will consider the processes, effects, and functions of mass media, and their personal responses to these, through considering relevant scholarship from such diverse fields as sociology, history, psychology, anthropology, art, and literature.

- **GHUM 520 Beyond 2000: Utopian Visions and Futurism**
  4 hrs.
  A lecture/discussion course which introduces the student to the classic literature of utopias and contemporary futurology, covering utopias of escape and reconstruction from Plato to Skinner, the anti-utopias of Huxley and Orwell, and futuristic views of the world of the 21st century.

- **GHUM 529 Women: Past, Present and Future**
  4 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 will be interdisciplinary: historical for background, biological to explore facts versus myths, artistic models, literary tradition, changing social forces and the contemporary world of female consciousness.

- **GHUM 530 Critical Times**
  4 hrs.
  An interdisciplinary study of selected short periods of cultural change. Emphasis will be on the unity of the period and on how significant events, issues and attitudes are reflected in literature, the media, and popular arts. Examples are the Progressive Era, the Twenties, the Vietnam Era.
Social Science Courses (GSSC)

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

GSSC 121 Dimensions of Human Behavior 4 hrs.
A series of learning experiences designed to explore the social, psychological, and cultural dimensions of human behavior, using both individual and group approaches to learning. The emphasis is upon those social processes which impose restraints upon human behavior.

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.

College of General Studies 243

GSSC 222 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.

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 351 The Twentieth Century Experience 4 hrs.
This course will survey and analyze such key issues as war and peace, revolution and human rights, in the context of changing ideals and theories. These issues will be presented against the socio-economic background of world population, urban growth, food and energy, agriculture and industrialization. The course will emphasize the need for a new ethos to match our growing technological capacities.

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.

GSSC 444 Female and Male: Psychological Perspectives 4 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.

Social Science

Visho Sharma, Chair
Do Young Chang
Sush Datta-Sandhu
David DeShon
David Ede
Norman Greenberg
Francis Gross
Bruce Haight
Nita Hardie
Barbara Havira
Artur Helweg
Lawrence Israel
Abdullah Khan
Patricia Klein
George LeBonte
Evans Richards
Lawrence Tyler

The primary focus of social science is the realm of human experience. Within this field of study, special concern is the analysis of the social processes that link all human beings. The empirical, data-based approach that characterizes social-scientific inquiry seeks to foster a better understanding of the emergence and nature of the regularities of human life.

The main objective of the teaching-learning process is to facilitate the development of social self-consciousness, an awareness that individuals experience life and define and express their humanity within a human group that is part of a larger social network. To achieve this, social science courses are designed to provide the student an opportunity to examine the cultural reality of behavior, ideas, and values as well as the dynamic and continuing processes by which these are diffused across cultures; the idea that human nature has a socially-determined and historical, as well as individual, basis; the view that there are reciprocal influences of environmental settings, cultural processes, social forces, and individual expression; the view that the social processes of any group tend to define the limits of individual activity; the importance of an empirical analysis of private and social perspectives as well as the data that generate such analyses; the view that these permit; perspectives which go beyond the specifics of the regular social science disciplines; and experience-based views of social reality that are placed into juxtaposition with one or more theoretical formulations of social processes, the views of student peers, and those of the instructor.

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COLLEGE OF
HEALTH AND HUMAN SERVICES

Janet I. Pisaneschi
Dean

Program Areas:
Blind Rehabilitation
Center for Human Services
Occupational Therapy
School of Community Health Services
Gerontology Program
Health Care Administration Concentration
Physician Assistant Program
Specialty Program in Alcohol and Drug Abuse
Specialty Program in Holistic Health Care
School of Social Work
Speech Pathology and Audiology

THE COLLEGE FACULTY
Molly Vass
Morton Wagenfeld

The College of Health and Human Services provides programs in Blind Rehabilitation (at the graduate level); Community Health Services, including Gerontology, (undergraduate and graduate), Physician Assistant (undergraduate), and Alcohol and Drug Abuse, concentrations in Health Care Administration and Holistic Health Care (at the graduate level); and Occupational Therapy, Social Work, and Speech Pathology and Audiology. Through these professional programs, education, research, and community assistance in health and human services are provided. The programs cover direct service roles in the health and human service professions, as well as functions of 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.

Mission
The mission of the College of Health and Human Services at Western Michigan University is to contribute to the improvement of the quality of health and human services in the west Michigan area, the State of Michigan, and the nation as a whole through degree and non-degree instructional programs, research, and community service activities. The mission includes a commitment to foster development of a comprehensive health and human service care system responsive to the citizens of the state and the nation which contributes to enhancement of the overall quality of life in general.

Through the qualitative and innovative educational and professional service programs of the College a commitment is being made to the integration of education—within the College, between the College and other colleges of the University, and between the College and 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.

Advising
Students admitted to Western Michigan University must also be admitted formally to the College’s programs through the individual departments, school or units. Interested candidates should contact the departments or program directors for further information.

Financial Aid
Scholarships and other forms of financial assistance are available for most programs in the College. Please refer to the section on Scholarships and Financial Aid.

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Interdisciplinary Program

Integrated Language Arts Minor (ILAM)

Dr. Jim Burns, Adviser
3414 Sangren Hall
(616) 387-3470

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.

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 must see an adviser 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILAM/ED 260</td>
<td>Cognitive Development of the Child</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>ILAM/SPPA 260</td>
<td>Linguistic Development of the Child</td>
<td>2 hrs.</td>
</tr>
</tbody>
</table>

Intermediate Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILAM/ENGL 375</td>
<td>Acquisition of Literacy and the Early Elementary Child</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>ILAM/ENGL 376</td>
<td>Acquisition of Literacy and the Later Elementary Child</td>
<td>4 hrs.</td>
</tr>
</tbody>
</table>

Capstone—to be taken after at least 16 hours of the minor are completed:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILAM/ED 460</td>
<td>Integrated Language Arts Seminar</td>
<td>4 hrs.</td>
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</table>

For individual course descriptions see catalog listings under the participating department.

BLIND REHABILITATION AND MOBILITY

William R. Wiener, Chair
Robert O. LaDuże
David Guth
Paul Ponchillia
Susan Ponchillia
James LaJa
Marvin Weessies

The Department of Blind Rehabilitation and Mobility 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 and Mobility Courses (BLRH)

Open to Upperclass Students

BLRH 501 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.

BLRH 584 Computer Technology for Visually Impaired Persons
2 hr.

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 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 specialties.

The school endeavors to accomplish this mission and goal by promoting the visibility, demonstration, expansion, and evaluation of professional and specialty educational programs for the benefit of citizens, students, and community organizations and agencies. The school recognizes the common developmental problems and opportunities of emerging professions, disciplines, and specialty areas and therefore encourages interdisciplinary cooperation and collaboration in research, demonstration, and educational activities.

Health and Human Services Courses (HHS)

HHS 100 Choices in Living 3 hrs.
The course will focus on the relationship between individual choices, social responsibilities, and optimal human functioning. Students will be educated in current theories and techniques of values clarification, motivation, and behavior change. Health and social issues relevant to young adults and throughout the life cycle will be examined. This course is designed for undergraduate students in all majors and is especially valuable for students interested in health and human services professions.

HHS 110 Introduction to Health and Human Services 3 hrs.
This course provides an overview of the issues, philosophies, political ideologies, economic theories, and American values which have an impact on health and human service delivery. In addition students will be introduced to the historical development, areas of services, and models of service delivery which are part of health and human services. The course will also provide students with the opportunity of learning about potential careers in the various professions within the field.

HHS 511 The Health System and Its Environment 3 hrs.
This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as beyond 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 surveys the history of planning in the health systems as well as the current structure arrangements for carrying out planning in the health arena both at the macro and micro levels.

HHS 515 Administrative Functions in the Health Care Setting 3 hrs.
This course focuses on the knowledge and skills necessary for the major administrative functions in health organization. These include goal setting, decision making, personnel management, data processing, service design, and general principles of financial management.

HHS 520 Clinical Theory for Health and Human Services 1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundation knowledge for clinical practice. Theory of environmental health, systems theory for the health setting, theories of substance abuse for nursing and medical practice, and community health theory are among the possible areas of study. The specific topics are announced with each semester offering.

HHS 560 Clinical Practice in Selected Health and Human Service Areas 1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills and development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of study. The specific areas are announced with 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 skill development course which helps students to become proficient with theoretical constructs and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem-solving in the health agency are among the topics covered. The specific topics to be
COMMUNITY HEALTH SERVICES 247

ADMISSION REQUIREMENTS
The PA Program has the following requirements for application to the professional curriculum. No application missing one or more of these requirements will be considered for admission.

1. A minimum of 1,000 hours (six months) of health care experience (not including education). Many types of experiences are acceptable. The Program staff will answer questions about applicability of health care experiences.

2. A minimum of sixty (60) semester hours of college credits, including CHEM 101 and CHEM 120 or 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 requirement.

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 Bigelow Annex.

SELECTION PROCESS
The selection committee has established the following policies for selection to 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 and the candidates are identified for interviews.

2. Interviews: candidates are scheduled for separate required interviews.

3. Final selections: the selection committee reviews all the data including the results of the interviews and recommends candidates for admission.

Students are admitted to the program at the beginning of the Junior (Pre-Clinical) academic year each fall semester. Because of the keen competition for class positions, priority is given to those candidates who present the best overall profile. Selection is based on 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
The upper-division curriculum is divided into two parts. The first part is devoted to the basic medical sciences upon which the theoretical concepts of disease can be built. Subjects covered in this portion include anatomy, biochemistry, pharmacology, microbiology, and pathophysiology. During this time the students begin instruction in the clinical areas such as interviewing, history taking and physical diagnosis.

During the senior or clinical year, each senior PA student enrollment in seven required clinical rotations including: community and mental health, family medicine, internal medicine, surgery, obstetrics and gynecology, and pediatrics and an elected medical specialty. In addition, each senior student is permitted one elective clerkship in any of the medical specialties.

CURRICULUM REQUIREMENTS
1. All courses listed (103 hrs.) are required.

2. Students are required to obtain at least a grade of “C” in each course or they must undergo a prescribed academic review process to determine their continuation in the program.
3. Students are required to successfully pass a comprehensive examination in medical terminology at the start of the fall semester of their junior year.
4. Students must meet Intellectual Skills and Computer Literacy requirements.

**JUNIOR (PRE-CLINICAL) YEAR**

**FALL SEMESTER**

- **BICS 401** Pathogenic Microbiology for P.A.'s 
  2 hrs.
- **CHEM 350** Chemistry for P.A.'s 
  3 hrs.
- **MDSC 301** Medical Terminology 
  1 hr.
- **MDSC 304** Patient Evaluation I 
  3 hrs.
- **MDSC 311** Gross Human Anatomy 
  5 hrs.
- **BICS 319** Clinical Physiology for P.A.'s 
  5 hrs.

**WINTER SEMESTER**

- **MDSC 303** PA History and Legislation Seminar 
  1 hr.
- **MDSC 314** Counseling 
  3 hrs.
- **MDSC 317** Internal Medicine I 
  6 hrs.
- **MDSC 306** Pathophysiology 
  3 hrs.
- **MDSC 410** Pharmacology I for P.A.'s 
  4 hrs.
- **MDSC 409** Allergy 
  1 hr.
- **MDSC 413** Dermatology 
  1 hr.

**SPRING SESSION**

- **MDSC 324** Patient Evaluation III 
  1 hr.
- **MDSC 337** Pediatrics 
  3 hrs.
- **MDSC 302** General Surgery I 
  2 hrs.
- **MDSC 327** Internal Medicine II 
  3 hrs.
- **MDSC 312** Community and Mental Health 
  1 hr.

**SUMMER SESSION**

- **MDSC 334** Patient Evaluation IV 
  1 hr.
- **MDSC 347** Obstetrics and Gynecology 
  3 hrs.
- **MDSC 412** Pharmacology II for PAs 
  3 hrs.
- **MDSC 415** Emergency Medicine Lectures 
  3 hrs.

**SENIOR (CLINICAL) YEAR**

**FALL SEMESTER, WINTER SEMESTER, AND SPRING SESSION**

- **MDSC 307** Techniques of Patient Counseling 
  1 hr.
- **MDSC 422** Pediatrics Clerkship 
  4 hrs.
- **MDSC 423** Obstetrics and Gynecology Clerkship 
  4 hrs.
- **MDSC 433** Obstetrics and Gynecology Seminar 
  2 hrs.
- **MDSC 342** Internal Medicine Clerkship 
  4 hrs.
- **MDSC 434** Internal Medicine Seminar 
  4 hrs.
- **MDSC 425** Surgery Clerkship 
  4 hrs.
- **MDSC 435** Surgery Seminar 
  2 hrs.
- **MDSC 426** Community and Mental Health Clerkship 
  4 hrs.
- **MDSC 436** Community and Mental Health Seminar 
  2 hrs.
- **MDSC 428** Elective Clerkship 
  4 hrs.
- **MDSC 438** Elective Seminar 
  2 hrs.

**SUMMER SESSION**

- **MDSC 427** Family Medicine Preceptorship 
  6 hrs.
- **MDSC 437** Family Medicine Seminar 
  2 hrs.

**Physician Assistant Program Courses (MDSC)**

- **MDSC 301** Medical Terminology 
  1 hr.
- **MDSC 302** General Surgery Lecture 
  2 hrs.

This course presents topics related to general surgery including acute, chronic and emergent problems. Topics will include pre/post operative care techniques, nutrition, fluid and electrolyte balance as well as presentations on selected surgical conditions and their management. Prerequisite: MDSC 317 and PA curriculum.

- **MDSC 303** PA History and Legislation Seminar 
  1 hr.

Principle events in the history of the Physician Assistant profession are described. Legislative history and current developments are discussed. Additional topics include: importance of professional associations, hospital privileges, PA/physician agreements, and the process for interviewing, resume writing, and other preparation for employment.

- **MDSC 304** Patient Evaluation I 
  3 hrs.

This is the first in a series of four courses presented sequentially through the pre-clinical year. It provides instruction in the systematic evaluation of patient problems through history taking and physical examination. Lectures, demonstrations, student examination of patients, and critique of those examinations are included among the instructional techniques. Emphasis is placed upon techniques of interviewing and physical examination that assure the acquisition of an accurate data base that is essential for diagnosis and the preparation of the treatment plan. The student learns how to record the data and orally present a complete data base efficiently and professionally. Both the traditional and problem oriented medical records are studied.

- **MDSC 307** Techniques of Patient Counseling 
  1 hr.

An introduction to patient counseling with emphasis upon interviewing techniques, current theories of personality and psychopathology and including such specialized techniques as methods of crisis intervention, counseling patients with substance abuse problems, coping problems, sexual dysfunction problems. In addition psychotherapeutics counseling is discussed.

- **MDSC 311** Gross Human Anatomy 
  5 hrs.

This course is designed to help the Physician Assistant student achieve a sound understanding of the structure of the human body through lectures, discussions and laboratory cadaver dissection. Topographical and regional anatomy as applied to clinical medicine are stressed.

- **MDSC 312** Community and Mental Health Lecture 
  1 hr.

This course introduces topics in community and mental health that range from descriptions of community resources to diagnostic categories and terms in the field of psychiatry. Emphasis will be placed on acquainting students with a wide range of clinical presentations, referral options, and therapeutic guidelines related to the role of the Physician Assistant in the health care system. Prerequisites: MDSC 317 and PA curriculum.

- **MDSC 314** Patient Evaluation II 
  3 hrs.

Second in a series of courses beginning with 304.

- **MDSC 317** Internal Medicine I 
  6 hrs.

This course has two principle elements. The first is to introduce the student to the broad concepts of medical service emphasizing to 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 
  1 hr.

Third in a series of courses beginning with 304.

- **MDSC 327** Internal Medicine II 
  3 hrs.

This course surveys the etiology, pathophysiology, diagnosis and treatment of common diseases and disorders by 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, 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 347** Obstetrics/Gynecology Lecture 
  3 hrs.

This course introduces the student to women’s health care through inquiry into the fields of obstetrics and gynecology, knowledge of normal processes and abnormal conditions, and increased awareness of the unique needs of women seeking health care. Prerequisite: MDSC 317 and PA curriculum.

- **MDSC 409** Allergy 
  1 hr.

This course covers basic theoretical and proven concepts of allergy and immunology. Emphasis is placed on clinical recognition of allergic symptoms, importance of accurate etiologic diagnosis and the relationship between pathophysiologic changes and their corrections by proper therapy.

- **MDSC 410** Pharmacology I for PAs 
  4 hrs.

This course emphasizes the general principles of pharmacology as a basis for the rational clinical use of drugs. The course is comprehensive but pragmatic. Factors affecting drug action, such as phases 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 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 practicums on basic skills needed in the...
This six-week rotation is intended to cover the many sub-specialties of medicine to include emergency medicine, dermatology, otolaryngology, ophthalmology, urology, orthopedics, cardiology and oncology. The student may elect to take any combination of these specialties to fill the six-week period. In addition to the specialties, the student may elect to seek further experience in one of the other main specialties such as community and mental health, surgery, internal medicine, ob/gyn, pediatrics or family practice.

MDSC 428 Elective Rotation: Variable Title 2-8 hrs.
This six-week rotation is intended to cover the previous rotations to bear on primary care. Emphasis is on proper data collection through history and physical examination, formulation of accurate problem lists, accurate investigations 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 429 Pediatrics Seminar 2 hrs.
During the six-week clinical rotation in pediatrics, the student reviews selected readings which include major areas of pediatrics: newborn care, disorders of the newborn, musculoskeletal system, neurologic system, infectious diseases, poisonings, child neglect, psychological aspects of childhood, digestive system disorders. Within these topics emphasis is placed on etiology, signs and symptoms, clinical presentation, diagnosis and management, common pediatric problems. Emphasis is also placed on preventive medicine, care and assessment of well children, immunizations, patient and parent education.

MDSC 430 Obstetrics and Gynecology Seminar 2 hrs.
This is a self directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete reading assignments in obstetrics and gynecology. Here again the emphasis is on common problems in obstetrics and gynecology which physician assistant would be involved in, including preventive medicine and patient education.

MDSC 434 Internal Medicine Seminar 2 hrs.
This is a self directed seminar which accompanies the internal medicine clinical rotation. The reading list centers on the etiology, clinical presentation, diagnosis and management of common problems in adult medicine.

MDSC 435 Surgery Seminar 2 hrs.
This is a self directed seminar in surgery which accompanies the clinical rotation in surgery, and deals with the etiology, clinical presentation, diagnosis and management of common problems of surgery.

MDSC 436 Community and Mental Health Seminar 2 hrs.
This is directed self study seminar which accompanies the community and mental health clinical experience and which centers on common problems frequently encountered by patients and emphasizes their recognition and proper treatment. It also emphasizes referral mechanisms and utilization of community resources. The problems include such things as marriage and family counseling, alcohol and drug abuse, anxiety problems, learning disabilities, personality disorders as well as depression and schizophrenia.

MDSC 437 Family Medicine Seminar 2 hrs.
This is a self directed seminar in family medicine which accompanies the clinical experience in family medicine. The student is provided with a required reading list which focuses on problems commonly found in primary care in family medicine. These include knowledge of the family structure and function, family dynamics, preventive medicine, periodic health screening, utilization of community resources and common medical problems in dermatology, orthopedics, ophthalmology, internal medicine, nutrition, allergy, immunology, urology, neoplastic disorders, emergency problems, surgery, pediatrics, obstetrics and gynecology.

MDSC 438 Elective Seminar: Variable Title 2 hrs.
This independent study seminar takes place during the elective rotation. Through readings and discussion with the preceptor physicians emphasis is placed on academic knowledge of the elected area of medicine. Prerequisite: PA curriculum.

SPECIALTY PROGRAM IN ALCOHOL AND DRUG ABUSE

Adviser: Jan Dekker
Room B-301, 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, the School of Social Work, the Center for Public Administration Programs, and Occupational Therapy provide a multidisciplinary and interdisciplinary base 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 master's degree in their respective disciplines and, upon completion of the eighteen-hour SPADA program requirements, receive a Certificate of Specialty in Alcohol and Drug Abuse.

Further details regarding the specialty are available in The Graduate College Catalog.
The equal consideration date for fall semester admission is February 14, and July 1 for winter admission. (Contact the department office for information.) Students interested in applying for Departmental Admission are encouraged to contact a Department Adviser well in advance of expected admission. Imposed deadlines are strictly enforced.

In addition to the coursework required for admission, students must successfully complete three preprofessional courses before beginning courses in the professional curriculum. Abnormal Psychology, 3 credit hours; Human Anatomy, 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).

Field Work
Students are required to successfully complete two three-month fieldwork experiences. One is taken in a medical model (usually a hospital setting) and the other in a community agency (e.g., a day treatment program or school). To attain competency for practice and for the national AOTA certification examination, students should avoid selecting both experiences in settings that focus on the same area of disability.

To be eligible for fieldwork, students must have a cumulative grade point average of 2.00 or above, with no grades less than “C” in required and prerequisite courses.

Fieldwork is graded on a scale similar to academic coursework. Students are evaluated by a clinical supervisor who assesses areas of performance, judgment, and attitude. Each of the three areas must be passed at minimum competency for entry level practice.

An optional third fieldwork experience, of variable duration, may be scheduled pending available openings. A third experience is highly recommended. It usually does not interfere with graduation dates or eligibility for the AOTA certification examination.

Remediation and Continuance Policy
1. Students will complete all required departmental courses and all required prerequisites with a grade of “C” or better. Subsequent courses cannot be taken until prerequisites are completed successfully.
2. Students can repeat only one required preprofessional or departmental course, and that course only once, to attain a grade of “C” or better.
3. Students who fail to attain a grade of “C” or better in a professional or preprofessional course will be placed on departmental probation following the grade lower than “C.”
4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.
5. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

FIELDWORK REMEDICATION 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 490, 491) are subject to the academic policy for remediation and continuance, and will repeat the experience in a similar setting.
3. Successful completion of OT 453 and all professional and prerequisite coursework is required for OT 490.
4. Successful completion of all undergraduate coursework 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.

Miscellaneous
The following course is offered on a credit/no credit basis only: OT 236. Materials fees are required for some courses.

Program
Bachelor of Science Degree
Minimum hours required for this curriculum .................................................. 128
Course Requirements
All courses listed under "Admission, 3," are the recommended courses for all Pre-Occupational Therapy students. (See Department Adviser for further information.)

General Education Requirements ............................................................. 35
Physical Education Requirements ............................................................. 2
Courses Required for Admission
Consideration
1. Behavioral Sciences (Psychology, Sociology or Anthropology) .................... 9
2. Basic course in Biological Sciences (BIOS 112 or equivalent) .................... 3-4
3. Normal Growth and Development (covering the Life Span) (OT 225 or equivalent) ........ 3
4. English Composition ............................................................................. 3
5. Satisfactory completion of all Basic Skills Remediation Requirements.

Pre-Professional Courses: (Prerequisite to related courses in Occupational Therapy theory and techniques)
1. Human Anatomy (B IOS 211 or equivalent) .......................................... 3-4
2. Human Physiology (B IOS 240 or equivalent) ....................................... 3-4
3. Abnormal Psychology (PSY 250 or equivalent) ..................................... 3

Professional Curriculum ........................................................................... 51
OT 202 Orientation to Occupational Therapy ........................................... 2
OT 203 Professional Language and Interaction .......................................... 3
OT 312 Adapted Activities ......................................................................... 4
OT 321 Integrated Medical Sciences ......................................................... 6
OT 335 Assessment Principles and Instruments ......................................... 3
OT 344 Disabling Conditions .................................................................. 4
OT 351 Introduction to Theory and Treatment Process I ............................ 3
OT 352 Introduction to Theory and Treatment Processes II ....................... 2
OT 353 Occupational Therapy Practice ..................................................... 3
OT 355 Life Skills and Personal/Environmental Adaptations ..................... 4
OT 451 Applied Theory and Treatment Process ......................................... 2
OT 453 Occupational Therapy Practicum II ............................................. 3
OT 460 Research Methodology ............................................................ 3
OT 480 Administration-Supervision-Consultation ................................... 3
OT 490 OT Fieldwork II ....................................................................... 3
OT 491 OT Fieldwork II ....................................................................... 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 203 Professional Language and Interactions ................................. 3 hrs.
A basic course which includes medical terminology, techniques of information gathering, and professional interpersonal communications. Prerequisite: OT major.

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 296 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 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 ............................................... 8 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 neuromuscular 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 344 Disabling Conditions ............................................................. 4 hrs.
This course will introduce pathogenic processes and their impact upon the total individual. Prerequisite: OT 321 or concurrent; Abnormal Psychology.

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. Prerequisites: 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. Prerequisites: OT 351 or concurrent.

OT 353 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 353, 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/recreation performance. 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 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 355.

OT 453 Occupational Therapy Practicum II ................................. 3 hrs.
This course is designed to provide clinical experience in community agencies in order to develop skills in the utilization of assessments, the development of treatment plans, the implementation of treatment plans, and the evaluation of the patient's progress related to the treatment plan. Emphasis is directly related to the content of OT 451. Prerequisites: OT 353, OT 351, OT 353 or concurrent; or OTR, RPT, or consent.

OT 456 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 write a research proposal. Prerequisite: Senior status and OT 203.

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.
An optional 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 areas of occupational therapy. Prerequisites: OT 490, OT 491.

OT 530 Sensory Integration and The Child ................................. 3 hrs.
Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients. Prerequisites: OT 353, OT 351, OT 353 or concurrent; or OTR, RPT, or consent.

OT 597 Studies in Occupational Therapy ................................. 2-4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisite: Advanced OT major or departmental permission.
The School of Social Work offers both an undergraduate and graduate professional program leading to a B.S.W. and M.S.W., respectively. Both programs are accredited by the Council on Social Work Education. The undergraduate professional program is designed to prepare students for beginning level social work practice, to provide preparation for graduate training in social work, and to offer social welfare content as part of the student’s Liberal Arts Education. The graduate professional program is designed to educate students for social treatment and 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 adviser 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 centers on social work practice content. The fourth component provides introduction to social research.

Students planning to major 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 Practice 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 of the sophomore year. Deadlines for submitting applications are January 15, October 1, and May 15 of each year.

A guided interdisciplinary minor of 22-23 hours is required to fulfill the program requirements. In addition, a student may choose to select a second regular curriculum minor from another department. If so, the student should consult the undergraduate social work adviser for approval. Further questions concerning the Social Work major or minor may be directed to the School of Social Work.

The graduate-professional program focus is on contemporary social problems and problem-solving processes. It provides a two-year curriculum leading to a master’s degree in social work. Further information about this program can be found in the Graduate Bulletin.

**Program**

**MINIMUM HOURS REQUIRED FOR GRADUATION**

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>122 hrs.</th>
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</thead>
<tbody>
<tr>
<td>General Education</td>
<td>35 hrs.</td>
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**Requirements for the undergraduate Social Work Major**

1. 210 Social Work Services and Professional Roles.
2. 300 Social Welfare as a Social Institution.
3. 350 Individual and Family Behavior.
4. 351 Group, Community and Organization Behavior.
6. 401 Social Work Practice: Values and Problem Analysis.
8. 410* Field Experience and Seminar I.
9. 411* Field Experience and Seminar II.

**Note:** Following completion of SWRK 210, students must be accepted into the social work curriculum to complete the major.

**Required Research Component SOC 382 and 383 Methods of Sociological Inquiry**

- 6 hrs.

**Guided Interdisciplinary Minor**

22-23 hrs. Includes:
- COM 170 Interpersonal Communication I
- ENGL 305 Practical Writing

**BIOS 112 Introduction to Biomedical Sciences**

- 3 hrs.

**Any 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 150 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

**Physical Education**

2 hrs.

**Electives**

24-26 hrs.

Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology. The following Social Work courses are also available as electives for undergraduate students:

- 100 Introduction to Social Services
- 464 Problem Solving in Gerontology
- 465 Correctional Process and Techniques
- 512 Social Policy and Service Delivery in Selected Problem Areas
- 513 Social Welfare and the Law
- 561 Community Development in Selected Countries

62 Community Organization in Urban Areas

**563 Social Work Concepts in Rehabilitation**

**564 Special Studies in Social Welfare Practice**

**565 Social Service in the Schools**

**567 Institutional Corrections**

**568 Non-institutional Corrections**

**569 Juvenile Justice**

**572 Community Agency Ethics**

**577 Teaching Apprenticeship in Selected Social Work Curriculum Areas**

**598 Readings in Social Work**
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 course provides the problem solving process as the conceptual framework for social work practice. The student achieves a beginning level of professional competence in the following: identifying problems at various system levels, recognizing and seeking varying perceptions of a given problem, interviewing, assessing the accuracy of information needed, ordering and interpreting information from different theoretical perspectives, writing an assessment statement, determining priorities and service limits, formulating objectives, and contracting with others. Prerequisite: SWRK 300, SWRK 350, and C-card.

SWRK 401 Social Work Practice: Intervention and Evaluation 3 hrs. A study of social work interventions, their differential use at various system levels (i.e., person, group, organization and community), and evaluation of their effectiveness. Students learn to identify and appraise interventions in reported and simulated social work situations, to select and use interactive behaviors in simulations, and to evaluate the effectiveness of the interventions. Interventions are examined in simulated and real situations. Prerequisites: Senior status, completion of SWRK 400, enrollment 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 policy and organizational context on social work practice. It examines the basic process of policy development and the relationship between policy, ideology, and values. It pays particular attention to the impact of social policy on human service organizations, analyzing the effects of specific policies on workers, clients, and organizational structure and goals. It helps students develop skills for effective functioning in the organizational environment, including organizational resources and their utilization of organizational resources for effective service delivery. Prerequisites: Senior status, completion of SWRK 401, enrollment 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 intervention behaviors in solving problems 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 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. Focus is upon ethnic/racial groups who are among social welfare consumer groups and social work clientele. Racial/cultural characteristics, group strengths and weaknesses, group priorities and experiences in the context of social welfare and social work will be examined. Implications of ethnic factors for social work practice, social planning, and social work education will be explored. 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 intervention 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 485 Correctional Process and Techniques 3 hrs. An overview of the correctional process as it can operate in probation, prison and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the phenomenon of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: 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 562 Community Organization in Urban Areas 3 hrs. Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems in medium and larger size urban communities. Emphasis is placed on the organizing of neighborhood and consumer groups for social interaction and improvement of community condition. Prerequisite. Consent of instructor.

SWRK 563 Work Concepts in Rehabilitation 3 hrs. Application of social work problem solving concepts to social psychological problems in the broad field of physical and mental rehabilitation. Both individualized services and programmatic implications are given consideration. Open to M.S.W. students, and students from related professional department with consent of instructor.

SWRK 564 Special Studies in Social Welfare Practice 1-4 hrs. Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in
these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor.

SWRK 566 Social Service in the Schools 3 hrs.
The role of the Social Worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention. Special attention is directed at the structure and organization of the schools and their relationships with the surrounding community. The specific contributions of a school Social Worker as a helping person to the pupils, the school staff and the homes by various interventive means are explored. Prerequisite: Consent of instructor.

SWRK 567 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 roles as correctional diagnosticians, correctional counselors, program administrators, institutional parole officer, correctional officer training school teacher, etc. The impact of custody, classification and prison programming will be examined in detail. Inadvertent products of total institutions on incarcerated inmates will be evaluated in terms of the inmate culture, prisonization and leadership roles. This will be applied to all types of correctional institutions (juvenile and adult, men and women, misdemeanant and felon). Visits to selected institutions will be arranged. Prerequisite: Consent of instructor.

SWRK 568 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. Prerequisite: Consent of instructor.

SWRK 569 Juvenile Justice 3 hrs.
The course deals with the processing of offenders through the juvenile justice system with concentration on the philosophy and functioning of juvenile courts. Personal and organizational factors that are associated with that determine offenders’ passage through the juvenile court are examined. Prerequisite: Consent of instructor.

SWRK 572 Community Agency Resources 2 hrs.
A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors, teachers, etc. Not recommended for Social Work Students.

SWRK 597 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1-4 hrs.
The course focuses on the development of educational skills for social workers through faculty directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

SWRK 598 Readings in Social Work 1-4 hrs.
Offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four hours credit per semester.

SPEECH PATHOLOGY AND AUDIOLOGY

Robert L. Erickson, Chair
Harold L. Bate
Susan K. Boersma
Michael J. Clark
John M. Hanley
James M. Hillenbrand
Susan D. Kiett
Gary D. Lawson
Frances E. Lohr
Nickola W. Nelson
Donna B. Oas
Karen S. Seelig
Shirley N. Sparks
Candis Warner
Adjoint 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, rehabilitative, and preventive services to individuals handicapped by speech, language, and hearing impairments.

The undergraduate program is preprofessional in nature and is designed to prepare students for graduate professional education in speech and language pathology or audiology. Because receipt of 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 this 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 their 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 at 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 and 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 foregoing requirements, together with completion of the curricular requirements described below and completion of a master's degree program in speech pathology and audiology (with major emphasis in speech pathology, and including a graduate level speech and language therapy practicum in the schools), will result in recommendation of the student for Elementary Provisional Teaching Certification. Simultaneously, the master's degree recipient in this track is approved for employment in Michigan as a "Teacher of the Speech and Language Impaired" and typically also will have completed the academic and practical experiences required for employment in other clinical settings as well. Although Michigan does not require Teacher Certification for audiologists employed in the public schools, other states may require such certification. A graduate emphasis in audiology does not satisfy Teacher Certification requirements.

Non-Teacher Certification
Track
Students who seek careers in settings other than the schools (for example, in hospitals, community agencies, and rehabilitation centers) or who are preparing for doctoral study are not required to complete the requirements for teaching certification outlined above. Students in this case are required to complete an academic minor in an area such as linguistics, social work, computer science, physics, psychology, gerontology or other related discipline. Assistance in selecting an appropriate minor is available through the departmental undergraduate advisor.

Completion of the curricular requirements described below, together with the completion of a master's degree program in speech pathology and audiology, typically satisfies all academic and practicum requirements of the American Speech-Language-Hearing Association for a Certificate of Clinical Competence in the emphasis area (speech and language pathology or audiology) pursued in graduate school.

Speech Pathology and
Audiology Curriculum
A major in speech pathology and audiology consists of a minimum of 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, supporting courses outside the department and an academic minor. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements.

Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate adviser. Because the sequencing of courses included in this major is critically important, students should seek academic advising from the department as soon as possible.

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 adviser, 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 prerequisite courses specifically excluded from consideration in a minor sequence would be 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. 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.

Speech Pathology and
Audiology Courses (SPPA)
(Courses described in italics are approved for General Education.)

SPPA 200 Introduction to Communication Disorders
3 hrs.
This course provides a broad view of the nature of language as the primary means of human communication, its normal acquisition, the common disorders of speech, language and hearing, the social and emotional consequences of these disorders, and individual and societal ways of dealing with communication disorders.

SPPA 203 Normal Language Acquisition
3 hrs.
A study of normal language acquisition as a basis for investigating disordered language.

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.

SPPA 205 Voice and Respiration
3 hrs.
A study of respiration and phonation, with emphasis on their function in speech production and speech perception.

SPPA 207 Clinical Laboratory
1 hr.
During this registration the student is required to participate in structured observations of clinical activities including out-patient 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 modes is viewed from a psycholinguistic orientation. Application to the teaching of the language arts is emphasized. Must be taken concurrently with ILAM/ED 260. Required for the Integrated Language Arts Minor.

SPPA 351 Phonemic Disorders
2 hrs.
A detailed study of the nature of phonemic disorders, orientation to clinical management. Prerequisite: SPPA 204.

SPPA 352 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 205.

SPPA 359 Special Studies in Communication Disorders
3 hrs.
A survey of neuropathologies and structural deviations which result in communication disorders, including infarate cerebral palsy and cleft palate. Prerequisite: Consent of instructor.
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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 kinetics and the neurological base 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 550 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 surveying 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 or 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 and 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 sixty-two 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 or Junior High School.

A number of other programs at Western also lead to the Master of Arts degree: Anthropology, Art, Chemistry, Communication, Comparative Religion, Economics, English, Geography, History, Home Economics, Mathematics, Mathematics Education, Medieval Studies, Orientation and Mobility, Philosophy, Physics, Political Science, Psychology, Rehabilitation Teaching, Sociology, 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 School Psychology.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Six of these programs—those in Educational Leadership (Educational Evaluation, Measurement, and Research Design), Mathematics, Physics, Psychology, Science Education, and Sociology—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.

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.

Please refer to The Graduate College Catalog for further information on these 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 and other types of self-instructional courses; conferences, seminars, and workshops; and other types of 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. Advisory services are offered as well as actual training programs.

Western's on-campus adult, part-time, and evening students are also 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 seven 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**
  - Two Fountain Place
  - Grand Rapids, MI 49503-3107

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

- **Lansing Study Center**
  - 309 N. Washington Square
  - Lansing, MI 48933-1222

- **Muskegon Regional Center**
  - 444 S. Quarterline Road
  - Muskegon, MI 49442

- **Southwest Regional Center**
  - Lake Michigan College
  - 1100 Yore Avenue
  - Benton Harbor, MI 49022-9654

- **South Central Regional Center**
  - Kellogg Community College
  - 632 North Avenue
  - Battle Creek, MI 49016-3299

**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 adviser for the area of concentration. Arrangements for consultation with an adviser 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, Adviser

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 the four 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 introduction to interdisciplinary studies, either AS 501, Studies in American Culture, or adviser-approved substitutes.

4. An independent study project (3-9 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.

Applied Liberal Studies

David A. Ede, Adviser

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. The 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 12 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.

Criminal Justice

Carol J. Rogers, Adviser

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:

1. Prerequisite Courses

   Three social science core courses:
   - A. An introductory course in political science
   - B. An introductory course in psychology
   - C. An introductory course in sociology

2. Area of Concentration (45 hours)

   A. Maximum of 12 hours from a two-year college criminal justice degree program.

   B. Criminal Justice Core Courses

   (18 hours)

   - SOC 262 Criminology
   - SOC 462 Criminal Justice Process

   OR

   - PSCI 525 Politics of Criminal Justice
   - SOC 464 Sociology of Law Enforcement
   - SOC 564 Advanced Criminology
   - SWRK 465 Correctional Process

   C. Minimum of 15 hours to be selected from:

   - ANTH 555 Forensic Anthropology
   - BAS 200 Black Presence
   - BAS 300 Black Experience
   - HIST 301 Law and Justice in Western History
   - PHIL 313 Philosophy of Law
   - PSCI 300 Urban Politics
   - PSCI 320 American Judicial Process
   - PSCI 523 Civil Rights and Civil Liberties
   - PSCI 525 Politics of Criminal Justice
   - PSCI 590 Research Methodology
   - SOC 314 Ethnic Relations
   - SOC 320 Introduction to Social Psychology
   - SOC 353 City and Society
   - SOC 382 Methods of Sociological Inquiry
   - SOC 495 Special Topics (when appropriate)
   - SOC 553 Urban Sociology
   - SOC 567 Corporate and White Collar Crime
   - SWRK 433 Dynamics of Race and Culture
   - SWRK 564 Juvenile Justice
   - SWRK 567 Institutional Treatment of Offenders
   - SWRK 568 Non-Institutional Treatment of Offenders
   - SWRK 572 Community Agency Resources

Health Studies

Sterling Breed, Moyra Etling, Charles Spanislo, Sue A. Davidson, Advisers

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.

Social Science Studies

David A. Ede, Adviser

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), 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, Principles of Cultural Anthropology
   - ANTH 240, Principles of Cultural Anthropology
   - ECON 201, Principles of Economics
   - GEG 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
   - SOC 300, Sociological Theory

2. At least 33 semester hours of additional social science credit in anthropology, economics, geography, political science, psychology, social work, and/or sociology. These courses must be approved by the program's academic adviser, 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, Richard E. Munsterman, Advisers

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, 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 to students when on-campus course attendance is impossible. The Office of Self-Instructional Programs offers over 100 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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