1985

Bulletin Western Michigan University: Undergraduate Catalog 1985-1987

Western Michigan University

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Undergraduate Catalog
Kalamazoo, Michigan
1985 • 1987

Since the printing of the 1985-87 Bulletin, a number of undergraduate level programs and courses have been added, modified, deleted, or reassigned. These programs and courses are listed under their respective colleges and by department name and prefix.

For more complete information, consult the adviser in the appropriate department or area.

These listings include the program name; the course number, the course title, and the number of credit hours; and an indication whether the program or course is "new," "modified," or "deleted."

It is the policy of Western Michigan University not to discriminate on the basis of race, sex, sexual orientation, age, color, national origin, religion, or handicap in its educational programs, student programs, admissions, or employment policies. Western Michigan University complies with all requirements of Title IX of the 1972 Education Amendments, Executive Order 11246 and Executive Order 11375, and Section 504 of the Rehabilitation Act of 1973. UP 33-86/0866/20M

Supplement (June 1986) to Bulletin—Western Michigan University (USPS 078-980)
Vol. 80, No. 4, June 1985

Degrees and Curricula

Second Bachelor's Degree
Modify policy
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 thirty semester hours of residence credit beyond those required for the first degree. The additional hours need not be taken after completion of requirements for the first degree. Students who are interested in a second degree must receive written approval for their program of study from the appropriate academic adviser and the Director of Academic Records before beginning their coursework.

Preprofessional Curricula
Dentistry
Modify course list due to changes in Biology and Biomedical Sciences courses.

Medicine and Osteopathic Medicine
Modify course list due to changes in Biology and Biomedical Sciences courses.

College of Arts and Sciences

Interdisciplinary Programs
Environmental Studies (ENVS)
Program is being modified; see program adviser

Anthropology (ANTH)
542 Development Anthropology
3 hrs.
New course

Biology and Biomedical Sciences

Biology Major
Modify curriculum

Biology, Botany, Zoology Minors
(non-teaching)
Modify curricula

Biomedical Sciences Major
Modify curriculum

Biomedical Sciences Minor
Modify curriculum

BIOL 301 Ecology
4 hrs.
Modify number from 201
3 hrs. Winter
Modify description, prerequisites

509 Evolution
3 hrs.
Modify description, prerequisite

517 Cell Physiology
3 hrs.
Modify title, prerequisite

549 Field Ecology
3 hrs.
Modify title

559 Radiation Biology
3 hrs.
Modify description, prerequisites

112 Introduction to Biomedical Sciences
3 hrs. Fall, Winter
Modify description

200 General Biomedical Sciences Laboratory
Delete course

211 Human Anatomy
4 hrs. Fall, Winter
Modify description, prerequisites

213 Cell Biology
3 hrs. Fall, Winter
Modify number from 113, description, prerequisites

240 Human Physiology
4 hrs. Fall, Winter
Modify prerequisites

250 General Genetics
3 hrs. Fall, Winter
Modify prerequisite

312 Microbiology
5 hrs. Fall, Winter
Modify prerequisite

350 Human Physiology for Majors
5 hrs. Fall, Winter
Modify prerequisites

522 Cytogenetics
Delete course

537 Histology
3 hrs. Fall
Modify prerequisite

560 Reproductive Physiology
Delete course

572 Biology of Cancer
Delete course

574 Embryology
4 hrs. Winter (alternate years)
Modify prerequisite

Communication Arts and Sciences (CAS)
236 Social Issues and Action Laboratory
Delete course

Economics (ECON)
420 Money and Credit
3 hrs. Fall, Winter
Modify hours

480 International Economics
3 hrs. Winter
Modify hours

502 Economic Statistics
4 hrs.
Modify title, description, prerequisites

505 History of Economic Thought
3 hrs.
Modify hours

509 Econometrics
3 hrs. Winter
Modify description, prerequisites

588 Economic Development
3 hrs. Fall
Modify hours

Geography (GEOG)

Geography Major
Modify curriculum

105 Physical Geography
4 hrs.
Modify description, lab hours

203 Geographic Inquiry
3 hrs.
Modify description

205 Human Geography
3 hrs.
Modify title

225 Introduction to Meteorology and Climatology
4 hrs.
Modify description, prerequisites

265 Map, Chart and Air Photo Reading
3 hrs.
Modify description, hours

306 Atmospheric Environment and Mankind
3 hrs.
Modify number from 206, description

310 Research and Regulation in Tourism
4 hrs.
Modify description

350 Conservation and Environmental Management
3 hrs.
Modify title, description

375 Principles of Cartography
4 hrs.
Modify description, prerequisite

521 Studies in Climatology and Geography
3 hrs.
Modify description

544 Studies in Economic Geography
2-3 hrs.
Modify prerequisite

556 Studies in Human Geography
1. Urban Planning and Zoning
3 hrs.
Modify prerequisite

566 Field Geography
2-4 hrs.
Modify description, prerequisites

580 Advanced Cartography
4 hrs.
Modify description

597 Independent Study
1-3 hrs.
Modify number from 598, title

Geology (GEOL)

539 Field Studies in Geology
1-6 hrs.
Modify course number from 339, prerequisites

History (HIST)

Grade Requirement Policy (Secondary Education Curriculum only)
Modify for majors and minors

Languages and Linguistics

Latin Major
Modify curriculum

Latin Minor
Modify curriculum

Latvian Major
Modify curriculum

Latvian Minor
Modify curriculum

Translation Minor
Modify curriculum

FREN 477 Foreign Study
1-16 hrs., Fall, Winter; 1-8 hrs., Spring, Summer
New course

GER 477 Foreign Study
1-16 hrs., Fall, Winter; 1-8 hrs., Spring, Summer
New course

LAT 477 Foreign Study
1-16 hrs., Fall, Winter; 1-8 hrs., Spring, Summer
New course

LATV 317 Latvian Conversation
3 hrs.
New course

LATV 477 Foreign Study
1-16 hrs., Fall, Winter; 1-8 hrs., Spring, Summer
New course

SPAN 477 Foreign Study
1-16 hrs., Fall, Winter; 1-8 hrs., Spring, Summer
New course

TRNS 510 Translation Seminar
4 hrs.
Modify prerequisites

Mathematics and Statistics (MATH)

Modify department name from Department of Mathematics

200 Calculus With Applications
4 hrs.
Modify title, description

265 Probability and Statistics for Elementary Teachers with Computer Applications
4 hrs.
Modify title, description

507 Numerical Analysis
3 hrs.
Modify prerequisite

552 Teaching of Elementary Mathematics
3 hrs.
Modify description, prerequisites

Medieval Institute (MDVL)

597 Directed Study
1-3 hrs.
New course

Psychology (PSY)

516 Conditioning and Learning
3 hrs.
Modify description

523 Advanced Abnormal Psychology
Delete course

525 Behavior Analysis and Women
Delete course

542 Human Factors Engineering
3 hrs.
Modify prerequisite

Sociology (SOC)

Criminal Justice Major
Modify electives
Women's Studies Minor
Modify electives

College of Business
Finance and Commercial Law (FCL)
360 Criminal Law and Procedure
4 hrs.
Modify number from 560, title, hours
499 Senior Topics in Finance
Delete course

College of Education
Counselor Education and Counseling Psychology (CCEP)
Modify department name and prefix from Department of Counseling and Personnel (C-P)
Education and Professional Development (ED)
104 Effective Reading for College Students
2 hrs.
Modify description
474 Directed Teaching
4-10 hrs.
Modify hours

Health, Physical Education, and Recreation
PEGN 103 Aerobic Exercise
1 hr.
New course
PEGN 106 Canoe Camping
1 hr.
New course
PEGN 110 Cross Country Ski Camp
1 hr.
New course
PEGN 128 Jogging
1 hr.
New course
PEGN 132 Military Fitness
1 hr.
New course
PEGN 135 Outdoor Challenge
1 hr.
New course
PEGN 138 Rock Climbing
1 hr.
New course
PEGN 166 Weight Training
1 hr.
New course
PEGN 167 Winter Camping
1 hr.
New course
PEGN 204 Intermediate Basketball
1 hr.
New course
PEGN 236 Intermediate Physical Fitness
1 hr.
New course
PEGN 244 Intermediate Alpine Skiing
1 hr.
New course
PEGN 246 Intermediate Soccer
1 hr.
New course
PEGN 250 Advanced Swimming
1 hr.
New course
PEGN 251 Life Saving
2 hrs.
Modify number from 250
PEGN 252 Swim Conditioning
1 hr.
New course
PEGN 283 Volleyball Intermediate
1 hr.
New course
Special Education (SPED)
530 Education of Exceptional Persons
3 hrs.
Modify description, prerequisites

College of Engineering and Applied Sciences
General Engineering Program
Modify curriculum and title from Off-Campus Mechanical Engineering Program
Consumer Resources and Technology (CRT)
Agriculture Curriculum
Modify curriculum
Industrial Education Teaching Curriculum
Modify curriculum
Petroleum Distribution Curriculum
Modify curriculum
Vocational Education Teaching Curriculum
Modify curriculum
164 Practical Vegetable Gardening (1-3)
2 hrs.
Modify lecture/lab hours
165 Food Science Principles (2-3)
3 hrs.
Modify lecture/lab hours
214 Human Growth and Development (2-3)
3 hrs.
Modify lecture/lab hours
222 Flat Pattern Design (2-3)
3 hrs.
Modify lecture/lab hours
224 Experimental Clothing Techniques (2-3)
3 hrs.
Modify lecture/lab hours
305 Preparing for Employment
3 hrs.
New course
324 Dressmaker Tailoring (2-3)
3 hrs.
Modify lecture/lab hours
368 Quantity Foods (3-3)
4 hrs.
Modify lecture/lab hours
425 Merchandising Practicum (2-3)
3 hrs.
Modify description, prerequisite, lecture/lab hours
450 Residential Design (2-3)
3 hrs.
Modify lecture/lab hours
451 Contract Design (3-3)
4 hrs.
Modify lecture/lab hours
459 Creative Interiors (2-3)
3 hrs.
Modify lecture/lab hours
468 Advanced and Experimental Foods (3-3)
4 hrs.
Modify lecture/lab hours
500 Seminar in Distribution
3 hrs.
Modify hours

Electrical Engineering (EE)
Computer Systems Engineering Curriculum
Modify chemistry requirement
Electrical Engineering Curriculum
Modify chemistry requirement

Engineering Technology
Aircraft Engineering Curriculum
Modify chemistry requirement
Automotive Engineering Curriculum
Modify chemistry requirement

Industrial Engineering (IEGM)
Industrial Engineering Curriculum
Modify chemistry requirement
Modify curriculum
Manufacturing Administration Curriculum
Modify curriculum
300 Cooperative Education
1-3 hrs.
Modify title

307 Computer Controlled Manufacturing Systems (3-3)
4 hrs.
Modify hours, lecture/lab hours

450 Senior Design Project I
3 hrs.
New course

451 Senior Design Project II
3 hrs.
New course

505 Advanced Work Analysis
3 hrs.
Modify title

542 Human Factors Engineering
3 hrs.
Modify prerequisite

**Mechanical Engineering (ME)**

Mechanical Engineering Curriculum
Modify chemistry requirement
Modify curriculum

220 Manufacturing Productivity
4 hrs.
Modify prerequisites

232 Thermodynamics I
3 hrs.
Modify number from 332

250 Material Science I (2-3)
3 hrs. Fall, Winter
New course

253 Statics and Mechanics of Materials (4-0)
4 hrs. Fall, Winter, Summer
New course

257 Mechanics of Materials
3 hrs.
Modify number from 353

258 Dynamics
3 hrs.
Modify number from 355

350 Material Science II (2-3)
3 hrs. Fall, Winter
New course

356 Machine Design I (2-3)
3 hrs.
Modify title, prerequisites, lecture/lab hours

433 Environmental Systems Design in Buildings (2-3)
3 hrs.
Modify lecture/lab hours

436 Energy Systems Laboratory (1-3)
2 hrs. Fall, Winter
Modify description

437 Mechanical Systems Laboratory (1-3)
2 hrs. Fall, Winter, Spring
Modify description

453 Machine Design II (2-3)
3 hrs. Fall, Winter, Spring
Modify title, description, lecture/lab hours

**Military Science (MLSC)**

Military Science Minor
Modify curriculum

204 Contemporary Roles of National Defense
Delete course

400 Military History
Delete course

**Paper and Printing Science and Engineering (PAPR)**

Modify department name from Paper Science and Engineering

**College of Fine Arts**

**Art (ART)**

586 History of Baroque Art
3 hrs.
Reinstate course

588 History of 19th Century Art
3 hrs.
Modify number from 586

**Music (MUS)**

219 Vocal Chamber Ensemble
Delete course

**College of Health and Human Services**

**Occupational Therapy (OT)**

Continuation Requirements
Modify requirements

351 Introduction to Theory and Treatment Process I
3 hrs.
Modify title, description

352 Introduction to Theory and Treatment Process II
2 hrs.
Modify title, description

353 Occupational Therapy Practicum I
3 hrs.
Modify prerequisite

**Social Work (SWRK)**

512 Social Policy and Service Delivery in Selected Problem Areas
3 hrs.
Modify prerequisite
Undergraduate Catalog
Kalamazoo, Michigan
1985 • 1987

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 79,146. Kalamazoo County has a population of 217,030.

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.

It is the policy and commitment of Western Michigan University not to discriminate on the basis of race, sex, age, color, national origin, religion, height, weight, marital status, or handicap in its educational programs, activities, admissions, or employment policies as required by 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, and on evenings and weekends at the Information Center in Seibert Administration Building. The cost is $2.00 each.

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

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

Correspondence Directory
Western Michigan University
Kalamazoo, MI 49008-3899

Director of Admissions
Admissions, University Literature, Credit Acceptance

Controller
Business and Financial Arrangements

Dean of the College of Arts and Sciences
Dean of the College of Business
Dean of the College of Education
Dean of the College of Engineering and Applied Sciences

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

Director of Counseling
Dean of The Graduate College

Director of Honors College
Honors Program
Director of Housing

Director of Placement
Educational Placement, Business and Industrial Placement, Administrative and Technical Placement, Student Part-time Employment

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

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

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

University Telephone 616/383-1600
Telex 6877099 WEST MICH UNIV

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About Western Michigan University

Founded
1903

President
Dieter H. Haenicke, Ph.D.

State Assisted, Co-educational Colleges and Schools
Arts and Sciences
Business
Education
Engineering and Applied Sciences
Fine Arts
School of Music
General Studies
The Graduate College
Health and Human 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 develop in each student the ability to think objectively and critically; to assess the validity of the information that is presented, respond to our environment, and communicate clearly and effectively; to introduce the student to the world in which the educated and responsible citizen must live; to provide the student with a foundation for tenable values; to provide the student with sufficient knowledge in a discipline, or a group of related disciplines, so as to have an understanding of its methodology, some initial competence in the field, and an appreciation of the vastness of the knowledge still to be explored.

Accreditation

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 programs in science education and special education; master's program in reading; 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.

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

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

The baccalaureate program in industrial engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

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

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

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

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

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

Western Michigan University is a member of the American Association of Colleges for Teacher Education, American Council on Education, and American Association of State Colleges and Universities, and is on the approved list of the American Association of University Women.
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87 • Department of Geography
90 • Department of Geology
93 • Department of History
97 • Department of Languages and Linguistics
104 • Department of Mathematics
108 • Department of Philosophy
110 • Department of Physics
113 • Department of Political Science
117 • Department of Psychology
121 • Department of Religion
123 • Department of Sociology
128 • College of Business
132 • Department of Accountancy
133 • Department of Business Information Systems
135 • Department of Finance and Commercial Law
137 • Department of Management
138 • Department of Marketing
140 • College of Education
146 • Department of Counseling and Personnel
147 • Department of Education and Professional Development
150 • Department of Educational Leadership
150 • Department of Health, Physical Education, and Recreation
159 • Department of Special Education
161 • College of Engineering and Applied Sciences
164 • Department of Consumer Resources and Technology
172 • Department of Electrical Engineering
174 • Department of Engineering Technology
184 • Department of Industrial Engineering
187 • Department of Mechanical Engineering
189 • Department of Military Science
191 • Department of Paper Science and Engineering
195 • Vocational Education
197 • College of Fine Arts
198 • Department of Art
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206 • School of Music
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1985-86 Calendar

Fall Semester, 1985
September 3, Tuesday
Advising Day
September 4, Wednesday
Final Registration
September 5, Thursday
Classes Begin
October 4, Friday
Classes Dismissed, 2 p.m. (Laboratories excepted)
October 5, Saturday
Homecoming
November 1, Friday
Last Day to Withdraw Without Academic Penalty
November 27, Wednesday
Thanksgiving Recess (Noon)
December 2, Monday
Classes Resume
December 16-20, Monday-Friday
Final Examination Week
December 21, Saturday
Semester Ends
Commencement (2 p.m.)

Winter Semester, 1986
January 4, Saturday
Final Registration
January 6, Monday
Classes Begin
February 28, Friday
Last Day to Withdraw Without Academic Penalty
March 3, Monday
Semester Recess
March 10, Monday
Classes Resume
March 26, Friday
Recess—all day
April 21-25, Monday-Friday
Final Examination Week
April 26, Saturday
Semester Ends
Commencement (2 p.m.)

Spring Session, 1986
May 3, Saturday
Final Registration
May 5, Monday
Classes Begin
May 26, Monday
Memorial Day Recess
May 30, Friday
Last Day to Withdraw Without Academic Penalty
June 25, Wednesday
Session Ends

Summer Session, 1986
July 1, Tuesday
Final Registration
July 2, Wednesday
Classes Begin
July 4, Friday
Independence Day Recess
August 1, Friday
Last Day to Withdraw Without Academic Penalty
August 22, Friday
Session Ends
Commencement (6 p.m.)

Fall Semester, 1986
September 2, Tuesday
Advising Day
September 3, Wednesday
Final Registration
September 4, Thursday
Classes Begin
October 17, Friday
Classes Dismissed, 2 p.m. (Laboratories excepted)
October 18, Saturday
Homecoming
October 31, Friday
Last Day to Withdraw Without Academic Penalty
November 26, Wednesday
Thanksgiving Recess (Noon)
December 1, Monday
Classes Resume
December 15-19, Monday-Friday
Final Examination Week
December 20, Saturday
Semester Ends
Commencement (2 p.m.)

Winter Semester, 1987
January 3, Saturday
Final Registration
January 5, Monday
Classes Begin
February 27, Friday
Last Day to Withdraw Without Academic Penalty
March 2, Monday
Semester Recess
March 9, Monday
Classes Resume
April 17, Friday
Recess—All Day
April 20-24, Monday-Friday
Final Examination Week
April 25, Saturday
Semester Ends
Commencement (2 p.m.)

1986-87 Calendar
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Admission

Western Michigan University admits students whose educational backgrounds indicate a high probability for success in college work. Application may be made for any semester or session by degree bound, first time freshmen or transfer students. By nondegree bound guests attending another university, or adult, nontraditional students. Admission to degree programs will depend heavily on previous academic records. In its quest for academic excellence, the University recognizes the need for educational opportunities for people of widely varying ages and backgrounds. Therefore, admission programs will be available for potentially successful students from disadvantaged, culturally deprived, or economically impoverished segments of society. In addition, the University will seek to provide enrollment opportunities to adults returning to school after a considerable absence. 

Admission to Western Michigan University is independent of age, creed, ethnic background, physical handicap, race, or sex.

Degree Bound Students

FRESHMEN

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

1. Submit an application (available from high school counselors or the WMU Office of Admissions) with a nonrefundable $15 application fee.
2. Have their high school send an official copy of their transcript directly to the Office of Admissions (transcripts brought or sent by students cannot be accepted); and
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.)

High school students seeking freshmen admission for the fall after graduation may apply any time after completion of the junior year of high school. An admission decision may be made on the basis of a six semester high school transcript. A final transcript will be necessary to confirm admission. Students who have already graduated from high school should have their final transcript sent.

Students who have completed a General Educational Development (GED) test should submit official GED scores as well as high school transcripts.

To ensure fullest consideration, applications should be submitted no later than August 1 for fall semester, December 1 for winter semester, April 1 for spring session, and June 1 for summer session. In reviewing applications from prospective freshmen, the University will give primary consideration to high school grades in college preparatory or other academic subjects and scores on the ACT. To give each student the fullest possible consideration, seventh and/or eighth semester transcripts may be required, and/or an interview may be requested, and/or individual attributes and special abilities may be considered.

TRANSFERS

To be considered for admission as a transfer from another college or university, students should submit an application (available from community college counseling offices or the WMU Office of Admissions) with a $15 nonrefundable application fee. In addition, they must request that each college they have attended send an official transcript directly to the Office of Admissions at Western. Transcripts brought or sent by the student cannot be accepted as official. If the student has completed fewer than thirty college hours, a high school transcript must also be sent.

Transfer students should apply at least one semester prior to the term in which they plan to enter Western for fullest consideration for financial aid and advising/registration. At the latest, applications should be in the Office of Admissions by August 1 for the fall semester, December 1 for the winter semester, April 1 for the spring session, and June 1 for the summer session. If currently enrolled at their previous school, students should have a partial transcript sent. If possible, an admission decision will be made on the basis of the partial transcript with admission confirmed by receipt of an acceptable final transcript. The final transcript must be received within ten days of the student's enrollment at WMU.

Admissions decisions of transfer students will be made on the basis of previous college work (and high school grades if fewer than thirty hours will be transferred). At least a "C" average in transferable work would be required.

Western Michigan University normally accepts work taken at a regionally accredited college or university. Students accepted for transfer to Western will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for selected institutions and other credit transfer information are available from Western's Office of Admissions. The student's academic adviser will determine the applicability of transferred courses to the student's major.

Grades and honor or quality points are not transferable or recorded on the WMU permanent record. Transferable courses completed at another college will be accepted for credit only. Courses in which "D's" or the equivalent have been earned will be accepted for credit when the applicant's total cumulative grade point average prior to enrollment at Western Michigan University is 2.0 or better in transferable work at each institution, as well as all institutions combined. Any additional work transferred after enrolling at Western must also be a 2.0 average for "D" grades to transfer. "D" grades may not be used in fulfilling major or minor requirements. Credit earned as "credit by examination" does not normally transfer to WMU.

Transfer students will fulfill University Intellectual Skills Program requirements in writing, reading, and quantification.

Writing: Students who transfer a college-level writing course of 2.7 or more semester hours credit (or a sequence of courses that satisfies the college-level writing requirement at the transfer institution) will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course, according to assessment results.

Reading: Students who transfer thirty semester hours or more of credit with a grade point average 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 a standardized test, and may be placed into ED 104, Effective College Reading.

Quantification: Students who transfer a mathematics course at the level of MATH 110 or higher are considered to have entry-level computation 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 may be placed into MATH 109, according to assessment results.

Nondegree Bound Students

ADULT/NONTRADITIONAL

Permission to Take Classes (PTC)

Students whose education has been interrupted by a period of five years may wish to apply for nondegree PTC status. Students who have attended another
institution within the last five years are not normally eligible for PTC admission. Interested students must file an application for admission. The Office of Admissions may request PTC applicants to send transcripts of previous work.

PTC applicants approved by the Office of Admissions may register for any course for which the prerequisites have been met. PTC students generally will take only two courses per semester and are subject to normal University scholarship standards.

PTC students may apply for degree admission at any time. Admission standards in effect at the time of degree application will be used in reviewing students’ records.

**Guest Students**

Students who are attending and are in good standing at another college or university may be granted permission to take classes as a guest student at Western Michigan University. Guests are encouraged to check in advance at their home institution so that they may select appropriate courses at Western for transfer. Guest student applications are available from the Office of the Registrar at all Michigan colleges and universities.

**Senior Citizens**

Persons sixty-two years of age and older may enroll in University classes without charge through the Senior Citizens' Opportunity Program in Education (Project SCOPE). Such students will be admitted by completing an application for Permission To Take Classes (PTC) status. Additional information is available in the Student Services section of this catalog.

**Readmission**

Former students in good standing but out of school for more than one year will be readmitted by completing a readmission form.

Western Michigan University students who have been dismissed will normally not be readmitted for at least one fifteen-week semester. Dismissed students applying for readmission must complete an application and obtain academic adviser’s approval before being granted readmission. The University will request evidence that the causes of past academic difficulty have been removed before granting readmission.

**Forgiveness Policy**

Western Michigan University students who return to their studies after a ten-year or longer absence from Western will be readmitted. The University’s academic advisers and other University officials will have authority to accept or reject former students as candidates for readmission. The standards for approval for readmission are those of the University at the time of the student's enrollment.

**Notification of Admission**

Western Michigan University operates on a rolling admission basis. Notification of admission status is mailed to the student after an application is complete and a decision has been made.

Beginning applicants whose high school record clearly meets all admission requirements will be notified immediately that they have been granted tentative early admission. Tentative early admission is automatically confirmed when the student’s final transcript arrives verifying graduation from high school with an acceptable record.

**Campus Visits**

The University encourages all prospective students to visit campus as part of their college decision making. Appointments are available with admissions counselors, faculty advisers, and other University officials requested by students. Campus tours are available on a daily basis Monday through Friday. Students who wish to visit campus should make arrangements with the Office of Admissions at least ten days in advance of the planned visits.

**Admission Interviews**

Admission officers may request a personal interview with some students before making a final decision on their applications. The interview can provide information helpful in making the appropriate decision for an individual.

**Advanced Placement Program**

Western Michigan participates in the Advanced Placement (AP) Program of the College Board. Students who present AP scores of three (3) or higher will receive college credit in the appropriate subject.

**College Level Examination Program (CLEP)**

1. The general CLEP examination is available only to nontraditional students at WMU.

2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution on a full-time (minimum of twelve semester hours) basis.

3. Nontraditional students may take the general CLEP examinations only before completing fifteen hours after entering or re-entering WMU.

4. The following eligibility rules apply to nontraditional students who wish to take the general CLEP examinations:
   - Students who have already received credit for a college writing class cannot receive credit by passing the English examination.
   - Students who have already received credit in a college mathematics course cannot receive credit by passing the mathematics examination.
   - Students who have received college credit for two courses in any of three areas, the humanities, social sciences, or natural sciences (excluding mathematics courses), from the Distribution Program of General Education, or comparable transferred courses, cannot receive credit for the respective examinations.

5. The following guidelines shall apply in the earning of CLEP credit:
   - If a student passes the humanities examination with a score of 540 or above, three hours of credit will be awarded. Three hours will be applied to Area II (social and behavioral sciences), and three hours to Area V (optional electives) of the General Education Distribution Program.
   - If a student passes the English test (with the writing sample) with a score of 600 or above, two hours of credit will be awarded in Area IV (natural sciences and mathematics) of the General Education Distribution Program.
   - If a student passes the general 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 IV (natural sciences and mathematics) of the General Education Distribution Program.

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

**English Competence of Students From Non-English Speaking Backgrounds**

Prospective students whose native language is not English will be required to demonstrate proficiency in the English language prior to enrollment in an academic program at Western Michigan University. The University strongly prefers examination through the Test of English as a Foreign Language (TOEFL) or the Michigan Test of English Language Proficiency (MTELP). Exceptions to these standard tests will require special approval. In the event examination results are not available prior to the time the prospective student reports for registration and enrollment, the student will be required to sit for the University-prescribed English proficiency examination.

To be eligible for unrestricted full-time enrollment in an academic program, a minimum total score of 550 must be achieved in the TOEFL examination. For the MTELP a minimum score of 85 is required. Within certain limits, a prospective student who has achieved less than the minimum score for unrestricted enrollment may be allowed to register for courses on a restricted basis, which will include a course of study...
designed to improve the student’s ability to use the English language. Limits and restrictions for such qualified enrollment will be established and applied by the Office of International Student Services.

Academic Advising

The faculty and administration of Western Michigan University feel 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 will receive a written invitation to one of the Orientation sessions held during the summer. Those students admitted for the Winter Semester will be invited to an Advising-Registration Conference, which is scheduled during the advance registration (request for classes) period. During both of these programs, 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. Students are strongly urged to attend the Orientation session or the Advising-Registration Conference for the comprehensive advising that is available, as well as important campus information that is discussed.

Students unable to attend one of the above programs will have to make individual appointments for advising prior to submitting their requests for classes. These appointments may be on a limited basis, especially during the advance registration (request for classes) period. Freshmen admitted for Spring or Summer Sessions should make individual appointments with their curriculum and major/minor advisers, since no Orientation sessions or Advising-Registration Conferences are scheduled prior to the beginning of these enrollment periods.

ACADEMIC ADVISING FOR TRANSFER STUDENTS

Newly admitted transfer students will be invited to one of the Advising-Registration Conferences scheduled especially for transfer students. Invitations to these conferences, usually scheduled prior to the Fall and Winter Semesters, will be sent along with the Admission Certificates, or shortly thereafter. At these conferences, 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 these conferences for comprehensive advising.

Transfer students unable to attend one of the Advising-Registration Conferences will have to make individual appointments with advisers. However, these are available only on a limited basis during the period of advance registration (request for classes). Students should be aware that the advising will be less comprehensive and may involve appointments with more than one adviser. Students admitted for Spring or Summer Sessions should make individual appointments with curriculum and major/minor advisers.

COLLEGE ADVISING OFFICES

College of Arts and Sciences, 2060 Friedmann Hall, 383-6122
College of Business, 250 North Hall, 383-3982
College of Education, 2305 Sangren Hall, 383-1840
College of Engineering and Applied Sciences, 2038 Kohmnan Hall, 383-0545
College of Fine Arts, 2146 Dalton Center, 383-0913
College of General Studies, 2090 Friedmann Hall, 383-0941
College of Health and Human Services, B-124 Henry Hall, 383-8116
Honors College, D-1 Hillside West, 383-1787
Undecided Curriculum, Counseling Center, 2510 Faunce Student Services Bldg., 383-1850

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 the Testing and Evaluation Services, the Counseling Center, University Placement Services, the Center for Women’s Services, and curriculum and departmental advisers. Two courses directly related to career education are offered. They are: A-S 100, Career Exploration and Development, and CAS 373, Communication Skills and Career Development. The office of the University Placement Services 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 will be. Monetary and psychic investment will be. Muddled thinking in any of these areas tends to take a toll on your grade point average. It is important in and motivation to attend classes, and will 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 in deciding what you will do after you graduate.

3. Discover what your values about work are. Since you will eventually be spending 35 to 40 hours a week engaged in some activity for which you will be paid, you need to be clear about what settings you prefer—indoors or outdoors, 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.

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, or volunteer to work in areas that interest you. Try to find part-time or summer employment so that you can get the feel of what it is like to actually do this kind of work.

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

3. Get involved in campus activities and/or courses 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 Placement Services. Talk to the placement office.
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,
D-4 West Hillside
383-0855
Counseling Center,
2510 Faunce Student Services Building
383-1850
University Placement Services,
B Wing Ellsworth Hall
383-1710
College Advising Offices
Departmental Advising Offices

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**Student Fees**

**Fees**

Student fees are assessed on a credit hour basis. See Fee Revisions. Fees per credit hour for 1984-85 were as follows (they are shown respectively as general purpose, facility fees, and total):

- **Resident Undergraduate—Lower Division**
  - $43.50 + $2.75 = $46.25
- **Resident Undergraduate—Upper Division**
  - $48.00 + $2.75 = $50.75
- **Resident Graduate**
  - $83.75 + $2.75 = $86.50
- **Non-Resident Undergraduate—Lower Division**
  - $109.00 + $2.75 = $111.75
- **Non-Resident Undergraduate—Upper Division**
  - $119.75 + $2.75 = $122.50
- **Non-Resident Graduate**
  - $147.00 + $2.75 = $149.75

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.

**HEALTH MAINTENANCE FEE**

- Resident, Non-Resident, Graduate, and Undergraduate
  - Per Semester, 0-6 credit hours, -0-*
  - Per Semester, 7 or more credit hours, $36.00***
  - Per Session, 0-2 credit hours, -0-*
  - Per Session, 3 or more credit hours, $18.00**

*Option to pay fee or use fees.
**Plus a $4.00 visit fee for each clinician visit.
***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.

**FACILITY FEE**

Each student is assessed, as a part of total student fees, $2.75 for the retirement of bonds issued to construct various student facilities.

**STUDENT ASSESSMENT**

A student assessment of $3.00 per semester and $1.50 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.

**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.

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

**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.

**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 Admissions Office at the time of admission. Refunds of this deposit are also made in accordance with detailed instructions received with the Certificate of Admission.

**AUDIT FEES**

Auditors (students who register for classes but do not desire credit) are governed by the same regulations as students desiring credit.

**FLIGHT INSTRUCTION**

Based on the courses taken, fees range from $250 to $1,800 per course. For specific course fee information, consult the Department of Engineering Technology.

**GRADUATION FEE**

A graduation fee of $15 is due and payable at the time a diploma request is filed with the Records Office.

**ROOM AND BOARD**

Cost of room and board in 1985-86 is $1,253* for fall semester and $1,323* for winter semester, per student. The rate for room only in those residence halls that do not provide board is $518* for fall semester and $532* for winter semester, per student. A first payment of $150 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.

All prices quoted are on the basis of two or more students per room. Due to the unsettled condition of prices for food, labor, and utilities, the University reserves the right to increase the charge during the year if, in its opinion, such an increase is necessary. Newly admitted undergraduate students are automatically sent information about...
residence hall offerings for the semester they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

Fee Revisions

Fees and costs pertain to the 1984-85 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 report to the information desk at the Drop/Add Center or to the Academic Records Office during the official drop/add days in order to process their withdrawal and receive a 100 percent refund. Students who find it impossible to be on campus to process a complete withdrawal may call the Academic Records Office at 383-1770 during office hours or write to the Academic Records Office, Room 3210 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).

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. An increase in credit hour load will result in an upward adjustment of the fee assessment.

Refund Schedule

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

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

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

Residency

The following policy adopted by the Board of Trustees of Western Michigan University applies to all students:

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

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

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

4. A student shall not be considered domiciled in Michigan unless the student is in continuous physical residence in this state for one year and intends to make Michigan his/her permanent home, not only while in attendance at the University but thereafter as well, and has no domicile elsewhere.

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

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

Questions concerning residency should be directed to the Controller's Office, 3082 Seibert Administration Building. Telephone: 383-1605.

Financial Aid and Scholarships

Student Financial Aid and Scholarships administers the Michigan Competitive Scholarship and University scholarship programs, and the Pell Grant, Supplemental Educational Opportunity Grant, College Work-Study, long-term loan, and short-term loan programs.

The information in this section describes scholarship and financial aid programs and criteria for the 1985-86 awards. For the 1986-88 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 may apply for scholarships ranging from $1,500 to $5,000 a year. Several $500 scholarships beginning freshmen and transfer students are based on American College Testing (ACT) scores or community college transcripts and do not require an application. WMU and sponsored scholarships are also available for current WMU students.

Application forms for most of these scholarships are available at WMU Student Financial Aid and Scholarships. 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.

Students at Western must also complete the Free Application for Federal Student Aid (FAFSA), which may be obtained from The Graduate College. Employment opportunities, both on and off campus, are available to students at Western. On-campus opportunities include regular University employment and College Work-Study employment.

Several kinds of loans are available at Western, including the following long-term loan programs: National Direct Student Loan, Guaranteed Student Loan, Michigan Direct Student Loan, United Student Aid Fund, and Parent Loan.

Scholarships and Awards

National Merit Scholarships—Western Michigan University is an institutional member of the National Merit Scholarship Corporation and sponsors scholarships to national merit finalists. Recipients are selected on the basis of national merit test scores, scholastic achievement, and high school recommendations.

Prestigious WMU Scholarships—Western Michigan University awards scholarships on the basis of academic achievement. Financial need is not a criterion.
The eight WMU scholarships are: The Medallion Scholarship, the Higher Education Incentive Scholarship, the Board of Trustees Scholarship, the Community College Graduates Scholarship, the WMU Academic Achievement Scholarship, the Steffen Scholarship, the WMU Academic Scholarship for currently enrolled students, and the Academic Achievers' Award.

Scholarship for entering students, the WMU Academic Scholarship for currently enrolled students, and the Academic Achievers' Award.

Recipients of these scholarships must be citizens of the United States. All scholarship recipients must be registered as full-time students at Western Michigan University and maintain the required grade point average.

To retain their scholarships, students must complete the required credit hours each year and maintain the required grade point average.

WMU Scholarships for Beginning Freshmen

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 $20,000 awarded $5,000 each year of a four-year degree program at Western Michigan University. In 1984-85, WMU awarded six 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 awards the Medallion Scholarship to graduating high school seniors whose high school grade point average is 3.75 or above. Also significant are extracurricular activities, employment history, and volunteer work. The selection committee also examines the American College Testing (ACT) scores and any other evidence of academic promise, and interviews finalists. Preference is given to residents of Michigan or of an area designated by a sponsor.

Application forms are available from the WMU Office of Admissions, WMU Student Financial Aid and Scholarships, and from high school counselors. Letters of recommendation must accompany the application.

WMU Student Financial Aid and Scholarships must receive applications for the fall/winter academic year by February 15 of the preceding year.

WMU announces Medallion Scholarship winners by April 15.

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 scholarship has a 1985-86 value of $12,000, funded $3,000 for each academic year.

WMU awards this scholarship to Michigan residents whose high school grade point average is 3.5 or above, using only academic courses. The selection committee considers as well extracurricular activities, employment history, and volunteer work.

Because the Higher Education Incentive Scholarship is intended to promote educational pluralism, an applicant’s racial or ethnic group is also significant.

Applications are available from the WMU Office of Minority Student Services and from WMU Student Financial Aid and Scholarships.

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. The prerequisite for this $2,000 award is a high school grade point average of 3.5 or above.

This scholarship, which equals the in-state cost of fifteen credit hours for each semester, has a current value of $6,000, awarded $1,500 for each academic year.

Recipients must be Michigan residents who have achieved a superior academic standing in high school.

The selection committee considers as well extracurricular activities, employment history, and volunteer work.

WMU Student Financial Aid and Scholarships will invite those students with a high American College Testing (ACT)-predicted grade point average to apply.

WMU Academic Scholarship

Incoming freshmen with a high American College Testing (ACT)-predicted grade point average are eligible for this $2,000 award. The WMU Academic Scholarship is awarded $500 a year and is renewable for three years.

American College Testing computes the predicted average by combining the ACT score and the four high school grades which students report on the ACT test registration form. All students who request that their ACT results be sent to Western Michigan University will be considered for this scholarship. Awarding continues as long as funds are available.

WMU notifies award winners beginning in November preceding the award year.

Academic Achievers’ Award

The $500 Academic Achievers’ Award honors outstanding academic achievement in high school. Criteria include a high school grade point average of 3.5, Michigan residency, and graduation from a Michigan high school.

The high school transcript, which the student submits to the WMU Office of Admissions during the admissions process, provides the basis for selection.

WMU announces this one year award shortly after a student is admitted to Western.

Sponsored scholarships for beginning freshmen

Edwin and Adelaide Steffen Scholarship Funds for this $200 to $500 award are provided from an endowment which the Steffens established to recognize students who have graduated from Saginaw, Decatur, and L’Anse high schools. Entering freshmen may apply for this one-year award shortly after being admitted to Western.

Sponsored scholarships for currently enrolled students

WMU Academic Scholarship

Currently enrolled WMU students whose WMU grade point average is 3.25 or above are eligible to apply for this award of $500 a year.

Application forms are available at WMU Student Financial Aid and Scholarships from January 2 through February 15. Students must file their application by February 15 for the following fall/winter academic year.

Sponsored scholarships for currently enrolled students

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 deans of each WMU college must recommend applicants for this scholarship.

Waldo-Sangren Scholarship—To be considered for this prestigious $1,000 scholarship, applicants must be WMU sophomores, juniors, or seniors; have a
Scholarships. Selections will be made by a committee at WMU Student Financial Aid and Scholarships. The Elizabeth Durand Hebben Scholarship—This scholarship was initiated by long-time friends of Western Michigan University, provides the funds for one scholarship program. The Preprofessional Award in Biology—The award, named in honor of a distinguished teacher who was on the biology faculty for forty years, is made annually to an outstanding student in the field of microbiology. The William McCracken Award—This award, named in honor of the first head of the chemistry department, is given to a senior who, in the opinion of the chemistry staff, has shown the greatest aptitude in the field of basic chemistry.

The Fetzer Broadcasting Scholarships—Applicants should be sophomores or above and whenever possible an appropriate selection should be made from minority and female applicants. Residents of the coverage area of Fetzer stations in Western Michigan receive preference. Overall departmental grade point average will be considered in selecting awardees. In addition, applicants must be enrolled full time in courses pursuing the broadcast arts or closely related fields in communications, advertising, engineering, or education. Applicants should state a bona fide interest in following a broadcasting career or a career in a closely related field. Representatives of the communications arts and sciences department, under the direction of the chairperson, shall review applications and select winners.

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

The George Sprau Award in English—This award is given to outstanding English majors in the junior and senior classes. Up to $500 may be given to a second semester junior who must use the award during the second semester of the academic year. In addition, awards of up to $100 may be given to outstanding English majors in the graduating class.

The Jean and Vincent Malmstrom Scholarship—The purpose of this $500 annual award, provided through the generosity of Jean and Vincent Malmstrom, is to stimulate an interest in the English language and its relevance to the teaching of English and the language arts. Applicants must be seniors or second semester juniors at WMU, have a minimum overall grade point average of 3.3, be English majors or minors with an English language emphasis or majors or minors in a program emphasizing linguistic study, and be planning to enter the teaching profession. One or two awards will be made each year. Information and applications may be obtained from the English department.

The Ralph N. Miller Memorial Award—This award, made possible by gifts from the late Dr. Miller's family, friends, and associates in the WMU-AAUP, will be given each year in the winter semester to an outstanding junior English major or minor. The award will carry a minimum grant of $500. While a student's overall grade point average 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 usually be given in each winter semester. However, the English department is not bound to award the prize every year. If no candidate is deemed worthy of receipt of the award one year, two awards may be made in the following year.

Deadline for application usually will be February 1. Students or others with questions about the Ralph N. Miller Memorial Award may contact the chair of the English department.

The Patrick D. Hagerty Promising Scholarship in English Award—Preference is given to second semester sophomores or first semester juniors. The award will be made in recognition of outstanding promise in the field of English. Normally, recipients will have an overall grade point average of 2.5 with a 3.0 grade point average in English course work or such academic performance requirements as determined by the selection committee.

The award may not be made every year, and the amount of the award may vary from year to year.

Applications will be taken during the winter semester.

Students or others with questions about this award may contact the chair of the English department.

WMU College and Departmental Scholarships

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 $1000 (divided equally between the fall and winter semesters) will be offered to a student in each of the three divisions of the college. To be eligible a student must have a declared major in one of the departments of the college, have at least sophomore standing (twenty-six credit hours) at the time of application and no more than ninety-eight hours toward their degree at the time of the award, be enrolled for at least twelve credit hours for each semester the award is paid, have a minimum grade point average of 3.5, have fewer than fifty credit hours transferred from another college, and have not another WMU scholarship concurrently with this one. The merit scholarships are one-year awards. Announcements of the scholarships and application dates will be made in January of each year.

Biography and Biomedical Sciences

Hazel Wrinck Recognition Award—Sponsored by the Kalamazoo Garden Council, this award of $500 is available to upperclass biology majors who, in the areas of botany or ecology. Contact the chairman of the Department of Biology and Biomedical Sciences.

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

The Preprofessional Award in Biology—This award is given to the student deemed by the biology faculty to be the outstanding biology major in a preprofessional curriculum. Students with a grade point average of 3.5 are considered, no application is required.

The Distinguished Undergraduate Award—This award is given to the student judged by the biomedical sciences faculty to be the outstanding senior biomedical sciences major.

The Merrill Wiseman Award—This award, named in honor of a distinguished teacher who was on the biology faculty for forty years, is made annually to an outstanding student in the field of microbiology.

Chemistry

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

Communication Arts and Sciences

Fetzer Broadcasting Scholarships—Applicants should be sophomores or above and whenever possible an appropriate selection should be made from minority and female applicants. Residents of the coverage area of Fetzer stations in Western Michigan receive preference. Overall departmental grade point average will be considered in selecting awardees. In addition, applicants must be enrolled full time in courses pursuing the broadcast arts or closely related fields in communications, advertising, engineering, or education. Applicants should state a bona fide interest in following a broadcasting career or a career in a closely related field.
Environmental Studies
The Environmental Studies Scholarship—This $300 annual award, made possible by WMU receiving之一 of the environmental studies majors who have completed Environmental Studies 110 and at least two required classes in the concepts component. Applicants must exhibit both scholarly ability and strong potential for environmental service. Applications may be obtained from the environmental studies office.

Geology
Department of Geology Development Fund Scholarships in geology and Amoco Oil Scholarships in geophysics are awarded annually to outstanding seniors.

The Kalamazoo Geological and Mineral Society Scholarship—This award provides financial assistance to a qualified geology major of junior status who plans to enroll in the six-week summer field course. An honorary one-year membership in the Kalamazoo Geological and Mineral Society accompanies the variable monetary stipend. Information and applications are available from the geology department chairperson.

History
The James O. Knauss History Award—This award was established in honor of a distinguished scholar and teacher who was on the faculty for thirty years and was head of the history department for eleven. It is awarded annually to the senior history major who has the most outstanding record in history.

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.

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

Victor Courant Award in Classics—A generous gift by Dr. Victor Courant, 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 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 the name 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 this award.

Travel/Study Abroad Award—To encourage more foreign language students to travel and study abroad, two awards of $400 each will be presented annually by the Department of Languages and Linguistics. Recipients must have an academic record of 3.5 or better in a declared major or minor in the department and must submit 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, par l'ambassadeur de France (given by the French Embassy to the outstanding student of French in the graduating class), the Prix de l'Alliance Française, the Francs E. Noble Prize for Excellence in French; German—the Preis der Bundesrepublik, Latin—the Excellence in Latin Award, Linguistics—the Excellence in Linguistics Award, the Latin Studies Program Award; Spanish—the Herb B. Jones Award for Excellence in Spanish; and the Excellence in Spanish Award.

Mathematics
The Senior Mathematics Award—This award is given to the senior mathematics major judged by the Department of Mathematics to have exhibited the highest proficiency and promise in mathematics.

The Grover Bartoc Memorial Scholarship—This scholarship is awarded annually to the outstanding senior mathematics 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 students of mathematics scoring the highest on a competitive examination.

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

Physics
Paul Rood Fellowship—The generous gift of Dr. and Mrs. Paul Rood has made it possible to grant outstanding men and women majoring in physics amounts up to $400. Preference will be given to entering freshmen. These stipends may be counseled for students maintaining a high scholastic record in physics, mathematics, and related sciences. 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 annually to one or two 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 County in memory of Arden J. Elsasser, who gave faithful service to this organization and contributed to the Kalamazoo community. The award, which is made annually, will normally be $300. 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.

D. C. Shilling 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. D. C. 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 majors in public administration and the political science for excellence in scholarship and academic performance. The scholarship is divided into two awards: one for the outstanding junior, and the other for the distinguished graduating senior. The fund that supports the scholarship was established by Mrs. Zoa D. Shilling because of her interest in 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 major 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.

Psychology
Departmental apprenticeships and assistantships—The Department of Psychology offers undergraduate teaching apprenticeships and undergraduate practicum assistantships to advanced undergraduate students demonstrating academic excellence and leadership ability within the department’s program. Further information may be obtained from the psychology department.

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 $250 a semester are available to undergraduate or graduate students in outstanding sociology and criminal justice students each year.

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

General scholarships open to all students in the College of Business. The awards are based upon scholarship ability and financial need. Apply directly to the College of Business.

American National Bank Scholarship—This annual award in memory of Robert M. Rogge is given to a student enrolled in any curriculum in the College of Business. The award is based upon scholarship ability and financial need. Apply directly to the American National Bank.

First Federal Savings and Loan Association of Kalamazoo Scholarship—This annual award is presented to a student enrolled in the business administration curriculum. The student must exhibit scholarship ability and financial need. Preference is given to students who are residents of western and southwestern Michigan. Apply directly to the College of Business.

Kalamazoo Accountants Association Scholarship—One award for student fees and automatic membership in the Kalamazoo Accountants Association for the period of the scholarship is open to juniors or seniors majoring in accounting. Contact the Department of Accountancy, College of Business.

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

McGladrey Hendrickson Pullen and Company Scholarship Award in Accountancy—An annual award, this scholarship is given by McGladrey Hendrickson Pullen and Company, Certified Public Accounts, to an undergraduate student majoring in accounting. Applicants must have completed or be in the process of completing their junior year. Apply to the Department of Accountancy, College of Business.

Arnold E. Schneider Scholarship Award—The Gamma Tau Chapter of Alpha Kappa Psi offers two annual awards for student fees. It is open to students majoring in accounting who have accumulated the highest grade point average for the last two years of work at Western Michigan University. Apply directly to the Gamma Tau Chapter of Alpha Kappa Psi.

Accountancy

Alexander Grant and Company Scholarship—An academic grant from Alexander Grant and Company, Certified Public Accountants, is offered to a student majoring in the business administration curriculum. The student must exhibit a definite need as well as scholastic ability. The maximum amount totals $1,500, with $250 awarded a semester and $500 possibly awarded in the fall semester of the first year the applicant pursues a master's degree. Apply to the Department of Finance and Commercial Law, College of Business.

Issa Finance Scholarship—This scholarship is open to students pursuing a finance major in the department. The scholarship is based on academic achievement and financial need. The amount of the award is $500 for the academic year. Apply to the Department of Finance and Commercial Law, College of Business.

Risk and Insurance Management Society Scholarship—The Western Michigan Chapter of this society offers a $1,000 academic-year scholarship to a student interested in pursuing a career in the insurance profession. The award is based on academic performance, work experience, and need. Apply to the Department of Finance and Commercial Law, College of Business.

Management

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

Marketing

Dow Marketing Scholarship—Five scholarships of $500 each are awarded during the winter semester for the following academic 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. Two of these scholarships are designated for qualified minority students. Awards are available in amounts of $250 or 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 returned to, the marketing department secretary by February 15.

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 Management, College of Business by January 31. Final selection will be made by the board of directors of the Southwestern Michigan Association of Purchasing Management.

Five advertising scholarships are awarded annually during the winter semester for the following academic school year to a declared advertising major who has completed fifty-five to ninety-five credit hours, who is carrying a minimum of twelve credit hours, and whose cumulative grade point average is a minimum of 2.5. Consideration is also given to a demonstrated career interest in advertising/marketing, work experience, participation in University and community activities, and faculty recommendations. Application forms can be obtained from, and should be returned to, the marketing department secretary by February 15.

1. The William R. Biggs/Gilmore Associates, Inc. Advertising Scholarship—This scholarship provides $250 and a paid advertising internship opportunity with the Biggs/Gilmore agency.
3. Jack A. Stephens Advertising Scholarship—This $1,000 scholarship is sponsored by the Kalamazoo Ad Club (American Advertising Federation).
4. Ron Haskell Advertising Scholarship—This $100 scholarship is sponsored by the Kalamazoo Ad Club.
5. Marketing/Advertising Round Table (MART) Scholarship—The Marketing/Advertising Round Table (American Advertising Federation) sponsors this $500 award.

College of Education

The College of Education awards several scholarships annually to students who might not be recognized through other programs. These awards, ranging in value from $500 to $1,000, are divided equally between fall and winter semesters. A minimum grade point average of 3.0 is required for all awards. Following is a list of the scholarships available and the amount of each.

Zora Ellsworth Memorial Scholarship—One (1) award of $1,000.

Beulah and Harold McKee Scholarship for Undergraduates in Early Childhood Education—Four (4) awards of $500 each.

Merce Tate Undergraduate Scholarship—Four (4) awards of $500 each.

Dorothy H. and Cora Hurl Charles Scholarship—Four (4) awards of $500 each.

Kenneth F. Simon Memorial Scholarship in Adult Education—Four (4) awards of $500 each.

College of Education Undergraduate Scholarship—Four (4) awards of $500 each.

Further information regarding these scholarships is available in the dean's office, College of Education.

College of Engineering and Applied Sciences

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

Michigan Society of Professional Engineers Scholarship—One $500 scholarship will be awarded annually to a high school senior selected from applicants in the National Society of Professional Engineers/Michigan Society of Professional Engineers (NSPE/MSPE) Scholarship Program who are accepted for admission to the industrial engineering program. One $500 scholarship will be awarded annually to a female or minority high school senior selected from applicants in the NSPE/MSPE Scholarship Program who are accepted for admission to the civil engineering program. Applications should be made directly to the MSPE Scholarship Fund, Michigan Society of Professional Engineers, P.O. Box 10204, Lansing, Michigan 48901.

Giffels Associates Scholarship—A $1,000 annual, nonrenewable scholarship is offered by Giffels Associates of Southfield Michigan to an engineering student in the electrical, industrial, or mechanical departments with a minimum grade point average of 3.0. Preference will be given to underrepresented groups in the field of engineering. Application should be made directly to the College of Engineering and Applied Sciences.

DuraMetallic Scholarship—The DuraMetallic Corporation offers several scholarships each year to students in technical or related curricula. Apply to the Department of Engineering Technology.

Herbert Ellinger Scholarship—These $400 awards are designed for students majoring in the automotive technology curriculum, but include other automotive areas. Awards may be renewed, based on the student's achievement and the recommendation of the scholarship committee. Apply to the Department of Engineering Technology.

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

Duke Harah Memorial Scholarship—Four (4) awards of $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 foundry industry. Awards range from $300 to $2,000. Apply to the Department of Consumer Resources and Technology.

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

Lloyd Hutt Memorial Scholarship—This is open to all graduating seniors in the Grand Rapids Public Schools who have demonstrated both superior scholarship and community service in the field of industrial arts. The award is $500, divided equally between fall and winter semesters, and may be renewed, based on the student’s achievement and on recommendation of the scholarship committee.

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

Kal-Blue Reprographics 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 a 2.5 overall. Applicants must have completed fifty-six semester hours. The scholarship is $1,000 for the academic year. Apply to the Department of Engineering Technology.

George Kohrman Scholarship—This scholarship is open to students enrolled in any four-year engineering technology curriculum who have reached at least junior status. The award of $1,000 for the academic year is renewable based on achievement of a 3.0 cumulative grade point average and a 2.5 overall in required courses offered by the department. Apply to the Department of Engineering Technology.

Lubrizol Foundation Scholarship—An award of $600 is given annually to a junior or senior in automotive engineering who has demonstrated academic excellence. Apply to the Department of Engineering Technology.

Home Economics:

Chystal I. Grady Scholarships—An endowment from the estate of Chystal I. Grady has made possible an annual scholarship of $400 to students majoring in consumer science, engineering and/or environmental science. Information is available from the Home Economics area in the Department of Consumer Resources and Technology.

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 a requirement to be enrolled in ROTC to apply for a scholarship.
18 FINANCIAL AID AND SCHOLARSHIPS

Cargill, Incorporated
C-E Power Systems
Champion International Corporation
CIBA-GEIGY Corporation
Clark & Vicalco Corporation
Consolidated's Civic Foundation, Incorporated
Container Corporation of America
CPC International, Incorporated, Corn Products Division
Cyprus Industrial Minerals
Diamond Shamrock Chemical Company
Dow Chemical U.S.A.
Draper Brothers Company
Eastman Kodak Company
Engelhard Minerals and Chemicals Corporation
Federal Paper Board Company, Incorporated
Freeport Kaolin Company
French Paper Company
Georgia Kaolin Company
Georgia-Pacific Corporation
P. H. Glatfelter Company
Gottman-Central National Organization
Grain Processing Corporation
Green Bay Packaging, Incorporated
Hammerrill Paper Company
Heidelberg-Germany
James River Corporation
James River KVP, Incorporated
J. M. Huber Corporation
Jergens-Rand Company
Inland Container Corporation
International Paper Company Foundation
The Johnson Corporation
Kamyk Incorporated
Perry H. Koplik & Sons, Incorporated
Charles T. Main, Incorporated
Mead Corporation
Measurex Corporation
Menasha Corporation
Monsanto Corporation
Natco Chemical Company
Niagara Lockport Industries, Incorporated
Nicolet Paper Company
NSC Foundation, Incorporated
The Orr Felt Company
Packaging Corporation of America
PennTech Papers, Incorporated
Pentair Industries, Incorporated
Plainview Paper Company
Pottich Corporation
Rust International Corporation
St. Regis Paper Company
Sandoz Foundation, Incorporated
S.D. Warren Company, Division of Scott Paper Company
Simons-Eastern Company
Simpson Paper Company
Sunds Deltbrator, Incorporated
Thiele Kaolin Company
TVW Paper Machines, Incorporated
Union Camp Corporation
Voth, Incorporated
Westvaco
Weyerhaeuser Company Foundation
White Pigeon Paper Company

Scholarship Funds
Beloit Named Scholarship Fund
Dave and Doris Bossen Named Scholarship Fund
Burgess Cellulose Foundation Named Scholarship Fund
Mae Muller Callighan Named Scholarship Fund
Olin W. Callighan Named Scholarship Fund
Cargill Incorporated Named Scholarship Fund
Celanese Polymer and Specialties Company Scholarship Fund
Champion International Foundation Named Scholarship Fund
Champion Packaging Division Named Scholarship Fund
Container Corporation of America Scholarship Fund
Corn Products Named Scholarship Fund
Theodore W. and George C. Dunn Memorial Scholarship Fund
James A. Foxglove Memorial Fund
James A. Foxglove Scholarship Fund (Calder Endowment)
Philip H. Glatfelter Named Scholarship Fund
Grain Processing Scholar Fund
Hammertull Paper Company Foundation
Named Scholarship Fund
Albert S. Harman Named Scholarship Fund
J. M. Huber Named Scholarship Fund
International Paper Company Foundation
Named Scholarship Fund
Perry H. Koplik Company Foundation
Kukolich Scholarship Fund
Louis Lerner Endowment/Texo Corporation
Scholarship Fund
E. D. Marvin Scholarship Fund (Orr Felt Company)
Marganski Scholarship Fund
Mead Corporation Scholarship Fund
Michigan Carton Company Named Scholarship Fund
Packaging Corporation of America Named Scholarship Fund
Paper Technology Alumni Association Scholarship Fund
PIMA-Michigan Division Scholarship Fund
Roger C. Peterson Memorial Fund (Beth Paper/Chem)
Sandoz Foundation, Incorporated, Named Scholarship Fund
William and Martha Sienkman Named Scholarship Fund
Simpson Paper Company Scholarship Fund
Frederick W. Sutherland Scholarship Award
St. Regis Paper Company Named Scholarship Fund
TAPPI, Kalamazoo Valley Section Scholarship Award
Union Camp Company Scholarship Fund
Vicksburg Foundation Scholarship Award
Paper Science and Engineering Award—Kalamazoo Valley Section of TAPPI offers a special award each year in the amounts of $100, $60 and $40.

Petroleum Distribution
Central Michigan Oilmen's Club—This grant for student fees and books up to a maximum of $500 a year is available on a one-year basis; applicants must be from central Michigan Oilmen's Club; awardees must be enrolled in the petroleum program at WMU and earn a 2.5 grade point average overall and a 3.0 grade point average in graphic arts courses.

Petroleum Resource
Oilmen's Club—This award is available on a one-year basis.

Petroleum Scholarship
Michigan Shell Jobbers—This award is presented in honor of Larry C. Hull, a long-time friend of Michigan Shell Jobbers. The scholarship is based on need and the high school academic record. Apply directly to the Department of Consumer Resources and Technology.

Printing Management
Northeastern Printers, Inc.—An award of $500 a year, to be divided equally between the fall and winter semesters, is available to juniors enrolled in the printing management program at WMU who have completed at least two years of coursework (at least one year at WMU) and have earned a 2.5 grade point average overall and a 3.0 grade point average in graphic arts courses. The applicants must have been residents of Michigan for at least six months prior to the date of admission. This award is renewable if the recipient maintains a 2.5 grade point average overall and a 3.0 grade point average in graphic arts courses. Apply directly to the printing management program, Department of Paper Science and Engineering.

Printing House Craftsmen—The Kalamazoo Valley Club of Printing House Craftsmen has established two four-year scholarships in the printing management program at Western Michigan University for residents of the state of Michigan. The scholarship pays $300 for each full semester and is renewable throughout the four years required to complete the curriculum. Apply directly to the printing management program, Department of Paper Science and Engineering.

College of Fine Arts

College of Fine Arts Scholarships—Four $300 scholarships are awarded annually to outstanding young artists in art, dance, music, and theatre. In addition, scholarships are available to students enrolled in the music theatre performer curriculum. These scholarships are awarded on a semester basis; to continue receiving the scholarship, a student must maintain a grade point average of 3.0 or above and must apply each year.

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, and not be a recipient of another University scholarship.

Funds for these programs are made available through donations by alumni and friends of the University.

Art
Lydia Siedschlag Scholarship—Special scholarships have been established for art students living in Siedschlag Hall, an on-campus residence hall.

Grants-In-Aid—The Department of Art offers yearly grants-in-aid to junior and senior art majors. These grants are awarded on a merit basis without consideration of financial need.

Wait Enz Memorial Award—The family of Walt F. Enz established this annual award 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.
Scholarships—These scholarships are awarded to dance majors in two categories. New dance major scholarships are given to incoming dance majors based on artistic and intellectual promise. Exceptional dance major scholarships are awarded to junior or senior dance majors who have achieved excellence in their dance participation at Western Michigan University. Dancers are eligible for scholarships that are granted to dance majors who have exhibited exceptional choreographic ability and musicality for proposed collaborative projects with musicians.

Music

Music Scholarships—Western Michigan University’s School of Music makes annual awards of $500 to $1,500 a year for 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. Student musicians will qualify to hold an award until graduation (four-year maximum for undergraduates and two-year maximum for graduates) provided musical and academic excellence are maintained.

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

Several music scholarships are awarded in mid-March to music majors in memory of Dorothy U. Dalton, 1890-1981, a charter member of Western’s music faculty, with an overall cumulative grade point average of 2.5 and active participation in school and/or community theatre.

Theatre

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

The Laura V. Shaw Scholarship—This annual award is given in recognition of outstanding achievement in the theatre field who demonstrate outstanding performance in school and/or community theatre.

The University Theatre Guild Scholarship—This annual award is given to active theatre students who have been involved in the theatre production program and have 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.

College of General Studies

College of General Studies Award for Meritorious Accomplishment—This award, ranging up to $500 a year, recognizes students enrolled in the College of General Studies who have distinguished themselves in some way in addition to academic achievement. Funds for this program are made available through donations by alumni and friends of the University. Apply directly to the Dean’s Award Committee at the college office.

College of Health and Human Services

College of Health and Human Services Scholarship Program—Several awards in varying amounts are made to outstanding students who are enrolled in the college’s curricula. Funds for this program are made available through donations by alumni and friends of the University. Apply directly to the College of Health and Human Services Scholarship Committee, which also considers academic excellence, financial need, and record of community service.

Gerontology

Gernant Scholarship—Established in honor of former Dean of Academic Services Leonard Gernant, this award recognizes undergraduates of high academic achievement who are pursuing a minor in the gerontology program. Apply to the College of Health and Human Services.

Occupational Therapy

Edna Burren Skelton Scholarship Fund—Supported by the Michigan Rehabilitation Foundation, this fund provides scholarships to students in varying amounts. Grants will be based on merit and financial need. Grants may be awarded at any time during the academic year. Preference will be given to residents of Michigan at the sophomore, junior, or senior levels. Grants are made to freshmen when circumstances warrant, and funds are available. Students must earn a minimum scholastic average of 2.5. Apply directly to the Department of Occupational Therapy.

Michigan Occupational Therapy Association—An award has been established by the Michigan Occupational Therapy Association for the purpose of aiding worthy students in occupational therapy. Applicants must exhibit scholarship, show a definite need, be Michigan residents, and be juniors.
Employment

WMU Student Employment Referral Service—The WMU Student Employment Referral Service actively recruits employment opportunities within the University and the Kalamazoo area. Students can keep informed about job opportunities by reviewing the positions 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.

The Student Employment Referral Service also manages campus referrals for the federally funded College Work-Study Program.

Regular Campus Employment—Students may be enrolled in part-time employment by directly contacting the areas of the University in which they wish to work. Both full-or part-time students. Both undergraduate and graduate students are eligible.

The maximum amount of the loan depends on both the student’s classification and the purpose of the loan. Ordinarily, short-term loans range from $100 to $500.

The loan funds listed below have been established by University alumni, faculty, staff, and friends. Application must be made in person at WMU Student Financial Aid and Scholarships.

Loans

WMU Short-term Loan Program—WMU provides emergency short-term loans to full-time students. Both undergraduate and graduate students are eligible.

Loans are usually three semester/awards of $50 each and two first-place awards of up to $200 each. Apply to the School of Social Work.

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 diagnostic and therapy 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.

WMU Grant, Employment, and Loan Opportunities

Grants

A Better Opportunity Grant Program—WMU provides grants of $100 to $2,000 for undergraduate students in need of financial assistance. To be considered for this program, students must first apply for the following student aid programs: Pell Grant, Supplemental Educational Opportunity Grant, College Work-Study, and National Direct Student Loan.

Chapman Student Loan Fund
College of Applied Sciences Loan Fund
Communications Arts and Sciences Loan Fund
Dorothy Dayton Loan Fund
Delta Kappa Gamma Alpha Psi Loan Fund
Delta Sigma Theta Loan Fund
Viada and Irene Dimac Loan Fund
The Gordon and Ferme Ellerdink Loan Fund
Frank Fatzinger Memorial Loan Fund
Michael Finney Memorial Loan Fund
Foreign Student Aid Loan Fund
James Gardner Memorial Loan Fund
Marie Harik Loan Fund
Harris-Bingham Loan Fund
Leroy H. Harvey Memorial Loan Fund
Eunice E. Herald Home Economics Loan Fund
Deidre M. Herman Debate Loan Fund
Hilites Buyers Guide Loan Fund
John C. Hoekje Loan Fund
Honors College Loan Fund
Home Economics Memorial Loan Fund
Inter-Fraternity Council Loan Fund
Freeburn W. James Loan Fund
Rev. B. James Mason Memorial Loan Fund
John Jenkins Memorial Loan Fund
Walter Larry Jenkins Memorial Fund
Gordon O. Johnson Loan Fund
Kalamazoo Area Chapter MAEDC Loan Fund
Kalamazoo Ladies’ Library Association Loan Fund
Kalamazoo Motor Freight Loan Fund
Alice J. Kaufman Loan Fund
Jerome E. J. Keane Loan Fund
Kwans Educational Aid Fund
The Dr. Radford Kuyendall Memorial Loan Fund
Alice Louise Lefever Memorial Fund
Elizabeth E. Lichy Loan Fund
Marvel F. Liddy Student Loan Fund
David E. Ling Memorial Loan Fund
Larry G. Lohner Memorial Loan Fund
M. Dezena Loutzenhiser Short Term Loan Fund
Ray W. Low Memorial Loan Fund
Charles H. Maher Loan Fund
R. C. Mahon Foundation Loan Fund
Mildred Maloney Memorial Loan Fund
Jean G. Malmstrom Loan Fund
Mathematics Faculty Memorial Loan Fund
William McCracken Memorial Loan Fund
Rayth W. Lower Memorial Loan Fund
Chemistry

Mexican-American Loan Fund
Migrant Student Loan Fund
Frederick W. Miholich Memorial Fund
Frederick W. Miholich Memorial Fund for Special Education
Muskegan County Retired Teachers Association Loan Fund
Charles S. Nichols Memorial Loan Fund
Occidental Therapy Fund
Ormnibus Loan Fund
Dr. Gerald Osborn Memorial Loan Fund
Panhellicenic (Grand Rapids) Loan Fund
Panhellicenic (Detroit) Loan Fund
Panhellicenic WMU Council Loan Fund
Truman A. Passco Memorial Loan Fund
Ray C. Pellet Memorial Loan Fund
PIMA (Michigan Division) Loan Fund
Archie S. Potter Memorial Fund
Douglas V. Ratcliffe Memorial Loan Fund
Nellie N. 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
Marian I. Siegal Memorial Loan Fund
Marion J. Sherwood Memorial Fund
Katherine Shuver Loan Fund
Sigma Phi Omega Bob Hayes Memorial Fund
Sigma Tau Gamma Memorial Loan Fund
James N. Sleep Memorial Loan Fund
J. Towner Smith Loan Fund
Southwestern State Employees' Credit Union
George Sprau Loan Fund
Mr. and Mrs. J. Fred Staley Loan Fund
State D.A.R. Scholarship Loan Fund
Elaine Louise Stevenson Student Loan Fund
Stone D.A.R. Student Loan Fund
Ron Strawser Memorial Loan Fund
Student 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
Waco-Feather-Frazier Loan Fund
Dwight B. Waldo Memorial Fund
Walter Wegerly Scholarship Loan Fund
James A. Welch Foundation Loan Fund
Mary Howe Watt Student Loan Fund
Heilen and Bernard Weisberg Loan Fund
WMU Language Department Loan Fund
WMU Paper Technology Alumni Association Loan Fund
WMU Parents Association Loan Fund
WMU Southern California Alumni Loan Fund
Howard Weppe Loan Fund
W. Dean Worden Loan Fund
Crystal Worner Memorial Fund

Financial Aid Programs
Students may apply for one or more of the following federal aid programs by submitting a Family Financial Statement to the American College Testing Service or a Financial Aid Form to the College Scholarship Service. Students may apply for a Guaranteed Student Loan, Parent Loan, or a Federal Student Aid Application. The processor returns the information to the student in the Student Aid Report, which the student must submit to WMU Student Financial Aid and Scholarships.

Pell Grant
This program entitled eligible undergraduate students to grants of $200 to $2,000 for each academic year.

Supplemental Educational Opportunity Grant
This program, designed for exceptionally needy undergraduate students, provides grants of $200 to $2,000 for each academic year. The grant will be awarded for the student's financial need and meet other program eligibility requirements.

Federal Grant, Employment, and Loan Opportunities Based on Need
Eligibility for Financial Aid
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, the student's income, Social Security benefits, Aid to Dependent Children benefits, Veterans Administration benefits, the number of family members in college, family debts, and family assets.

1. Citizens or permanent residents of the United States.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or five graduate credit hours each academic semester.

Eligible applicants are:
1. Citizens or permanent residents of the United States.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or five graduate credit hours each academic semester.

To be eligible for a Supplemental Educational Opportunity Grant, a National Direct Student Loan, or College Work-Study, students should maintain full-time status, carrying a minimum of twelve undergraduate or nine graduate credit hours each academic semester.

Federal guidelines also require that students applying for federal aid:
1. Make satisfactory academic progress at the institution where they will receive the aid.
2. Not be in default on student loan payments or owe student grant refunds.

Opportunities Based on Need
Eligibility and the amount of aid are based on the cost of education minus the expected family contribution and any other financial resources available to the student.

College Work-Study
This federal program funds employment opportunities for needy undergraduate and graduate students. Applicants submit a Family Financial Statement or a Financial Aid Form, eligibility and the amount of aid are based on the cost of education minus the expected family contribution and any other financial resources available to the student. To be eligible for the College Work-Study Program, students must enroll full time, carrying a minimum of twelve credit hours each semester.

The WMU Student Employment Referral Service places College Work-Study students in campus jobs across the University. When possible, students select jobs related to their degree program or interests.

National Direct Student Loan
Under this program undergraduates may borrow up to $3,000 through their sophomore year and up to $6,000 through their undergraduate career. Graduate students may borrow a maximum of $12,000 including undergraduate loans. The interest rate is 5 percent.

An analysis of the Family Financial Statement or the Financial Aid Form determines eligibility and the amount of the loan.

Eligibility and the amount of aid are based on the cost of education minus the expected family contribution and any other financial resources available to the student. If aid is required, repayment of the loan plus interest begins six months after the student ceases to be enrolled at least half time, carrying six undergraduate or five graduate credit hours each semester. The minimum repayment is $30 a month.

A portion of the student's loan, both principal and interest, may be cancelled 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.
2. A school for physically or mentally or emotionally handicapped children, according to the following schedule:
   - 15 percent for the first and second year;
   - 20 percent for the third and fourth year; and
   - 30 percent for the fifth year.

Note that:
1. Fifteen percent of the loan (principal and interest) may be cancelled for each year that the student teaches school full-time in the Headstart Program, up to the whole loan amount.
2. The student's loan can be cancelled at the rate of 12½ percent for each complete year of service in the Armed Forces of the United States (in an area of hostilities 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
1. 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.

Guaranteed Student Loan

Students may apply for a Guaranteed Student Loan through their hometown bank, credit union, or savings and loan association. The interest rate for first-time borrowers in 1984 was 8 percent. Undergraduate students may borrow a maximum of $2,500 for each undergraduate classification up to $12,500. Graduate students may borrow a maximum of $5,000 for each graduate classification up to $25,000 for both undergraduate and graduate loans. Repayment begins six months after graduation or six months after they are no longer enrolled at least half time.

United Student Aid Fund Program

Students unable to qualify for a National Direct Student Loan and unable to obtain a Michigan Direct Student Loan or Guaranteed Student Loan, or non-residents of Michigan able 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, IN 46250. The same conditions apply to this loan as to the Guaranteed Student Loan (See Federally Insured Student Loan Program.)

Parent Loan

Students who do not qualify for the Guaranteed Student Loan or for the Michigan Direct Student Loan may apply for a Parent Loan. Self-supporting students, graduate students, and the parents of undergraduate students are eligible. While the application process is the same as for the Guaranteed Student Loan, approval and repayment procedures are different. Parent Loan application forms are available from a hometown bank, savings and loan association, or credit union. Lenders determine the criteria for making Parent Loans, and borrowers begin repayment sixty days after the loan is disbursed. For the 1984-1985 academic year, interest rates for Parent Loans were 12 percent.

Financial Aid Procedures

To apply through WMU Student Financial Aid and Scholarships for a National Direct Student Loan, the College Work-Study Program, a Pell Grant, the Michigan Competitive Scholarship, and the Supplemenal Educational Opportunity Grant, students should submit the Family Financial Statement to the American College Testing (ACT) service or the Financial Aid Form to the College Scholarship Service (CSS). These forms are available from high school principals and counselors, from the WMU Student Financial Aid and Scholarships information desk, or from any other higher education institution.

Students applying for only a Pell Grant may submit the Application for Federal Student Aid to the Pell Grant processor. Within four to six weeks the processor sends the Student Aid Report to the student, who submits it to WMU Student Financial Aid and Scholarships as soon as possible. The application form is available at the financial aid information desk.

Application forms for the Guaranteed Student Loan Program are available from the student’s hometown bank, savings and loan association, or credit union. Michigan Direct Student Loan application forms are available from WMU Student Financial Aid and Scholarships.

To complete their files, all applicants submit:

1. The application form for the grant, loan, employment, or scholarship program listed above;
2. A copy of the student’s signed federal 1040 for the year immediately preceding the aid year;
3. An Educational Purpose/Registration Compliance/Housing Arrangements form available from WMU Student Financial Aid and Scholarships;
4. Verification of the student’s Aid to Families with Dependent Children benefits, Social Security benefits, and Veterans Administration benefits.

Dependent Students also submit:

1. A copy of the parents’ signed federal 1040 (all pages and schedules) for the year immediately preceding the aid year;
2. Verification of the parents’ Aid to Families with Dependent Children benefits, Social Security benefits, and Veterans Administration benefits.

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. Self-supporting students also submit the Self-Supporting Student Certification form available from WMU Student Financial Aid and Scholarships.

Students transferring to Western also submit a Financial Aid Transcript form to all schools attended after high school. These schools list the aid a student has received or that the student has not received aid. Students must return the form to Western’s financial aid office. Beginning March 1, WMU Student Financial Aid and Scholarships will begin awarding funds to students who have submitted all application materials; therefore, students who complete their files by March 1 receive funding promptly.
The Academic Skills Center
Located in rooms 1035-1046 of Moore Hall, the Academic Skills Center, formerly the Center for Educational Opportunity, is designed to provide all students—from freshmen to doctoral candidates—with the opportunity to develop or improve educational skills. Programs are offered within the following framework:

1. Programs carry no academic credit.
2. Programs are offered at no cost to the student.
3. Students are free to enter and leave the programs when they wish.

Telephone: 383-8122

TUTORIAL PROGRAM
Qualified peer tutors work with individuals or small groups of students who need help with the content of specific courses. The Academic Skills Center provides tutors in over 100 courses such as accounting, biomedical science, business, chemistry, computer science, economics, electrical engineering, math, mechanical engineering, physics, and statistics.

WRITING LAB
The Writing Lab's focus is on current papers and revisions. When the student's writing reveals a particular difficulty with reading comprehension, grammar, or punctuation, the tutor assigns appropriate exercises.

STUDY SKILLS
Study Skills helps students use study time effectively, improve listening and note-taking strategies, develop techniques for reviewing and retaining information, and improve short answer and essay test-taking ability.

CRITICAL THINKING AND CONTENT READING
This program develops cognitive skills and applies these skills to content reading. Activities are provided to increase comprehension and to raise the reading level on national standardized reading tests.

INTERNATIONAL STUDENT COMMUNICATION LAB
The International Student Communication Program works on writing, with the goal of concise, precise sentences developed within the context of the paragraph. Reading and conversation sessions are offered. Students are also encouraged to work with the Writing Lab.

BASIC MATH
Three programs are offered. The first is designed to brush up on math for statistics; the second is for physics; the third is to reacquaint students with a broad spectrum of math terms, then review, through brief examples and exercises, math concepts.

SPELLING LAB
The Spelling Lab emphasizes the most applicable spelling rules. Frequently misspelled words are a further concentration. Tests for departments with spelling requirements are also administered, checked, and reported.

G.R.E. (Graduate Record Examination) AND G.M.A.T. (Graduate Management Admission Test) WORKSHOPS
Verbal and math workshops assist students in preparing for graduate college entrance examinations.

VOCABULARY
The Vocabulary Program is designed to improve day-to-day word usage and to build vocabulary skills for test-taking.

Alpha Program
The Alpha Program is a development program designed to help students who have demonstrated academic ability but have not used their full potential. These students are provided with extra academic support, in order to increase their chances of academic and personal success.

- Alpha is an academic year (fall and winter), contractual, probationary program.
- Students are selected and admitted through the Office of Undergraduate Admissions, with advice from the Alpha Program Office.
- Generally, students are admitted to the program during the fall semester. However, winter admission may take place at the discretion of the Program Director in conjunction with the Admissions Office.

Once accepted at Western through the Alpha Program, students must:
- attend Freshman Orientation and meet with the Alpha adviser to schedule classes;
- enroll in only 100 level courses for the first year;
- take a maximum of fourteen (14) credit hours per semester;
- attend regularly scheduled seminars and workshops;
- meet with an Alpha adviser at least twice each semester;
- establish and maintain a minimum grade point average of 2.0 while at Western;
- enroll in the course General Studies 195, Methods of Inquiry.

Students are encouraged to participate in the Minority Mentor/Mentee Program also. Before the end of each enrollment period, the student's grades and progress are reviewed by an Alpha adviser. If the student has met the conditions of the academic probation period, he/she will be allowed to continue college coursework.

Center for Women’s Services
The Center for Women's Services provides information, counseling, and programs on skill development to women and men on campus and in the community. The Center offers a referral list and information files for specialized help on women's problems; a library of books and periodicals dealing with women's concerns; supportive services, such as discussion groups and informal lunch meetings; counseling and materials to help with decisions on careers, and workshops to develop personal growth techniques such as assertiveness, stress management, leadership, and decision-making.

Persons who want information on new programs may call and ask to be put on the mailing list.

Located in A-331 Elsworthy Hall, between the University Student Center and the parking ramp, the office is open from 7:45 a.m. to 4:45 p.m. on Monday, Tuesday, Wednesday, and Friday; 7:45 a.m. to 9 p.m. on Thursday and Saturday by appointment. Telephone: 383-6097.

Commuter Student Services
The Office of Commuter Student Services 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 L. Dale Faunce Student Services Building. Its primary function is to administer a complete rental program for students in need of off-campus housing. Cars, buses, share-a-ride, roommate listings, tenant/landlord mediation, transportation, information, and communication are just some of the other on-going programs carried out by Commuter Student Services. 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: 383-6115.

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

The Center is staffed with professionally 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 that may interfere with their everyday lives as students, to help them become more aware of alternative means of coping with conflicts, and to aid them in developing more satisfying and fulfilling lifestyles.

Educational Counseling to help students deal with conflicts concerning vocational planning, 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 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 career options and 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 audiovisual materials pertinent to career awareness.

Workshops are offered periodically by Counseling Center staff members, dealing with such topics as the elimination of self-destructive behaviors, personal growth, and assertiveness training.

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

Policy of Confidentiality

The Counseling Center is thoroughly committed to the need for confidentiality in client/counselor communications. In a time when invasion of privacy is a common experience, it is critical that clients have a place where they may openly discuss their most private concerns without fear of revelation or social reaction.

Appointments may be made by telephone (383-1850) or by stopping at the Counseling Center reception desk between 7:45 a.m. and 4:45 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 live in housing of their own choosing. However, students are encouraged to give consideration to the educational, financial, and social benefits of living in a residence hall or on an off-campus apartment. Residence halls provide the convenience of being close to classes and other University activities.

RESIDENCE HALLS

Each year headquarters of WMU students discover more about the world they live in, their colleagues, and themselves through the involvement of living in a residence hall. Opportunities for group participation and leadership development await those interested. Any current WMU student, regardless of the number of semester hours he or she is enrolled for, may reside in a hall. Newly admitted undergraduate students are automatically sent information (Fall-month of May, Winter-November, Spring-February, and Summer-March) detailing the residence hall offerings available for the semester or session 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, Faunce Student Services Building or calling (616) 383-6100.

Admission to the University does not guarantee that a residence hall assignment will be available. Likewise, receiving a contract and signing a residence hall assignment contract does not guarantee space will be available. Assignments are made on a first come, first served basis up to the space available. Any requests received after all halls have been filled to capacity will be placed on a waiting list.

Fourteen residence halls offering a variety of services are located around the campus. Some halls provide room-only accommodations, with the individuals purchasing their meals off campus or in the University Student Center. One non-food service hall is available for continuous housing throughout the year. Residents of this hall are permitted to remain during vacation periods. Since all other residence halls close for the periods between semesters and sessions, residents of these halls who chose to remain must make their own alternate housing arrangements during this period. Residents are permitted to remain in their assigned rooms during the Thanksgiving and March recess periods.

Most of the residence halls furnish twenty meals per week (Sunday evening excluded) with the dining rooms open from 7:00 a.m. to 6:15 p.m. six days, and from 8:00 a.m. until 1:00 p.m. on Sunday. (Serving hours subject to change at the University's discretion.) The food service enjoys an excellent reputation with an extensive menu developed in consultation with professional dietitians and residents. Food service residence halls are available during the Fall and Winter Semesters and the Spring Session. During vacations, meals usually begin the day classes start and stop the last day of classes. Meals are not served during the Thanksgiving period.

Different assignment patterns are used in the various residence halls. Some halls are reserved exclusively for men, others for women; in other locations, residents are assigned by sex to alternate floors or alternate suites. In locations where co-ed assignments exist, separate bath and toilet facilities are provided for each sex.

The residence halls of Western Michigan University attract over 5,000 students each Fall/Winter Semester. The residents assigned to the halls represent individuals from all walks of life and academic interests. In addition to the majority of the students who are from the fifty states, many foreign countries are represented. Such a diverse group of individuals provides a stimulating atmosphere for the individual interested in learning about others.

Both undergraduate and graduate students are welcome in residence halls. Students most often prefer a specific hall because of location or assignment pattern (co-ed). During the Fall and Winter Semesters the graduate and older students find Davis Hall and a portion of Stinson, co-ed full food service halls, of special interest. Students must be twenty-one or older to live in Davis and the designated portion of Stinson.

No hall is reserved for the exclusive use of graduate students.

ON-CAMPUS APARTMENT LIVING

For many student families, and certain non-traditional single students, the WMU Campus Apartments provide convenient, inexpensive housing. Apartments are available on a year-around basis with residents having the option to renew their lease each semester. Pleasant cooperative relationships are found among neighbors, and often, friendships are formed that will continue to exist long after graduation. Families with young children can use the convenient reciprocal babysitting arrangements with a nearby family. New residents are quick to find their niche in the apartment community.

Early application is encouraged and may be submitted even before official admission to the University. Assignments are made on the basis of application date, therefore, the sooner one applies, the better their chances are for receiving an assignment. All inquiries should be made directly to the WMU Campus Apartments Office, Student Services Building, Western Michigan University, Kalamazoo, Michigan 49008-3899. Telephone: (616) 383-4970.

OFF-CAMPUS HOUSING

Approximately 70 percent of Western's students live off campus in privately owned housing. Thus, a unique service is provided to assist them in locating a place to live. It registers approximately 2,500 rental units ranging from modest sleeping rooms to luxurious apartment complexes. Rental listings of apartments, houses, and sleeping rooms are maintained and printed for distribution. Listings of students in need of roommates, as well as those available as roommates, are up dated regularly and used extensively by the thousands of students who live off campus and share their housing costs. While most students look forward to off-campus living as an opportunity to pursue individual lifestyle, their experiences are often plagued by strained roommate relations and rental difficulties that interrupt their academic achievement. Recognizing the significance of an adequate housing environment for all students, the University's rental listing program is supplemented with tenant counseling and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Commuter...
International Student Services

Western Michigan University has long recognized the value of international educational interchange. Over the years, thousands of students from other nations have entered the University to pursue their educational objectives. Conversely, many U.S. students have sought to broaden their educational background by undertaking a period of study and/or travel in a foreign country. This educational interchange has given the University an international atmosphere that has fostered both formal and informal cross-cultural contacts and the development of positive interpersonal relations, on the campus as well as in the community. The Office of International Student Services was established to assist students involved with this interchange.

FOREIGN STUDENT SERVICES

The Office of International Student Services deals with the special needs and circumstances of foreign students, such as processing applications for full-time academic programs, coordinating community programs involving foreign students, providing advice on matters related to each student's immigration status, serving as a liaison between the student and his/her sponsor, and offering personal and social counseling on a wide variety of concerns. While at the University, foreign students are encouraged to participate in academic and social activities as their interests and time allow.

Foreign students interested in seeking admission to Western should contact the Office of International Student Services for an application form and instructions. To qualify for admission, a foreign student must demonstrate to the University that he/she is academically, financially, and linguistically capable of undertaking the academic program being proposed on a full-time basis. Before a prospective student can be admitted and receive a Certificate of Eligibility for a visa (Form I-140 or IAP-66), educational records documenting all previous secondary and post-secondary schooling must be on file, along with a financial statement that has been signed and returned from a sponsor showing that adequate money will be available to cover the student's educational and living expenses for the duration of anticipated enrollment.

Regarding linguistic capability, prospective students from English speaking countries must submit the results (scores) of a recognized English language proficiency examination prior to initial registration. Applicants who have successfully completed at least forty-five semester hours at another accredited U.S. Institution may be exempted from this requirement, at the discretion of the Office of International Student Services, depending upon the quality of their previous academic work, performance recommendations, and other factors. The two examinations the University recognizes for admission are the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (mTELP). To qualify for unrestricted full-time enrollment, a prospective student must present a TOEFL "total score" of at least 550 or mTELP "adjusted score" of at least 85 percent.

Prospective students who are subject to the English proficiency test requirement, but who have not submitted test scores prior to the time they report for orientation and enrollment, will be required to sit for an on-campus administration of the University-prescribed English proficiency examination. Students whose scores on this examination indicate a need for further training in English will be advised accordingly. 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 limits and the restrictions to be observed will be established and applied by the Office of International Student Services. (See "Student Health Insurance" for the University's policy on health and accident insurance for foreign students.)

ENGLISH LANGUAGE INSTRUCTION FOR INTERNATIONAL STUDENTS

The Career English Language Center for International Students (CELcis) provides intensive English language instruction for those prospective students who need further training in English in order to qualify for regular admission to the University. Students in the CELcis program must be enrolled full-time, twenty hours of classroom instruction per week. Part-time study is not permitted. Classes at various levels include: Speaking and Listening Comprehension Grammar Reading and Vocabulary Writing Research Paper Writing Work in the Language Laboratory There are six CELcis terms per year, each approximately seven and a half weeks in duration. Both the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (mTELP) are offered for CELcis students at the end of each term. The Certificate of Eligibility for a visa (Form I-140 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) 383-8024. Telex: 687709 WEST MICH UNIV

The Martin Luther King, Jr. Program

The Martin Luther King, Jr. Program is a one year, probationary student development program that has been in existence at WMU since 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner of similar programs in colleges and universities throughout the United States.

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

The primary purpose of the MLK Program is:

1. To encourage students who would not otherwise pursue a higher education to do so.
2. To provide supportive services—such as academic advising, vocational and personal counseling, tutoring, and testing—to meet each individual student's needs.

Application is made through the Office of Admissions. The standard WMU application is used. Students interested in the program should note this on the application or include a letter to that effect. There is a $15.00 fee for application to Western. (The fee can be waived per request by a high school counselor, caseworker, or minister—someone who is familiar with the family circumstances.)

After the application is received and processed, it is referred to the MLK Program office. The program then contacts the student. Before a student is admitted, he/she must:

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

Participants begin their freshman year during the WMU 7 1/2-week Summer Session. Each student is assigned a counselor. A peer counselor is a graduate or upperclass student who functions as friend, student evaluator, liaison, and resource person to the new student. The counselor is supported by an 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 are considered full-time and 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 financial assistance to its participants at 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. Telephone: 383-4079.
Minority Student Services

The office of Minority Student Services is committed to the goals of increasing minority presence and participation at Western Michigan University by encouraging Black, Hispanic, Native-American, and Oriental enrollment. This goal is based on the premise that every minority student who desires to uplift his/her skills through higher education should be given the opportunity to do so, upon having demonstrated sufficient desire and potential to complete this task.

The objectives of this office are:

1. To stimulate interest in higher education through minority student identification and the dissemination of matriculation information to these students.
2. To recruit minority students into the various programs at WMU through an extensive program of statewide visitation to high schools and community agencies.
3. To provide supportive services to minority students in order to ensure successful academic experiences that may aid the students in becoming self-sufficient and better prepared for specific professional careers.
4. To monitor, evaluate, and improve university-wide operations as they relate to minority students.

Through these efforts, it is hoped that the greatest opportunity for a successful and relevant educational experience is provided for our minority populace. Telephone: 383-2204

Project SCOPE

SENIOR CITIZENS' OPPORTUNITY
PROGRAM IN EDUCATION

This program allows persons sixty-two years of age and older to enroll in University classes without charge, following these guidelines:

1. Persons sixty-two years of age or older desiring Senior Citizen status should see admission to the University prior to the final day of registration, preferably within the admission deadlines printed in the Schedule of Classes. A short form (PTE—permission to take classes) is available. Admission at the time of registration will be offered on an emergency basis and is to be avoided, if possible.
2. The Permit to Register issued to the students who request senior citizen privileges in their admission application will be labeled "Senior Citizen." Such registrants are to enroll during the last hour of the final day of registration each semester or session.
3. No special parking privileges shall be offered to Senior Citizen students. Those who elect this status shall register their vehicles and pay for the usual part-time student parking sticker with the Public Safety Department, or use metered parking.
4. Senior Citizen students will be issued the regular student ID card with a special Senior Citizen label entitling them to use of the University libraries and other academic facilities necessary for their performance in the class for which they are enrolled. No additional validation will be affixed, thereby making other non-academic facilities, such as the Health Service, unavailable.
5. No student is required to declare himself or herself a Senior Citizen student. This status would be inappropriate for a student who does not wish to be confined to selecting only from those classes which are still available during the last hour of the final day of registration.
6. All students eligible for Senior Citizen status will be registered officially on the class roll, receive a grade, and have all academic work recorded on a permanent student record. Telephone: 383-1950.

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.

The campus ministry staff is available to students and their families for personal and religious counseling, information on all campus religious programs, and materials and resources for religious activities.

The Office of Religious Activities, which is a part of University Student Services, assures equality in the University's relationships with the more than twenty student religious organizations and the fourteen campus ministers currently present on campus.

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 is an important part of the educational experience.

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.

In cooperation, creative thinking, problem-solving, and kindness. Application to the Preschool should be made well in advance. Forms are available at the Preschool. Telephone: 383-4092.

Speech, Language, and Hearing Services

The Language, Speech, and Hearing Clinic, a service program provided for persons with communication disabilities 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. Telephone: 383-0963.

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 provide 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 160 organizations coordinated and sanctioned by the Office of Student Activities, 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
Seventeen Fraternities
Eleven Sororities
Special Interest
Student Government

Testing and Evaluation Services

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

Testing and Evaluation Services also offers assistance in planning research projects and papers. Scanning sheets are available free to faculty and students for the purpose of collecting data and for various types of statistical analysis. Other 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,
The University HealthCenter offers health care that facilitates recovery from illness, and opportunities for health information and skill development. The Western Michigan University Health Center exists to support and promote optimal health and wellness. All students are asked to complete a Health History Questionnaire that is filed at the Health Center, except for pharmaceutical supplies and minor surgical procedures that would be performed by University HealthCenter staff. Students or their parents can also provide a medical history to the Health Center. The University HealthCenter provides comprehensive health care that facilitates recovery from illness, and opportunities for health information and skill development that contribute to disease prevention and wellness.

HEALTH HISTORY QUESTIONNAIRE

Upon admission to the University, each student is asked to complete a Health History Questionnaire that is filed at the University 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. Registration is not considered complete until this questionnaire has been returned to the Health Center. All health information and records within the University Health Center remain strictly confidential. Student signature is required for release of information to anyone.

SERVICES AND THE STUDENT HEALTH FEE

The University Health Center provides services to students with all examinations, treatments, and minor surgical procedures that would be expected in a physician’s office, as well as laboratory testing, x-ray, pharmacy facilities, and health promotion opportunities. Payment for all services rendered within the University Health Center, except for pharmaceuticals and physician visits, is covered by a Student Health Fee (SHF). This fee is assessed in full at the beginning of each semester or session to students carrying seven or more credit hours a semester, or three or more hours a session. Students carrying less than seven hours a semester or three or more hours a session may buy into the Student Health Fee Plan or may use Health Center services on a “fee for service” basis.

Any student who is eligible to enroll may use the Health Center on a “fee for service” basis, or can elect to buy in as a full SHF member at the current rate. Recently graduated students may use the Health Center for one semester (or two sessions) after graduation in order to allow time to establish a permanent source of medical care. Sponsors of students may also use the Health Center on a “fee for service” basis, or may buy into the Student Health Fee Plan. The Student Health Fee, assessed in full at the beginning of each semester or session, covers all of the following services, when rendered by University Health Center staff, no matter how many times services are required:

- Office visits with physician or physician assistant of their choice—$4.00 charge with SHF
- Medical specialties of gynecology, dermatology, and orthopedics, via staff physician
- Minor office surgical procedures
- Laboratory studies
- X-rays
- Casts
- Medical supplies
- Physical Therapy
- TB Testing
- Immunizations
- Health promotion programs and information; programs include workshops in aerobic fitness, weight management, stress management, CPR, sexual health and contraceptive decision-making, smoking cessation, and high blood pressure control.
- Allergy injections—Students who supply an antigen substance and an injection schedule from a family physician may have all scheduled injections at the Health Center.
- Prescriptions at reduced rates—Pharmacy services are available to students, spouses of students, faculty, staff, and emeriti.

HEALTH CENTER HOURS

Clinic Hours: Fall and Winter Semesters Monday through Friday 7:45 a.m.-11:30 a.m. 1:00 p.m.-4:45 p.m.
Urgent Care Hours Monday through Friday 7:45 a.m.-4:45 p.m.
Saturday 9:00 a.m.-11:30 a.m.
Clinic Hours: Spring and Summer Sessions Monday through Friday 7:30 a.m.-11:30 a.m. 1:00 p.m.-4:15 p.m.
Urgent Care Hours Monday through Friday 7:30 a.m.-4:15 p.m.
Saturday 9:00 a.m.-11:30 a.m. (Spring Session only)

Hours are subject to change on holidays and during summer breaks.

Students are seen by making an appointment with the physician or physician assistant of their choice. Appointments may be made by calling 383-6005. Monday through Friday, 7:45 a.m.-4:45 p.m. Students who come without an appointment may be seen in the urgent care clinic, but may also be encouraged to schedule an appointment with the clinician of their choice if their health concern is not urgent.

SERIOUS ILLNESS

In cases of acute illness or serious accidents, a student patient may be taken to the University Health Center or the emergency room of a local hospital. Students who require medical care and laboratory examinations that cannot be performed at the Health Center will be referred to a local hospital. When a student is transferred to a local hospital, the nearest relative or friend will be notified as soon as possible. No operative procedures will be performed on students under the age of 18 without permission of the parents, except in cases of extreme emergency or life-threatening situations.

Costs related to hospitalization, including fees from outside consulting physicians, are the responsibility of the student or parents. The University does not pay for such hospitalization or consultation.

HOSPITAL/MEDICAL AND SURGICAL EXPENSE INSURANCE

All students enrolled at Western Michigan University are required to maintain adequate health and accident insurance coverage while they are enrolled. This University policy is supervised by the Office of International Student Services. International students who have adequate insurance in their insurance policy at the time they register should notify the Office of International Student Services.

Board of Directors

A Health Center Board of Directors, composed of students and staff, exists to provide continuous review of Health Center operations and make recommendations to the administration on policies or services that will enhance University health care. Board membership is open to any interested student. For further information regarding application for a board position, call the University Health Center Director, Mr. Donald McNally, at 383-6007.

LOCATION

The Health Center is located on the west side of Glikson Drive, north of Michigan Avenue.

University Ombudsman

The Ombudsman is a presidential appointee chosen with the active participation of students, faculty, and staff, and confirmed by the Board of Trustees. The position of University Ombudsman was created to investigate and mediate grievances and to provide justice for all members of the University community. Simple and rapid procedures have been established for the hearing of requests, complaints, and grievances. The Ombudsman investigates such matters, and where a malfunction in the administrative process or an abuse of power is discovered, the Ombudsman assists in accomplishing a quick and fair resolution of the problem. Some problems can be remedied by the Ombudsman but, when appropriate, some persons are referred to other University members and/or offices. The Ombudsman is authorized to make thorough investigations, and has prompt access to all University offices and relevant records.
person shall suffer any penalty because of seeking assistance from the Ombudsman. All information presented to that office by persons seeking assistance shall be considered confidential. The Ombudsman is especially alert to the chief causes for student concerns and makes recommendations for the elimination of these causes, consistent with the fundamental purpose of the University. Telephone: 383-6200

University Placement Services

Assistance in total job search planning is offered free of charge by the University Placement Services to students and alumni of Western Michigan University. Placement services include: job counseling, a career information library, an on-campus interviewing schedule, a weekly employment opportunities bulletin, job vacancy postings, direct referrals to employers, maintenance and distribution of credentials, assistance with job search correspondence such as resumes and letters of application, interviewing videotapes, special career workshops and seminars, summer job information, and referral to specialized campus agencies providing career planning services.

The office is centrally located on the first floor of Elsworth Hall, adjacent to the University Student Center. Telephone 383-1710 for appointments and additional information.

Alumni Affairs and Development

The office of Alumni Affairs and Development seeks to coordinate programs related to its alumni and the fund raising efforts of the University. The areas of alumni and development provide two separate functions which are described below.

Alumni

The Office of Alumni Relations serves the University and all graduates as a liaison between the two, communicating on a regular basis with alumni who have joined the Western Michigan University Alumni Association.

The Office of Alumni Relations is responsible each year for Homecoming, for several class reunions, and for many regional activities throughout the state and nation. It is also charged by the University with the maintenance of a detailed and accurate record of the more than 108,000 persons who have obtained degrees from the University. Each year the WMU Alumni Association presents several Teaching Excellence Awards to members of the faculty, and selects several graduates for special recognition for their achievements and the renown which they have brought the University.

An active program of foreign and domestic travel is offered 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 sorority 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 secretary of the board.

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, business and industry, and foundations. The four major areas of development are: the Development Fund, which through its direct mail, phonathon programs, and personal solicitation, seeks to enlist annual 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 comprised of twenty-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, golf, 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, Ohio, and Northern Illinois. The teams winning Mid-American Conference championships in men's and women's basketball, baseball, softball, and volleyball qualify automatically for the annual NCAA playoffs.

Audiovisual Center
The Audiovisual Center is operated by the Media Services Department of the Division of Academic Services to provide faculty, staff, and students of the University with audiovisual materials and equipment. The AV Center includes a film library, preview facility, and central office on the ground floor of Waldo Library, and an equipment center in Dunbar Hall. Students are employed in all three locations and may be available to operate audiovisual equipment for classroom instruction and other campus activities. Other services of the center include consultation, a source library for locating media materials nationwide, a 100-seat auditorium, and a fully equipped maintenance facility for audiovisual equipment.

Graphics Services
Graphics Services provides instructional graphics for faculty, staff, and students. Graphics for research and publication are also done, but priority treatment is given to materials for classroom instruction. Graphics Services also provides support material for the activities of its parent department, Media Services, and does occasional promotional work. Graphics Services is located in Room 0480 of Dunbar Hall.

Media Laboratory
The Media Lab, located in Sangren Hall, provides students with self-instructional educational programs in the areas of audiovisual equipment operation and graphics production. The lab provides students with facilities for the production of displays, posters, dry mounting, laminating, audiovisual programs, and photographic developing and printing.

Media Services
Media Services is a department within the division of Academic Services. It's primary mission is to provide the full range of production facilities and expertise, media librarying for film and video resources and a consulting service for those considering the use of media. Services provided include television production and campus distribution; motion picture production; film library; audiovisual equipment pool; graphic production; photographic service; media laboratory for all students; and general media laboratory (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 selected interaction with the community-at-large through such activity as the preparation of broadcast and cable television programming.

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

Students may participate actively in musical life on campus by joining one of the many ensembles—the Marching Band, Symphonic Band, Concert Band, Orchestra, University Chorale, Collegiate Singers, Gold Company, Grand Chorus, Jazz Lab Band, Treble Chorus, 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.

Photographic Services
Photographic Services does photography for faculty, staff, and students, with the emphasis 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.

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 383-1880 (or on campus 123) 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 383-8160 during normal University business hours.

Publications
Western Herald, WMU's student newspaper, is published Mondays, Wednesdays, and Fridays during the fall and winter semesters, twice weekly during the spring session, and weekly 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 Westster in association with the Office of Alumni Affairs and Development. The Westster is published six times each year for alumni and other friends of the University.

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

The Department of English publishes a number of journals: 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; Comparative Drama, a faculty-edited journal of dramatic criticism; Calliope, for high school writers; and Another Pineapple, for the creative teaching of English and the language arts. Other academic areas that publish scholarly works include Center for Educational Research, Cistercian Studies, Department of Blind Rehabilitation, Department of Mathematics, Department of Occupational Therapy, Evaluation Center, Medieval Institute, New Issues Press, and School of Social Work.

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 30,000 watts. In 1973, through a federal grant, WMUK increased its power to 50,000 watts and moved transmission facilities to a site 10 miles north of campus. WMUK now serves an area 80 miles in radius; this area includes most of the southwestern quarter of the state. WMUK (FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the fine and popular arts, news, and information from around the world. WMUK has built an enviable reputation in classical, bluegrass, and jazz music programming, as well as programming for Spanish-speaking audiences.

WMUK (FM) is a charter member affiliate of NPR, the National Public Radio network of
nearby 300 non-commercial radio stations. WMUK(FM) has won many honors for its programming over the years, including the Major Armstrong Award for excellence in community service programming, the Corporation for Public Broadcasting annual 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, broadcasting on frequency 89.1. Facilities of WIDR(FM), are located in the L. Dale Faunce Student Services Building.

R.O.T.C.
The Army Reserve Officers’ Training Corps (R.O.T.C.) program is designed to prepare students to become commissioned officers in the U.S. Army, U.S. Army Reserve, and the Army National Guard. The military science program at Western is a four-year program divided into the Basic Course and the Advanced Course. It offers qualified students courses intended to develop leadership and managerial skills, and to broaden their knowledge of the role of the military in society. The Basic Course is normally completed during the freshman and sophomore years. No military commitment is incurred and students may withdraw at any time. Course content consists of leadership development, management principles, national defense and physical fitness. After completing the Basic Course, students who have demonstrated officer potential and meet physical and scholastic standards are eligible to enroll in the Advanced Course.

The Advanced Course is normally completed during the junior and senior years of college and students enrolled receive uniforms, military science textbooks, and a tax-free subsistence allowance. Courses consist of further leadership development, Army organization and management, tactics, and administration. For six months a year, students that didn't take the opportunity to enroll in R.O.T.C. during their lower division years, and for those community college graduates and/or transfer students, the Department of Military Science offers a two-year program. Students can take advantage of this program by applying and being accepted for summer Basic Camp at Fort Knox, Kentucky. This camp stresses physical and mental toughness. In addition, the U.S. Army pays for transportation to and from Fort Knox and a small allowance (approximately $675 while you are there). Successful completion of Basic Camp allows you the opportunity to enter the Advanced Course.

LEADERSHIP
The R.O.T.C. program is designed to evaluate and enhance leadership potential, to develop management skills, and subsequently to commission the best qualified young men and women receiving their degrees from Western Michigan University.

CAREER OPPORTUNITIES
Army R.O.T.C. increases opportunities for students by giving them options and potential Armband civilian and military career. To enter the Advanced Course, a student agrees to finish the R.O.T.C. instruction, then accept a commission and an assignment in either active or reserve forces duty. The active duty career option is usually three years for non-scholarship students. Starting salary for a second lieutenant on active duty is approximately $19,000. 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 $2,500.

R.O.T.C. ADMISSION REQUIREMENTS
In addition to meeting University admission requirements, a student enrolling in the Basic and Advanced R.O.T.C. 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 28 years of age at the time of contracting in the Advanced program;
- be in good academic standing with an overall and grade point average of 2.0 of higher (on a 4.0 scale);
- meet the medical fitness requirements necessary for enlistment in R.O.T.C.

CURRICULUM
To qualify for entrance into the Advanced Course, students must complete or receive credit for the Basic Course. The curriculum is based on what future officers must know and do to meet job-related standards. In addition to the military science courses, Advanced Course students must successfully complete a six-week Advanced Camp. This is a field training exercise where the student puts into practice what he or she has learned in the classroom. There also a requirement for R.O.T.C. students to have at least one course in each of three areas: written communication, military history, and human behavior. Courses in national security policy and management are also required.

SCHOLARSHIPS
Army R.O.T.C. has one of the largest scholarship programs in the nation. Awards are competitively based on ability, not on income. R.O.T.C. 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 R.O.T.C. to compete for a scholarship. Scholarship graduates are obligated to serve four years on active duty and the remaining military service obligation in the inactive reserve forces.

R.O.T.C. scholarships pay for all tuition, lab, and student fees; a flat rate for textbooks; and a tax-free subsistence allowance (up to $1,000) each year the scholarship is in effect.

ARMY NURSE CORPS
Students pursuing a nursing degree may qualify for appointment in the Army Nurse Corps through R.O.T.C. The major requirement is a baccalaureate degree in nursing. Nursing students may choose to attend R.O.T.C. Nursing Advanced Camp in lieu of the normal Advanced Camp.

FACULTY
The department is located in Oakland Gym, with a marksmanship range and classroom facilities in house. Special training is also conducted at Fort Custer, Yankee Springs, and Asylum Lake.

More information about the R.O.T.C. program is available at the R.O.T.C. office or by calling (616) 349-1505 or 383-1990.

Servicemembers Opportunity Colleges
Western Michigan University has been designated as an institutional member of Servicemembers Opportunity Colleges (SOC), a group of over 400 colleges and universities providing voluntary postsecondary education to members of the military throughout the world. As a SOC member, WMU recognizes the unique nature of the military life and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and creating learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations; it is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACCJC).

The SOC designation applies only to the Health Studies, Technical Scientific Studies and Applied Liberal Studies programs of the General University Studies curriculum.

Television
In its role within the Media Services Department of the Division of Academic Services, the television facilities support more than 100 courses with televised instructional materials over a closed-circuit network of six channels and an auditorium feed—reaching 350 classrooms and non-academic viewing areas. These television lessons are produced in two modern, three-camera television studios as well as in an unlimited variety of remote locations, utilizing state of the art broadcast quality equipment. Students are employed as crew members, operating camera and sound equipment during productions. Television production, operations, and performance courses are taught, in part, by faculty members with degrees in Communication Arts and Sciences using these facilities. Television materials may be preserved on videotape using a wide range of recording formats. A staff of media producers, directors, graphic artists, cinematographer/photographers, and various other special-skills personnel support the facility.

Faculty members may schedule videotape playbacks for classroom viewing either by calling 383-4927 or by visiting the Media Services office in 1450 Duesenberg Hall. Playback service is available Monday through Friday, 8 a.m. to 9 p.m. provided that faculty members make arrangements in advance. Playback Request forms are furnished upon request.

Television Services was started in 1960, and its use is continually broadened to meet...
Theatre and distribution of developed materials. For cable excellence.

videotape for use by local commercial and Services, Room 1450 Dunbar Hall.

growing academic and non-academic University Libraries needs. In addition to preparing instructional television achievement, and the National Cable Television Association Award for cable excellence.

Theatre complex, theatre opportunities each Faculty-directed productions for public broadcast stations, by cable access stages, as well as student-directed "laboratory productions."

University Libraries

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 well over two 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.

A rare book from Michigan history, William Beaumont's Physiology of Digestion, with Experiments on the Gastric Juice, was acquired in October 1977 as the one millionth volume in Western's libraries. The work, one of the first to define the science of internal medicine, was written by a military surgeon stationed at Ft. Michilimackinac (now Mackinaw City) in 1822. The two millionth volume, acquired in December 1982, was an exact reproduction of the History of Kalamazoo County, Michigan first published in 1880.

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.

The Library also serves as a depository for United States and Michigan government documents and receives microprint editions of United Nations documents and official records.

A microform collection of more than 600,000 contains such items as the Human Relations Area File, the American Periodicals Series, Early American Newspapers of the 18th and 19th centuries, the U.S. National Archives, Early English Books printed in Great Britain from 1475 to 1700, and ERIC documents (documents in educational research published by the Educational Resources Information Center).

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

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

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

3. Another area of collection strength is the history, religion, philosophy, and culture of the medieval period—holdings which help support the programs of the University's Medieval Institute.

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.

6. The C.C. Adams Ecological Collection consists of the personal collection of books and papers of the pioneer American ecologist, Charles C. Adams.

7. The Map Library, a unit of Reference Services, is the second largest academic library map collection in the State of Michigan and the third largest of all map libraries in the state. The present collection of 170,000 items includes Army and U.S. Geological Survey maps, which are catalogued and readily available for use. In addition to the maps, the Map Library also possesses more than 1,000 atlases.

The Business Library, located in North Hall, has a collection of more than 76,000 items, which include special microform collections, annual reports from businesses and industries, and current subscriptions to periodicals and newspaper titles.

The Music and Dance Library is located in the new Dorothy U. Dayton Center. In addition to more than 25,000 books and scores, and extensive holdings in music periodicals, this branch contains a collection of 10,000 phonodiscs and records, and extensive listening facilities.

The Physical Sciences Library contains 65,000 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 425,000 bibliographic items and receives more than 600 periodical titles. The Cistercian Studies Library located in Hillsdale Apts. West is a collection of books in the areas of monastic history, spirituality, 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 the Abbey of Gethsemani. Over 400 of the some 6,000 volumes in the library are rare items of interest to medieval scholars from all over the world.

Holdings in all of the University Libraries are recorded in the union card catalog in the Main (Waldo) Library, each branch maintains a special card catalog of its own 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 you may need for class or research related projects. In addition, the reference staff offers a three credit hour course, Library Resources, in the General Studies curriculum. The course is designed to introduce the student 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 automated retrieval system (OARS), offered by the library, accesses data bases in nearly every subject. The computerized operation allows users to significantly shorten time spent on literature searches for research projects. It is available to faculty, staff, and students on a cost retrieval charge basis. Inquiries about this service may be made at Reference Services in the main library and at all branch libraries. Interlibrary loan service is available to both students and faculty to provide access to materials not owned by the University Libraries. Requests for loans may be initiated at public service desks in all libraries, as well as at the 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 (Fruitport) through the Lake Michigan College Library in Benton Harbor, through the Lansing Community College Library in Lansing, through an arrangement with the Grand Rapids Public Library in Grand Rapids, and by special on-site arrangements for classes taught elsewhere.

MISCELLANEOUS INFORMATION

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 383-8160 during normal University business hours.
The Faculty Senate
The Senate is composed of members elected by the faculty to represent the departments and the University at large, and others appointed by the President. It meets each month to promote the common interests of the University and give the faculty a share in the determination of institutional policy. Faculty Senate Councils are composed of faculty members elected by the Faculty Senate for three-year terms, certain ex officio members, several members appointed by the President of the University, and student members selected by the Western Student Association and the Graduate Student Advisory Committee. The terms of elected members expire in April in a staggered year sequence. The Councils include Budget and Finance, Campus Planning, Continuing Education, Educational Policies, Graduate Studies, Research Policies, Student Services, and Undergraduate Studies. For names of members and further information, contact the Faculty Senate office. The Faculty Senate President for 1985-86 is James A. Jaksa and Senate Vice President is Peter G. Renstrom.

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

CAMPUS PLANNING COUNCIL
The Campus Planning Council serves as an advisory body to the administration and Faculty Senate on matters related to the acquisition, design, renovation, maintenance, and general use of all classroom buildings, faculty office structures, residential units, recreational facilities, and lands owned by the University. In this capacity, the Council: (1) develops and recommends policies to provide a framework within which campus agencies may act in making administrative decisions; (2) develops procedures for the evaluation of 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 reduce any major impact on the aesthetic, physical, or socio-ecological environment of the campus, community, or region.

CONTINUING EDUCATION COUNCIL
The Continuing Education Council is responsible for reviewing, developing, and recommending policies dealing with continuing education and related public services at the University. Policy reviews and recommendations include, but are not limited to, off-campus courses and programs; non-credit programming, including conferences, workshops, and short courses; and public service programming. The Council also recommends policy related to credit programs developed by and/or assigned to the Division of Continuing Education. Reports, studies, and recommendations are usually prepared for the Council by its ad hoc committees or the staff of the Division of Continuing Education.

EDUCATIONAL POLICIES COUNCIL
The Educational Policies Council is concerned with the major educational policy matters of the University. These include the educational goals and objectives, directions, and priorities for the educational development of the University, and the relation of existing and proposed activities to these concerns. The Council formulates policy recommendations relative to these matters and reviews the implementation of University policy. The Educational Policies Council also serves as a forum for the discussion and debate of issues of broad educational significance to the University.

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

RESEARCH POLICIES COUNCIL
The Research Policies Council is responsible for reviewing, developing, and recommending policies dealing with the stimulation and execution of research and creative activity in the University.

STUDENT SERVICES COUNCIL
The Student Services Council is responsible for developing and recommending policies pertaining to non-academic areas of student life, and their integration with the academic program at Western Michigan University. The Council will review programs and policies, and will conduct special studies as requested by the Executive Board of the Faculty Senate and/or the Student Senate. It may also review programs and policies which affect students that are recommended by other campus agencies. The Council may appoint such standing and ad hoc committees as are deemed necessary.

UNDERGRADUATE STUDIES COUNCIL
The Undergraduate Studies Council is a policy-making and review body with jurisdiction over any matter related to the undergraduate curriculum 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.

Student Financial Assistance Council
Created by the WMU Board of Trustees in March 1976, the sixteen-member Student Financial Assistance Council consists of students, faculty, and staff appointed by the President. The council is responsible for the development of a University-wide plan for student financial assistance, including the coordination of existing programs, and policy decisions regarding modification, termination, or initiation of new programs.

The Athletic Board
The Mid-American Conference consists of ten universities associated for the purpose of intercollegiate sports competition. The league is organized and controlled by the Presidents’ Council, which appoints a commissioner to oversee league activities. On campus, policy relating to the conduct of men’s and women’s intercollegiate sports is recommended to the President by the Athletic Board.
General Regulations

Academic Regulations

Class Attendance

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

Class Load

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 desired in residence at Western.

The normal maximum load for the spring and summer sessions is nine hours.

Students employed part-time should reduce their class loads proportionately. If a student works full-time, his/her academic load should not exceed eight to ten hours. Full-time teachers will be limited to a maximum of six hours each semester, either on campus, through the Division of Continuing Education, or both.

No full-time teacher may enroll at any time in more than two courses offered by the Division of Continuing Education.

Classification

Students at Western Michigan University are classified officially as follows:

- Freshmen—Students credited with 0-25 hours, inclusive
- Sophomores—Students credited with 26-55 hours, inclusive
- Juniors—Students credited with 56-87 hours, inclusive
- Seniors—Students credited with 88 hours or more

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 or teaching certificates granted 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 and acceptance of the standards. Such students will be placed in the class of the succeeding semester or session only after reapplication for graduation and acceptance of the standards.

Comprehensive Examinations

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

All credit by examination is subject to the following requirements:

1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
2. Credit by comprehensive examination in courses numbered 300 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.
3. Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
4. Credit by comprehensive examination can be posted only for admitted students who have either previous or current course credits.
5. All credit by comprehensive examination is normally considered undergraduate credit.

Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule is as follows:

- $25.00 per credit hour for students.
- $50.00 per credit hour for students.

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

Course Numbering System

The course numbering system is limited to three digits. The first digit indicates the level of work. The second digit indicates an area of study within the series or level. The third digit indicates the specific course number in each area and each series. Undergraduate courses are numbered 100 through 499, Graduate courses are numbered 500 through 799. Courses numbered 800 through 999 are for graduate and advanced undergraduate students. If the course number has been changed within the past three years, the former number is shown in parentheses following the current course number.

Course Numbers Levels

- 0-89 Non-credit courses
- 90-99 Terminal course credit that may not be applied toward degree programs
- 100-199 Courses primarily for first-year students
- 200-299 Courses primarily for Sophomores
- 300-399 Courses primarily for Juniors and Seniors
- 400-499 Courses primarily for Juniors
- 500-599 Courses for graduate students and advanced undergraduates
- 600-699 Courses for graduate students only
- 700-799 Graduate seminars, theses, independent research, etc.

Credit/No Credit System

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

1. The name of the program shall be Credit/No Credit.
2. “Credit” will be posted for each student who earns the grade of “C” or better.
3. “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.
4. 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. Except in those courses, regardless of classification or probationary status, will be allowed to enroll Credit/No Credit.

5. Credit/No Credit courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

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

Graduate schools, in general, do tend to favor those applicants who have good letter grades on their transcripts.

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

Changing Courses (Drop/Add)

Students may enroll in (add) any course through the first three days of classes of a semester or session. The final date for adding courses is published in the Schedule of Classes.

Only students who have a class that is not officially scheduled to meet during the three day drop/add period will be given an additional opportunity to drop/add. See the Schedule of Classes for details of this procedure.

Students may withdraw (drop) from courses without academic penalty through the first Friday past mid-semester (initiate this action at the Records Office). The final date for dropping is published in the Schedule of Classes. Students may not withdraw from one class or from all classes after this date without academic penalty.

Students who believe they must withdraw after this date without penalty because of genuine hardship must appeal to a Faculty Committee. Documented justification must be presented to the Office of the Registrar on appropriate forms to be secured at the Registrar's Office. The student is expected to follow the outlined steps in making this appeal. The action of the Committee will be final. Each student is encouraged to visit with his/her instructor before deciding to withdraw from class. The above policy applies to students who withdraw from any or all of the courses for which they are registered. For additional regulations governing complete withdrawals, see the section under "Withdrawal From the University."

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.

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 published by an institution of education; and (b) a statement of adopted procedures covering the privacy rights of students must be made available. The law provides that the institution shall maintain the confidentiality of student education.

Western Michigan University accords all the rights under the law to students who are declared independent. No one outside the institution shall have access to, nor will the institution disclose any information from students' educational records without the written consent of the students, except to personnel within the institution, to officials of other institutions in which students seek to enroll, or to persons or organizations providing students financial aid, or 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 persons, individually or collectively, acting in the students' educational interest are allowed access to student educational records. These members include faculty, counselors, 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).

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

The law provides students with the right to inspect and review information contained in their educational records and 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 decisions of the hearing panels to be unacceptable. The Registrar at Western Michigan University has been designated by the institution to coordinate the inspection and review procedures for student educational records, which include admissions, personal and financial files and academic, cooperative education, and placement records. Students wishing to review their educational records must make written requests to the Registrar. Only records covered by the Act will be made available within forty-five days of the request. Students may have copies made of their records with certain exceptions, (e.g., a transcript of an original or source document which exists elsewhere). These copies are made at the students' expense, at the prevailing rate of ten cents per page. Educational records do not include the records of instructional, administrative, and educational personnel, which are 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 in the official information submitted by their parents: confidential letters and recommendations associated with admissions, employment, or job placement, or honor's recommendations, or studies which waived their rights of inspection and review, or educational records containing information about more than one student, in which case the institution will permit inspection 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 is otherwise in violation of their privacy or other rights, may discuss their problems informally with the person in charge of the records involved. If the decisions are in agreement with the students' requests, the appropriate records will be amended. If not, the students will be notified within a reasonable period of time that the records will not be amended and will 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, within ten days after receiving such request, will inform students of the date, place, and time of the hearing. Students may present written evidence, including attorneys, at the students' expense. The hearing officer who will adjudicate such challenges will be the Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing. Decisions of the hearing officer will be final, will be based solely on the evidence presented at the hearing, and the students must place with the educational records statements commenting on the
information in the records or statements setting forth any reasons for disagreeing with the decisions of the hearing officer. The statements will be placed in the educational records, maintained as part of the students’ records, and released whenever the records in question are disclosed.

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

Full-Time Student Status

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

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

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

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

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

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.

Grade Point Average

A grade point average is obtained by dividing the total number of honor points earned by the 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.

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>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional, Extraordinary</td>
</tr>
<tr>
<td>BA</td>
<td>Very Good, High Pass</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable, Adequate</td>
</tr>
<tr>
<td>D</td>
<td>Poor</td>
</tr>
<tr>
<td>E</td>
<td>Failing</td>
</tr>
<tr>
<td>X</td>
<td>Failure (Unofficial Withdrawal)</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
</tr>
<tr>
<td>AUD</td>
<td>Audit (non-credit enrollment)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>3.5</td>
</tr>
<tr>
<td>CB</td>
<td>2.5</td>
</tr>
<tr>
<td>D</td>
<td>1.5</td>
</tr>
<tr>
<td>E</td>
<td>1.0</td>
</tr>
<tr>
<td>X</td>
<td>0.0</td>
</tr>
<tr>
<td>I</td>
<td>0.0</td>
</tr>
<tr>
<td>CR</td>
<td>0.0</td>
</tr>
<tr>
<td>NC</td>
<td>0.0</td>
</tr>
<tr>
<td>AUD</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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 June 1.
- Fall Semester: Apply by January 1.
- Winter Semester: Apply by September 1.
- Spring Session: Apply by January 1.

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.

Honors

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

- Cum laude—when their grade point average is 3.50 to 3.69, inclusive
- Magna cum laude—when their grade point average is 3.70 to 3.89, inclusive
- Summa cum laude—when their grade point average is 3.90 to 4.00, inclusive

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

1. All credits and honor points earned at Western Michigan University will be counted.
2. Credits and honor points earned in correspondence and extension classes will be counted toward honors.
3. All students must have earned at least sixty semester hours of credits at Western Michigan University, of which fifty must be graded.

The graduation program will list as candidates for honors all students who have earned a point-hour average of 3.50 through the next-to-last semester of residence (based on a minimum of forty-five semester hours of credit earned at Western Michigan of which thirty-five hours must be in courses with grades.) Final determination of honors and level of awards will be based upon all work and will appear on the diploma and final transcript.

I.D. Regulations

Each student on campus is required to have an identification card which includes photo, name, social security number, student signature, and validating label. 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. An official sticker for the semester is affixed at validation, at which time students receive an official copy of their current schedule, athletic tickets where appropriate, and an opportunity to update their personal information file. There will be a $5.00 charge for a lost or mutilated I.D. card. 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 Registration Department.

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.

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, which, in turn, requires planning in advance of the registration period. Sufficient time, therefore, must be allowed for such planning and for obtaining the necessary faculty and administrative approvals.

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

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

The granting of approval by the department chairperson may involve considerations, such as faculty workload, which go beyond the merits of the project.

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

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

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

Registration
ADVANCE REGISTRATION
In the interest of providing to as many students as possible their requested schedules, Western offers, through its Registration Office, advance registration. Student fees must be paid on or before two weeks prior to final registration, or the advance registration will be cancelled. A final day for registration is designated for those who did not advance register and for those whose advance registration was cancelled.

The procedure for advance registration is set forth in the Schedule of Classes, issued prior to each semester and each session.

LATE REGISTRATION FEE
See Student Fees.

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. The grade and credit earned at the first attempt in the course will count toward curricular or degree requirements. All courses taken, even if they have been repeated, will be counted in grade point averages. Grade point averages will be adjusted for repeated courses, if necessary, only at the time of graduation. A repeated course is not removed from the student's record.

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

1. Good Standing
   A student is in good standing whenever his/her overall grade point average is at least 2.0.

2. Warning
   Whenever the grade point average for any enrollment period is less than 2.0, but the 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 at the end of an enrollment period of Continued Probation will be dismissed from the University.

Exceptions may be granted, at the discretion of the Director of Admissions, where the increase has been substantial but still falls fractionally short of the minimum 0.01 requirement. Students who have been dismissed from Western are expected to remain out at least one full fifteen-week semester. The Committee on Re-admissions is concerned with the extent to which the dismissed student, who is applying for readmission, has resolved the causes of past academic difficulty. It is required, therefore, that the student include a written statement with the re-entry application.

Standard For Graduation
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.

Student Cheating
The faculty of Western Michigan University wishes to assert its position that student cheating cannot and will not be tolerated. If it is permitted, the honest student is penalized for honesty and the dishonest rewarded for the harm done personally and to the rest of the academic community. Most important, cheating clearly subverts the university ideal of independent, original, and individual thinking and learning.

Definition: Cheating shall be defined as any attempt by a student to represent work performed wholly or in part by others as his/her own, or any effort to use unauthorized aids during a formal testing situation.

Procedures: A faculty member who detects cheating should either personally handle the discipline or turn the case over to the Dean of Students for reference to established disciplinary bodies. All actions taken on cheating, whether by the faculty member or by one of the disciplinary bodies, should be reported to the Dean of Students. Student representatives should obtain a preliminary voice in the disposition of all cases involving cheating that have been referred to disciplinary committee, and in the establishment of fair and reasonable standards for degrees of punishment, including expulsion.

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, during the first three days of classes fall semester. During winter, spring, and summer terms, students may restrict this information to academic use by filling out the Directory Exclusion Form during the first three days of classes.

Transcripts
A student desiring a transcript of his/her record in this University should write to the Office of Academic Records, 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 $2.00 each. No transcript will be released except upon written authorization of the student.
University Tuition Scholarship Waiver

Undergraduate students interested in taking advantage of the University Tuition Scholarship Waiver must report to the Academic Records Office, Seibert Administration Building to pick up the authorization form. Students who meet the following criteria are eligible to participate in this program:

1. Must have previously earned thirty hours of credit.
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 under-rolled 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 Academic Records Office for the authorization form. The student then proceeds to the drop/add center during posted days and hours and checks with 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 the student will present this card to the assessor when processing their added class.

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.

Veterans' Assistance

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

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

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

All students have a grade report mailed to them shortly after the close of each semester or session. If the student's grade point average falls below 2.00, an explanatory letter accompanies the grade report. Remedial action on the part of the student is recommended in the letter.

A complete record of all classes taken and grades received is maintained in the Academic Records Office. 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 $2.00 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 will notify. 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 Academic Records Office 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.

Withdrawal From Classes After the Official Date to Drop

1. The final date to withdraw officially from classes will be in accordance with the Academic Honesty Policy. There is a $2.00 charge for mailed copies.

2. Students who wish to officially withdraw from class after the first Friday past midsemester. The specific date is published in the Schedule of Classes each semester or session. Each student is encouraged to confer with the instructor before withdrawing from class.

3. The Appeals Committee may request information from the instructors involved and from other appropriate sources.

4. The Appeals Committee will rule upon the basis of the student's written application and any additional information received.

5. A committee to review late withdrawals will be appointed by the Vice President for Academic Affairs. Its membership will include the University Registrar as chairperson, five faculty members, and two students.

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 dishonesty.

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 without prior authorization. Students should assume that external aids (for example, experimental data, term paper companies) are prohibited unless specifically allowed by the instructor.

2. 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 ...

3. Borrowed facts—Information gained in reading or research which is not common knowledge among students in the course must be acknowledged. Examples of common knowledge include the names of leaders of prominent nations, basic scientific laws, etc.

Materials which add only to a general understanding of the subject may be acknowledged in the bibliography and...
need not be footnoted or endnoted.

One footnote or endnote is usually enough to acknowledge indebtedness when a number of connected sentences are drawn from one source. When direct quotations are used, however, quotation marks must be inserted and acknowledgement made. Similarly, when a passage is paraphrased, acknowledgement is required.

Please consult with the instructor for further information about plagiarism.

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.

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 standards 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 examinations and other written graded material made 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 that 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 seeing the department chairperson or head, the student should next see the University Ombudsman. The function of the Ombudsman in this situation is to collect 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. If the Committee decides to recommend a change of grade, the Committee will first inform the faculty member of its intent so that he/she may initiate the change. If the faculty member prefers not to initiate the change, the Committee will 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.

3. Policies and Procedures Regarding Requirements
   - All students who seek advice on academic requirements will 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 force at the time his/her admission was made, or in later catalogs 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 he/she is taking.
   - Every department shall provide systematic procedures for students to express their views on matters of program and curriculum.
   - University policy and implementation of such policy should not be determined and enforced according to the needs of computer programming or 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 Student Services Council, composed of faculty administration 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 Judicialies. When infractions of rules and regulations occur, violators will be referred to the Office of University Judicialies for disposition.
Degrees and Curricula

Bachelor's Degrees
The Board of Trustees, on recommendation of the President and faculty of Western Michigan University, confers degrees as follows:

BACHELOR OF ARTS
The student who completes a curriculum conforming to the requirements of this degree, with at least seventy hours of General Education, Language and Literature, Science, Social Science, and designated Fine Arts courses, including at least eight hours in one foreign language, is eligible for the degree of Bachelor of Arts. If two or more years of high school preparation in one foreign language are presented for entrance, the requirements for foreign language may be waived.

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF FINE ARTS

BACHELOR OF MUSIC

BACHELOR OF SCIENCE
The student who completes a curriculum conforming to the requirements of this degree, with at least 90 semester hours of residence credit, is eligible for the degree of Bachelor of Science.

BACHELOR OF SCIENCE IN ENGINEERING
Aircraft, Automotive, Computer Systems, Electrical, Environmental, Industrial, Mechanical, and Paper

BACHELOR OF SCIENCE IN MEDICINE
Physician Assistant

BACHELOR OF SOCIAL WORK

SECOND BACHELOR'S DEGREE
A student may earn a second bachelor's degree at Western Michigan University. In order to qualify, a student must meet all Western Michigan University bachelor degree requirements and earn a minimum of thirty semester hours of residence credit beyond those required for the first degree. The additional hours need not be the same as the first and must be in a substantially different curriculum. Students who are interested in a second degree must receive written approval for their program of study 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 SCIENCE

MASTER OF PUBLIC ADMINISTRATION

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

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 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. In Elementary Education the student may complete two minors or group minors of twenty or twenty-four hours each; or one major or group major of thirty or thirty-six hours; in addition to the major or two minors, a minor in Elementary Education is required. 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. Each student will fulfill all the requirements of the Intellectual Skills Development Program, as outlined in this section.
6. Each student must satisfy the University computer literacy requirement, as outlined in this section.
7. Each student must complete two semester hours of general physical education activities classes. First-year students are urged to arrange their schedules so that they complete their two-hour physical education requirement no later than their sophomore year. Persons thirty years of age or older at the time of graduation are not bound by this requirement. Such a waiver applies only to general physical education and not to specific curricular requirements nor to total hours required for graduation. Veterans of military service (minimum of one year continuous active duty) shall, upon request, be granted two hours of general physical education credit. A student limited in physical activity may receive counseling for courses suited to his/her limitation through the Medical Recommendation Procedure. (See "General Physical Education.") Exceptions: (b) A maximum of eight hours of general physical education may be counted toward graduation.
8. Minimum residence requirements. All candidates must present a minimum of thirty hours through Western Michigan University. Ten of the last thirty hours must be taken through Western Michigan University. Correspondence
credit and credit by examination may not be used to satisfy any of the minimum requirements. Individual colleges and departments may have additional residency requirements.

9. A maximum of fifteen semester hours of credit in correspondence (self-instructional) courses may be applied to a degree. Students in the General University Studies curriculum should refer to the Division of Continuing Education section of this catalog for further information.

10. Students transferring from a two-year community or junior college must complete a minimum of one-half of the academic work required in their curriculum at an accredited four-year, degree-granting institution (exclusive of the general physical education requirement).

11. A student may graduate under the catalog in effect at the time of his initial registration or any succeeding catalog, except that no student may graduate under the requirements of a catalog which is more than ten years old. (For exception see “Special Policy... under “Graduate Requirements for a Bachelor of Science in Engineering” listed in the College of Engineering and Applied Science.)

12. In cooperation with two-year institutions and private academies, 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. Course placement decisions for each student are made at this time.

**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 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. Course placement decisions for each student are made 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)
- IEGM 102 (Engineering and Applied Sciences students)
- HIST 106
- PHIL 100
- REL 107

Students who complete the following course sequence in designated sections of the General Studies Integrated Program are considered to have fulfilled the college-level writing requirement:

- GHUM 102
- GSSC 121
- GSCI 132

Remedial writing course options are:

- ENGL 100
- BIS 100 (Business students)

**READING**

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

**QUANTIFICATION**

On the basis of scores on a test of computational skills, certain students are required to pass MATH 109. Students who wish to proceed to other mathematics courses must earn a C or better in MATH 109.

ENGL 100, BIS 100, ED 104, and MATH 109 carry academic credit and grades earned are included in calculating the student's grade point average. The credits for these courses, however, constitute an additional graduation requirement beyond the total number of credit hours required for a student's curriculum. Students who are placed into any of these courses must pass the course(s) before registering for their thirty-third credit hour at Western.

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

**ACADEMIC ASSISTANCE**

Tutoring and other academic support programs are available to all students free of charge at the Academic Skills Center.

**Intellectual Skills Development Program—Transfer Students**

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

**WRITING**

Students who transfer a college-level writing course of 2.7 or more semester hours credit for a sequence of courses that satisfies the college-level writing requirement at the transfer institution, will be exempted from the writing assessment upon entry. These students will be considered to have met the Intellectual Skills Program college-level writing course requirement. All other transfer students will be placed into a remedial or college-level writing course according to assessment results.

**READING**

Students who transfer thirty semester hours or more of credit with a GPA of 2.0 or better, or who transfer the equivalent of ED 104, are exempted from the reading assessment upon entry. All other transfer students will have their reading skills evaluated by standardized test and will either place into or be exempted from ED 104, Effective College Reading.

**QUANTIFICATION**

Students who transfer a mathematics course at the level of MATH 110 or higher are considered to have entry-level computation 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.

**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 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 105 and Business Information Systems 102. 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.

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.

**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 applicable to all students in the University and are substantially the same for all curricula. Nonvocational in nature, these attempt to insure some degree of breadth for every student at WMU, and to provide 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 may be met by completing either (1) the Distribution Program or (2) the Integrated 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. Any WMU students enrolled prior to the Fall Semester of 1973 are also eligible to meet their General Education requirement via the General Studies program, which is described in all WMU catalogs from 1965-66 through 1972-73.

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

   Within the guidelines below, students can take classes in a number of departments. Quite a few of these courses can count toward a student’s major or minor as well as for General Education credit. Curriculum advisers will be glad to assist students in selecting and planning their Distribution Program.

2. **The Integrated Program** is designed to increase the student’s ability to analyze information, deal creatively and synthetically with knowledge, and be able to place value and worth on the different ways of knowing. This complete General Education Program is available to all students, regardless of their major or minor programs.

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

### Requirements for the Distribution Program

There are five stipulations:

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

#### General Education Distribution Program

**AREA I**  Humanities and Fine Arts

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**AREA II**  Social and Behavioral Sciences

| **ANTH**  | 100, 110, 210, 240 |
| **BAS**   | 200, 300 |
| **BIS**   | 292 |
| **ECON**  | 100, 201, 202 |
| **GSSC**  | 121, 123, 256, 325, 350, 425, 444 |
| **GEOG**  | 102, 311, 361, 380, 383 |
| **HIST**  | 100, 101, 102, 103, 204, 210, 211, 301, 302, 303, 315, 389 |
| **MGMT**  | 404 |
| **MLSC**  | 204 |
| **PSCI**  | 100, 200, 250, 300, 340, 344, 350 |
| **PSY**   | 194 |
| **REL**   | 323, 324, 332 |
| **SOC**   | 100, 171, 190, 200 |

**AREA III**  Natural Sciences and Mathematics

| **ANTH**  | 250 |
| **Biol**  | 101, 102, 105, 107, 234 |
| **BME**   | 112, 230 |
| **CHEM**  | 101, 102, 103, 107, 140 |
| **GSCI**  | 130, 131, 132, 133, 134, 432, 433, 434, 436 |
| **GEOG**  | 100, 105, 204, 206, 350 |
| **GEOL**  | 100, 130, 300 |
| **MATH**  | 116, 122, 190, 200, 366 |
| **PHYS**  | 102, 104, 106, 110, 210, 211 |

**AREA IV**  Non-Western World

| **ANTH**  | 120, 220, 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 |
| **GEOL**  | 312 |
| **GENL**  | 195 |
| **GSSC**  | 222, 256 |
| **HIST**  | 390 |
| **IEGM**  | 102 |
| **MLSC**  | 101 |
| **PEPR**  | 100 |
| **SWRK**  | 190 |
| **SPPA**  | 200 |
Requirements for the Integrated Program

Students must contact the program adviser for formal admission.

Beginning Level (Students must complete by the end of their sophomore year.)

- Completion of a general education program (provided that such student's initial enrollment at the two year institution occurred before the Fall term of 1974)

Intermediate Level

- Completion of the Distribution Program
- Completion of the Integrated Program
- Completion of the Distribution Program
- Completion of the Integrated Program

Completion of the Integrated Program

Completion of the Integrated Program

Completion of the Integrated Program

General Education Requirement for Transfer Students

1. Students transferring with MACRAO approved Associate Degrees from Michigan Community Colleges

The following Michigan Community Colleges have signed the MACRAO agreement, and transfer students with one of the degrees listed below are considered to have met first and second-year General Education requirements at Western Michigan University. Such students need only satisfy Western’s junior-senior General Education requirement.

Students transferring from these institutions without an approved associate degree will be evaluated to the fullest extent possible according to the General Education criteria in effect at the respective community college.

(Asterisk in the list below indicates that agreement applies only to degrees conferred by the Division of Arts and Sciences and specifically exempts degrees conferred by the Division of Applied Arts and Sciences.)

Bay De Noc Community College
Deltona College
Glen Oaks Community College
Gogebic Community College
Grand Rapids Junior College
Highland Park Junior College
Jackson Community College
Kellogg Community College
Kirtland Community College
Lake Michigan College
Lansing Community College
Monroe County Community College
Montcalm Community College
Mott Community College (formerly Genesee Community College)
Muskogee Community College
North Central Michigan College
Northwestern Michigan College
Oakland Community College
St. Clair County Community College
Schoolcraft College
Southwestern Michigan College
Wayne County Community College
Washtenaw Community College
West Shore Community College

2. Transfer students from other Michigan Community Colleges

may satisfy the General Education requirement by:
- Completion of a general education program (provided that such student’s initial enrollment at the two year institution occurred before the Fall term of 1974)

General Education Equivalents for Transfer Students

In determining the extent to which the General Education requirements of Western Michigan University have been met by credits earned at other colleges, the following rules shall apply:

1. Students with a MACRAO approved associate degree from a Michigan community college may satisfy their requirements by successfully completing two 300-400 level General Education courses. A course in Non-Western World must be included in this coursework unless a substitute was transferred.

2. Students not covered by 1 above must meet the following WMU requirements:

A. Humanities and Fine Arts—A minimum of six semester credits from the following fields:
- Art Appreciation (Introduction or History)
- Film (Introduction or History)
- English (Introduction or History)
- General Humanities
- Music (Introduction or History)
- Philosophy (Introduction or History)
- Religion (Introduction or History)

B. Social and Behavioral Sciences—This area may be satisfied by a minimum of six semester hours drawn from any of the following:
- Anthropology (Cultural and Ethnology)
- Economics (Principles, problems, and consumer education)
- History
- General Social Science
- Geography (Regional, Human)
- Political Science (Introduction, principles, international relations, foreign and comparative political systems, general government)
- Psychology (Introduction, principles, social problems)
- Sociology (Introduction, principles, social problems)
- Social Work (Introduction only)

Student Planned Curriculum

The Student Planned Curriculum is intended for students whose educational goals cannot be accommodated within the framework of other University curricula. It provides such students with the opportunity to plan an individualized program of study without the usual restrictions imposed by departmental or college boundaries. The traditional major and minor, for example, are not required in the Student Planned Curriculum.

Any undergraduate student is eligible to enter the Student Planned program, provided that a written statement outlining educational goals and the proposed course of study has been completed prior to the completion of seventy-five semester hours of credit. Degree requirements in the Student Planned Curriculum consist of (1) the University’s General Education Program and (2) electives sufficient to complete the graduation requirements. In order to meet the student’s educational objectives, these electives are selected in consultation with a counselor and/or the faculty adviser(s). Further information concerning the Student Planned Curriculum may be obtained from the University Counseling Center, 2510 Faunce Student Services Building (363-1850).
Preprofessional Curricula

Every professional school has prescribed the nature and amount of academic work to be completed as a prerequisite to the professional training for a particular vocation. Four years of higher education are generally required by most professional schools for entrance. Western Michigan University is able to offer its students courses of study that meet the requirements for this preprofessional training. It should be noted, however, that the courses outlined are only suggested plans to illustrate in general the kinds of programs that preprofessional students should follow. In every case requirements. It is important to have a curriculum 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
383-6122

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 Kits, Medical College Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee Services. Predental 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 Dental College Admission Test. In addition, a course in genetics and in physiology is 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. BIOL 101, 102, 202, and 317
3. PHYS 110 and 111 or 210 and 211
4. ENGL 105 plus a literature course

Law
Advisers: College of Business
W. Morrison, N. Batch, J. Bliss, T. Gossman, F. W. McCarty, Stevenson
260 North Hall
383-6249

Advisers: College of Arts and Sciences
G. H. Demetrakopoulos
2060 Friedmann Hall
383-6122
P. G. Renstrom
3029 Friedmann Hall
383-0483

No special college program is required or recommended by most law schools. In general, law schools urge a solid four-year program leading to a bachelor's degree. Although it is relatively unimportant what the prospective law student uses for a major, it is most important that a high level of academic achievement be maintained. It is also important that the prospective lawyer's education be as broad as possible.

The first-year student is urged to concentrate on satisfying first-year General Education requirements, and on improving his/her writing and speaking skills by taking courses in English and communications. A first-year student should see a prelaw 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
383-6122

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 school requires 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 Kits, 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, a course in genetics and in physiology is 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. BIOL 101, 102, 202, and 317
3. BMED 112, 113, 350, and 350
4. PHYS 110 and 111 or 210, 211, and 212
4. ENGL 105 plus a literature course
5. MATH 118 and 122 or 122 and 123

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.

Certificates
Validity Level of Michigan Certificates
The two basic levels of Michigan teaching certificates are:
1. Elementary This certificate is valid for teaching all subjects in grades kindergarten through eight and major and minor subjects in grades nine through twelve.
2. Secondary This certificate is valid for teaching all subjects in grades seven and eight and major and minor subjects in grades nine through twelve.

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.
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 with 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 (2'/2 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 an 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 WMU must earn at least twelve semester hours of the eighteen semester hour program from WMU.

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

   The Thirty-Hour Continuing certificate is not required but is available to the teacher who qualifies and requests this certificate. For the Thirty-Hour Continuing certificate, the "planned program" is the completion of thirty semester hours of credit or an approved master’s degree.

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 any time after actual completion of the entire eighteen semester hour "planned program." After expiration of the first three-year renewal, if the holder has not completed the experience requirements for the Continuing certificate, a second three-year renewal is available any time after actual completion of the entire eighteen semester hour "planned program."

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 teaching experience or program of additional credit. The candidate applies directly to such Michigan college or university regardless of what other college or university may have recommended the initial Provisional certificate. Applications for the Continuing certificate or the Provisional Renewal are available from the Certification Officer, College of Education, 2504 Sangren Hall, (616) 383-1840.

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 is in an "educational capacity" for a minimum of 100 days (need not be consecutive days) in any given five-year period. Continuing certificates automatically expire 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.

Major and Minor Requirements

A major is a sequence of related courses totaling a minimum of twenty-four hours (thirty hours in elementary and secondary education or thirty-six hours in a group major in elementary or secondary education); a minor is a sequence of related courses totaling a minimum of fifteen hours (twenty hours in elementary and secondary education or twenty-four hours in a group major in elementary or secondary education).

1. The student’s major and minors will be the subject specialization, such as mathematics, accounting, biology, or chemistry.

2. The curriculum may be general or specific to prepare for a specialized career or profession such as business, medicine, law, transportation technology, or engineering.

3. Departmental requirements for a number of majors and minors are listed elsewhere in this catalog. Where requirements are not specified, students should consult the departmental advisers for approval of a major or minor program as soon as possible but not later than the junior year.

4. The candidate for a degree must complete a major and a minor. A candidate for the Elementary Provisional Certificate may elect instead a major of at least thirty semester hours (group major of thirty-six semester hours) or two minors of twenty semester hours (group minors, twenty-four semester hours). In addition to the major or two minors, the elementary education minor is required.

5. In certain cases "group" majors totaling a minimum of thirty hours and "group" minors totaling a minimum of twenty hours are permitted. (Note: Students in elementary and secondary education must have thirty-six hour "group" majors and twenty-four hour "group" minors.) They usually consist of courses selected from related departments, as in the case of social science and science.

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

7. Minors may often be related to majors, so as to recognize naturally or closely related fields: for example, mathematics and physics, history and geography, literature and history.

8. It is not permissible to use education as a major or minor in any undergraduate curriculum with the exception of the elementary education curriculum. In the elementary education curriculum it is a required minor in addition to a major or two minors. (See elementary education curriculum.)

9. The following courses are not to be counted as satisfying major and minor requirements:

   a. Required professional courses in education
   b. Required courses in general physical education

10. A combination of foreign languages, or of English or American literature with a foreign language, is not permissible.

11. Mathematics may not be combined with science (physics, geography, chemistry, or biology) for any major or minor sequence, but may be required to satisfy requirements of certain curricula.

12. Courses elected to satisfy requirements in one major and/or minor may not be counted again to satisfy requirements in another major and/or minor.

Undergraduate Curricula and Approved Majors

College of Arts and Sciences: LAS

DEGREES AND CURRICULUM

POL  Political Science
PSY  Psychology
PUR  Public Relations
REL  Religion
SOC  Sociology
SOS  Social Science
SAO  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: Must elect major from ASC Curriculum

CURR: CRU  Criminal Justice
Major: CRU Criminal Justice

CURR: EVS  Environmental Studies
Major: EVS Environmental Studies

CURR: PD  Pre-Dentistry
Major: Must elect major from ASC Curriculum

CURR: PL  Pre-Law
Major: Must elect major from ASC Curriculum

CURR: PM  Pre-Medicine
Major: Must elect major from ASC Curriculum

CURR: PAP  Public Administration
Major: RPA Political Science in Public Administration

CURR: PUH  Public History
Major: HIS History

CURR: STC  Student Planned Curriculum
Major: STC Student Planned Curriculum

CURR: BBN  Bronson Nurses (Application to this program is made through the Bronson Methodist Hospital School of Nursing)
Major: BBN Bronson Nurses

CURR: PTC  Permission to Take Classes
Major: PTC Permission to Take Classes

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

AFS  African Studies
AIS  Asian Studies
EVT  Environmental Studies
EUR  European Studies
LMS  Latin American Studies

College of Business: BUS
CURR: PSA  Pre-Business Administration
Major: Must elect major from BAD Curriculum

CURR: BAD  Business Administration
Major: ACT Accountancy
ADS  Administrative Systems
ADV  Advertising
AGB  Agri-Business
BCM  Business Communication
ECO  Computer Information Systems
FIN  Economics
FIN  Finance
GBS  General Business
IDM  Industrial Marketing
MGT  Management
MKT  Marketing (General)
PAB  Public Administration
REA  Real Estate
RET  Retailing
STB  Statistics

College of Education: EDU
CURR: EED  Elementary Education
Major: AMS American Studies
ANT  Anthropology
BIO  Biology
CHM  Chemistry
CAS  Communication Arts and Sciences
EAR  Earth Science
ECO  Economics
EGM  Elementary Group Minor
ENG  English
FRE  French
GEG  Geography
GER  German
HIS  History
MAT  Mathematics
PHY  Physics
POL  Political Science
SCI  Science
SOC  Sociology
SPA  Spanish

CURR: EEM  Elementary Music
Major: MUS  Music, Elementary

CURR: JHS  Middle School and Junior High School

CURR: CAS  Communication Arts and Sciences
ENG  English
FRE  French
GER  German
MAT  Mathematics
SCI  Science
SOC  Sociology
SPA  Spanish

CURR: EDU  Educational Division

CURR: BRN  Bronson Nurses (Application to this program is made through the Bronson Methodist Hospital School of Nursing)
Major: BBN Bronson Nurses

CURR: PTC  Permission to Take Classes
Major: PTC Permission to Take Classes

College of Engineering and Applied Sciences
CURR: AME  Automotive Engineering
Major: AMS American Studies
ACE  Aircraft Engineering
Major: ACE Aircraft Engineering
AME  Automotive Engineering

CURR: AER  Aeronautical Engineering
Major: AER Aeronautical Engineering

CURR: AUV  Aeronautical and Environmental Engineering
Major: AUV Aeronautical and Environmental Engineering

CURR: AVM  Aeronautical and Mechanical Engineering
Major: AVM Aeronautical and Mechanical Engineering

CURR: AVT  Aeronautical and Transportation Engineering
Major: AVT Aeronautical and Transportation Engineering

CURR: CSE  Computer Systems Engineering
Major: CSE Computer Systems Engineering

CURR: CSM  Construction Supervision and Management
Major: CSM Construction Supervision and Management

CURR: EE  Electrical Engineering
Major: EE Electrical Engineering

CURR: EDG  Engineering Graphics
Major: EDG Engineering Graphics

CURR: ENG  Engineering Division Temporary
Major: ENG Engineering Division Temporary

CURR: PHP  Physics (Non-Teaching)
Major: PHP Physics (Non-Teaching)

CURR: PHI  Philosophy
Major: PHI Philosophy

CURR: PTE  Pre-Technology Education
Major: PTE Pre-Technology Education

CURR: PRT  Printing Management/Marketing
Major: PRT Printing Management/Marketing

CURR: PRO  Product Technology
Major: PRO Product Technology

CURR: TE  Textile and Apparel Technology
Major: TE Textile and Apparel Technology

CURR: VTE  Vocational-Technical Education (Non-Teaching)
Major: VTE Vocational-Technical Education (Non-Teaching)
46 DEGREES AND CURRICULA

College of Fine Arts: FAR
CURR: ART Major: ART Minor: ART Teaching
CURR: DAC Major: DAC
CURR: MSC Major: MSC Music
CURR: MUC Major: Music Composition
CURR: MUE Major: Music Education
CURR: MUH Major: Music History
CURR: MUL Major: Music—Jazz
CURR: MUP Major: Music Performance
CURR: MUY Major: Music Therapy
CURR: MTP Major: Music Theatre Performer
CURR: THR Major: Theatre
CURR: TTH Major: Theatre Education

College of Health and Human Services: HHS
CURR: OT Major: OT Occupational Therapy

CURR: PYA Major: PYA Physician Assistant

Division of Continuing Education: DCE
CURR: GUS Major: GUS General University Studies
CURR: AMT Major: AMT American Studies
CURR: ALS Major: ALS Applied Liberal Studies
CURR: CCI Major: CCI Criminal Justice
CURR: HTH Major: HTH Health Studies
CURR: SOT Major: SOT Social Science Studies
CURR: TAS Major: TAS Technical and Scientific Studies

Students not selecting a curriculum at this time will be designated UNDECIDED until a selection can be made. Students are encouraged whenever possible to select a specific curriculum.

Students make application to enter the business, medical technology, occupational therapy, social work, and speech pathology and audiology curricula after completion of 40-45 semester hours. Until this credit has been earned and accepted to the professional curriculum, the student remains in the pre-professional curriculum.

Programs Requiring Major and Minor Slips
(In All Cases Check Catalog Requirements)

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The Honors College Curriculum is a closed curriculum available only to previously admitted members of the Honors College. For more information, contact the Honors College at (616) 383-1787.
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A Freshman Year Program For Students Who Choose To Explore Academic and Career Options

This program provides beginning and transfer students who wish to explore academic and career options with assessment, referral, and advising 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 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, Expanding Perceptual Boundaries, 3 hours
- Arts and Sciences 100, Career Exploration and Development, 1 hour
- Tutorial services at the Academic Skills Center
- Career Exploration and Media Center
- Skills and interest assessment
- Specially designed freshman curriculum options suited to skills and interests

University (UNI)

101 The University: Expanding Perceptual Boundaries
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 aid students in the development of an intellectual awareness and provide the skills and self management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging, and sometimes anxiety provoking and frustrating world of Western Michigan University. For freshmen only.

Arts and Sciences (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 coordinates honors work at Western Michigan University. Honors programs are designed for bright, creative, and enterprising students. These programs are flexible and accommodate the particular talents or inclinations of students and provide opportunity for students to closely associate with faculty and the academic departments of the University. Innovative and experimental teaching and learning, as well as traditional academic work, are an important part of Honors College programs.

There are two principal ways of associating with the Honors College. Entering first-year students who meet the selection criteria of the Honors College may enter the General Education Honors Program. Sophomores, juniors, and transfer students with excellent academic records may become members of the Honors College.

The General Education Honors Program (GEH) is an Honors College route toward fulfilling the general education requirements of the University. First-year students enter the program when they first enter the University and are "provisional" members of the Honors College. The program provides a challenging educational experience for many entering students. It offers small classes, excellent instruction, and considerable intellectual freedom. General Education Honors consists of 36 semester hours of study, pursued mainly during the freshman and sophomore years.

Students normally meet this 36-hour requirement by selecting courses in three general academic areas: humanities, social science, and natural science. Courses fulfilling these requirements are selected from honors course offerings or from approved alternatives.

High school records, American College Test (ACT) scores, extracurricular interests and activities, and enthusiasm for participation in honors programs are all considered in selecting students for GEH. Interested high school students are encouraged to address inquiries to the Honors College.

Membership in the Honors College is open to all sophomores, juniors, and transfer students with excellent academic records. Applications are generally not accepted from freshmen and seniors. Students who successfully complete General Education Honors are invited to enter the Honors College.

Honors College members must, in their senior year, write an honors paper or produce a creative work of art in their major academic field and must pass an oral examination which focuses on the senior project. An Honors College graduate is so designated upon graduation.

A variety of programs and activities are available to members of the General Education Honors Program and the Honors College. Independent study, interdepartmental major concentrations, special honors seminars, interuniversity enrollment at local colleges, and undergraduate internships in the community may be elected or arranged by Honors College students. The Russell H. Seibert fund, administered by the Honors College, provides modest financial support for a variety of undergraduate endeavors: teaching and research assistantships, research projects, and other creative activities. In addition, the Honors College sponsors a variety of cultural and social activities. These include film and lecture programs, travel seminars, special weekend workshops, and outdoor activities.

Continuation in the Honors College rests upon maintaining an adequate academic record and enrollment in one Honors College course (or appropriate honors section of a departmental course) each year that a student is associated with the Honors College. Failure to enroll in an honors course any academic year when a student is otherwise enrolled at the University shall be interpreted as withdrawal from the Honors College. Exceptions must be negotiated in advance.
Departmental Honors Programs exist in a number of academic departments. Students enter these departmental honors programs by direct application to the departments. A student need not be in the Honors College to be a member of a departmental honors program. In general, these programs are reserved for students of high promise and performance who wish to pursue a special field of study with particular diligence. These programs require a minimum grade point average both to enter and to remain in them. They generally serve junior and senior students.

Departmental programs generally involve independent study, small group seminars, advisory faculty, and senior year papers or projects. Students interested in a particular departmental honors program should communicate directly with the department. Many programs and opportunities administered by the Honors College are not limited to members of General Education Honors or members of the Honors College. Inquiries concerning its various programs are welcome from all Western Michigan University students.

Course Descriptions (HNRS)

This listing of honors courses does not include all honors courses available to Honors College students. Each semester a variety of honors seminars and departmental honors courses are offered. Many of these are applicable to General Education Honors requirements. Descriptions of departmental honors courses may be found under appropriate departmental listings elsewhere in this catalog. Honors College seminars are described in Honors College material printed each semester and titled “Information on Registration.”

General Education Honors Courses

100 Civilization of the West I
4 hrs.
A survey of the human experience from the ancient civilizations of the Near East, Greece, and Rome, through Medieval Europe to the eras of the Renaissance and Reformation, with emphasis on the unique achievements of each culture.

101 Civilization of the West II
4 hrs.
A continuation of Civilization of the West I (though this course may be taken independently), surveying the rise of modern Europe from the sixteenth and seventeenth centuries, through the eras of Enlightenment and Revolution, to the present day.

120 Humanities I
2-4 hrs., Variable Credit
A study of humanity’s creative and imaginative life as this is revealed in philosophical, religious, and esthetic works.

121 Humanities II
2-4 hrs., Variable Credit
Continuation of HNRS 120, Humanities I

202 Social Science I
2-4 hrs., Variable Credit
An historical account of the development of the social sciences dealing with major questions about the nature of society and culture. Basic insights and concepts derived from anthropology, psychology, sociology, economics, geography, and political science are presented.

203 Social Science II
2-4 hrs.
Continuation of Social Science I

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. Admission by permission.

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.

Upper Level Honors College Courses

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.

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. Admission by permission.

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. Admission by permission.

499 Individual Studies
Variable Credit
Students in the Honors College may enroll in this course for one or several semesters upon approval of the Director of Honors. The course is an administrative facility for individual study outside the usual course structure.

The above list of courses is not exhaustive. Each semester a variety of Honors courses is offered by departments under the auspices of the Honors College.
Western Michigan University conducts active programs of international education, research and service on-campus and in a variety of overseas locations. Coordination of all international programming (excluding foreign students) at the University is provided by the Office of the Dean of International Education and Programs. The responsibilities of the office include the University’s relations with foreign universities and agencies as well as American universities and agencies operating abroad. Also included are the University’s foreign study programs, faculty exchanges, student exchange programs involving Americans, and study tours abroad. The Office also aids in the development and implementation of international research, consulting and technical assistance programs. The Dean is advised by a special International Education and Programs Advisory Committee.

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.

Travel, direct personal experience of another culture and language, study in another tradition, all are enriching experiences, both academically and personally. Furthermore, in our era of global affairs and multinational business, the foreign study experience may prove a real asset in career development. In order to facilitate this experience, Western Michigan University offers a variety of opportunities to travel and study abroad.

**SEMESTER AND ACADEMIC YEAR PROGRAMS**

**Study in the People’s Republic of China:**

- Nankai University. WMU has a linkage agreement including student exchange arrangements with this university in northeast China.
- Guangxi University. WMU has a linkage arrangement with Guangxi University, Nanning, enabling WMU students to study Chinese language and culture in southern China.
- Xibei University. WMU has a linkage arrangement with Xibei (Northwest) University, Xian, enabling WMU students to study Chinese language and culture in the ancient city of Xian.

Reciprocal Scholarship Program with Keio University. WMU has a reciprocal scholarship program for a full academic year of studies at Keio University, Tokyo, Japan.

**Study in Japan:**

- Rikkyo University, Tokyo. WMU has a student exchange agreement with this Japanese university.
- Chungnam National University. WMU has a linkage agreement with Chungnam National University, Daejon, South Korea enabling WMU students to study Korean language and culture in Korea.
- Tel Aviv University. WMU has an arrangement with Tel Aviv University, Ramat Aviv, Israel through which WMU students enroll in TAU’s Overseas Student Program and receive credit at WMU.

**Student Exchange with Free University, West Berlin.** Reciprocal student exchange program with the Free University, West Berlin, Germany.

- French Language and Culture in Brittany. WMU is a participating member of the Council on International Educational Exchange (CIEE) consortium which sponsors this program.
- Spanish Language and Culture at Seville. WMU is a participating member of the CIEE consortium which sponsors this program.

**SPRING AND SUMMER PROGRAMS**

**Art History in Italy.** Spring study on location in Rome and Florence. Six weeks in residence, side-trips to other locations in Italy. Six academic credits in courses taught by WMU faculty. May–June.

**“Victims and the Criminal Justice System”:** Spring Seminar held at the Inter-University Centre of Postgraduate Studies, Dubrovnik, Yugoslavia. Certificates of attendance. Courses taught by WMU and international faculty.

**Tropical Biology and Ecology.** Field course held annually in varying locations during
International and Area Studies
Norman C. Greenberg, Director
2090 Friedmann Hall
(616)393-0944

African Studies Program
Claude Phillips, Chair

Asian Studies Program
Alfred K. Ho, Chair

European Studies Program
William Ritchie, Chair

Latin American Studies Program
David Chaplin, Chair

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)393-1878

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
Graham Hawks, Chairperson
4043 Friedmann Hall
(616)393-0029

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
2112 Faunce Student Services Building
(616)393-8181

The Foreign Study Office, a unit of International Education and Programs, provides an advisory and referral service for students and faculty 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.

1. 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 sponsors the annual International Study/Travel Night in March and workshops and smaller presentations on study, work, and travel abroad throughout the year. Students and faculty wishing to participate are urged to contact the office.

LIAISON
The Foreign Study Office maintains contact with study abroad advisers and administrators 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 American Association of Collegiate Registrars and Admissions Officers, Council on International Educational Exchange, the Institute of International Education, the SECUSSA section of the National Association for Foreign Study Affairs, and other organizations and agencies specializing in program and credit evaluation.
The College of Arts and Sciences 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.

Curricular and Majors

For a list of College of Arts and Sciences curricula, see "Undergraduate Curricula and Approved Majors" in the Degrees and Curricula section of this catalog.

Admission to Majors

In order to be admitted to any major in the College of Arts and Sciences, students should apply to the department or program before they have completed 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Failure to do this may mean that a student will not be permitted to enroll in major core courses. Change of curricula during the junior or senior year will be accommodated where possible. Students should consult the catalog for other specific requirements for their major and minor.

The Arts and Sciences Curriculum

Bachelor of Arts or Bachelor of Science Degree

The Arts and Sciences Curriculum requires:
1. A major in the College of Arts and Sciences.
2. A minor in any of the colleges of the University.
3. Eight (8) semester hours of a foreign language or two (2) years of a foreign language in high school (B.A. degree only).
4. General Education requirement, see General Information section of this catalog.
5. Two (2) hours of physical education.
6. Electives and/or additional 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. 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

George H. Demetrakopoulos
William M. Fox
Stephen B. Friedman
John E. Martell
2060 Friedmann Hall
383-6122

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 also advises students concerning General Education requirements.
and helps students set up their General Education program. An appointment with an adviser should be scheduled early in a student's academic career in order to obtain information regarding requirements. Transfer students in the Arts and Sciences and Liberal Arts Curricula, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward the University General Education 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 383-6122 for an appointment.

All College Courses (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 exercises and research in the Career Media Center.

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.

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.

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.

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 Arts and Sciences, 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
6. International and Area Studies Programs:
   African Studies, Asian Studies, European Studies, Latin American Studies
7. Medieval Institute Program
8. Science (Group) Major and Minor
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
216 Moore Hall (383-1843)

Students in American Studies follow an interdepartmental program bringing to bear the insights of art, music, drama, literature, and the social sciences on the problems of American life. A broad-ranging study of American culture can provide an excellent background for students preparing for careers in education, advertising, journalism, research organizations and publishing houses, politics, public relations work in government and industry, the foreign service, mass communications, law, or library work. 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.

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 200 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 216 Moore Hall.

Black Americana Studies

LeRoi R. Ray, Jr., Director
814 Sprau Tower
(616) 383-8015

Leander C. Jones
Benjamin C. Wilson

Adviser: Pearl F. Robinson
2092 Friedmann Hall
(616) 383-0941

This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to penetrate, permeate, and pervade the life of the University. Its more specific aims are to provide every student who comes to the University knowledge and
understanding of the role that people of African descent (Black Americans) have played and play in making America what it is. It is retelling the American story.

A minor will consist of the four undergraduate courses (BAS 200, 300, 500, and 314 or 320) and at least 6 hours of departmental courses. A teaching minor will require at least 12 hours of departmental courses. The student will select both the general minor and a teaching (or group) minor in consultation with the Director of Black Americana Studies and an adviser in the student's major. BAS core courses 200 Black Presence and 300 Black Experience have been approved for General Education credit.

Course Descriptions

(Courses described in italics are approved for General Education)

200 Black Presence
3 hrs.
A survey of the impact of the physical presence of people of African ancestry and descent in the European colonies of the Western Hemisphere from the earliest days of the age of exploration to the present. Historically oriented, the course is designed to be interpretive rather than chronological, to deal with Black presence as party to the expansion of Western Europe in the New World, as active participation in setting and developing the colonies; as a people apart or of contrast. How did the presence of Africans influence the development of the life and institutions of the country in Colonial, National and later years.

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

300 Black Experience
3 hrs.
This course will examine the myriad patterns of adaptation and adjustment made by slaves, free people of color, freedmen and their descendants, to the continuing oppressive character of American society. Slaves narratives reveal much about the Africans interpretation of their presence in the New World. Black presence created a commonality of experience, the characteristics of which became and remain a distinctive American subculture. It aims to examine how Black presence altered the idea of race and how this alteration became a function of the institutional forms that Black Americans have shaped to survive in a hostile environment.

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

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

320 Ecology and the Black Community
3 hrs.
Ecology and the Black Community will be a serious 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 environments as influenced by the social order of the American society and philosophy.

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

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. Prerequisites: BAS 310 or consent of instructor.

500 Black Humanism
3 hrs.
An examination of the creative dimension of the Black Experience, isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. The fact has been acknowledged and accepted, but this creativity has not had free range. One of the outcomes of the Black Revolution has been the emergency of "soul" as a concept to label the artistry and artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black communities and individuals and the availability of the Black Presence and Experience. What universal elements can be identified in "soul"? What are the unique qualities of "soul"? What would American life and culture be like without this elusive quality?

510 Multietnic Education
3 hrs.
This course is designed to prepare teachers and administrators who will work in a multiethnic setting. The course is primarily aimed at helping teachers at any level who teach a social studies component, but teachers of all other subjects, e.g., physical and biological sciences and special education and school administrators will find the course useful. Students will learn how to compile data on the ethnic makeup and resources of the local community, developing instructional packages for use in multiethnic courses and for evaluation materials prepared.

INTERDISCIPLINARY PROGRAMS

Departmental Courses

The following courses are related to Black Americana Studies. Students may elect the additional hours necessary to satisfy requirements for a minor or a teaching minor from the following departmental courses. (Please note: Black Americana Studies is interdisciplinary in approach, and students are encouraged to select courses from several fields of study rather than concentrating in one area to satisfy departmental course requirements.)

Anthropology

220 Cultural Anthropology
3
332 Topics in World Culture Areas: Cultures of Africa
3

Art

594 History of Afro-American Art
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) 383-1733/1736

Carole J. Rogers, Adviser
2407 Sangren Hall
(616) 383-1733/1736

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 certification as a Michigan police officer.

Curriculum and program details may be found under Sociology/Criminal Justice.
Environmental Studies (ENVS)

David Hargreave, Director
118 Moore Hall
Phone: (616) 383-3984

The Environmental Studies Program focuses on the deterioration of the earth’s environment, emphasizes the quality of life, and encourages action aimed at bringing about an ecologically sound way of life. An interdisciplinary program, it seeks to provide the students with a variety of intellectual and practical experiences that provoke thought about humanity, our relationship to society, and our relationship to the natural environment. It also seeks to develop the student’s ability to devise creative solutions to environmental problems and offers the opportunity to prepare for a professional role in some environmentally oriented field, to become an environmental educator, to assume a position of leadership in the area of environmental advocacy, or to develop the attitudes and skills commensurate with a personally fulfilling, environmentally responsible way of living.

Several options are open to the student. Each option requires that the student combine the Environmental Studies program with another major, chosen from one of the many departments at Western Michigan University offering programs related to environmental concerns, so as to obtain the blend of indepth expertise and broad interdisciplinary perspective necessary to deal with complex environmental issues.

Students in the ENVS program are encouraged to become actively involved in community environmental affairs by designing an independent project, which would be carried out under the direction of a faculty member, or by participating in an internship with a local organization or government agency. Academic credit can be obtained for such experiences through ENVS 550 Contemporary Environmental Projects.

Program Options

Major Options
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 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. In addition to the program requirements listed above, those enrolled as EVS curriculum majors must satisfy the following University requirements:

1. Eight hours of a foreign language or two years of a foreign language in high school (for a B.A. degree only).
2. General Education requirements as described in this bulletin.
3. At least two hours of physical education.
4. Electives and/or additional cognates required by the disciplinary major to total no less than 122 semester hours.

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

Major Options
The Environmental Studies Program offers both a non-teaching and a teaching minor. These minors are offered for students who are unable to pursue a major but still seek some insights into the nature of environmental concerns.

The Non-Teaching Minor
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 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/outer 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 seeking certification in one or more topic areas can elect additional courses from the Implementation Skills Component of the program to satisfy the 32 hour minimum requirement for this program. All minors must choose one course from at least three of the five topic areas. The topic areas chosen must be approved by the program adviser so as to balance or complement the student’s major and/or additional minors)
   - Introduction to Biological Systems
     - BIOL 105—Environmental Biology...3
   - Introduction to Physical Systems—1
     - GEOL 100—Earth Studies...4
     - GEOG 105—Our Physical Environment...4
   - Introduction to Physical Systems—II
     - PHYS 102—Physics and the Environment...3
   - CHEM 140—Introduction to Environmental Chemistry...4
   - Introduction to Human Systems
     - GSSC 123—Human Society...4
     - ANTH 220—Cultural Anthropology...4
     - GEOG 205—Our Human World...3
   - Systems in Evolutionary Perspective
     - ANTH 100—Man in Evolutionary Perspective...3
3. The Values/Ethics Component (All majors and minors must choose one course from each topic area)
   - The Origins, Development and Nature of Western Value Systems
     - ENGL 311—Perspectives Through Literature: Man’s Place in Nature...4
   - REL 333—Religion and Ecological Awareness...4
   - GSSC 350—Principles of Conservation and Environmental Management (not to be taken by those opting for a geography cognate major)...3
   - Values and the Future
     - ENVS 300—Introduction to Appropriate Technology...3
     - GSSC 435—From the 20th to the 21st Century: Problems and Programs of Transition...4
   - GSCI 436—The Search for an Ecological Conscience...4
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 Adviser. 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 100, 220, 540
   - BIOL 101, 102, 105, 201, 225, 234, 502, 509, 512, 520, 548, 549, 552, 553, 554
   - CHEM 140
   - CHEM 430
   - CHEM 552, 553, 554
   - CHEM 556
   - CHEM 557, 570, 580, 582
   - ECON 319
   - ED 502 (when substituted for Environmental Education)
   - ENGL 311 (when substituted Man’s Place in Nature)
   - ENVS 300, 310, 398, 550
   - GSCI 430
   - GSCI 435
   - GSCI 100
   - GSCI 556
   - GSCI 557, 570, 580
   - GEOL 100, 130, 131, 300, 312, 544
   - GMGT 430
   - ME 333, 454
   - PAPR 251, 350, 353, 450, 451
Advising

Because of the broad interdisciplinary nature of the Environmental Studies Program and the varied academic backgrounds and goals of the students served by the program, it is imperative that students work closely with the Program Adviser. Those who intend to pursue any of the Environmental Studies Program options should see the Program Adviser before embarking on any of the program components beyond the Introductory Component.

Course Descriptions

(Courses described in italics are approved for general education.)

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.

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.

300 Introduction to Appropriate Technology 3 hrs.
An academic inquiry into the environmental, ethical, technological and socio-political aspects of "appropriate technology." Such technologies are designed to fit local environments and to be consistent with the resources and values of respective cultures. Lectures will review the development of appropriate technology, its importance in today's world, and its role in creating a livable future.

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 agricultures, and the search for a rural way of life and appropriate technologies which are less demanding of energy and material resources.

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.

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.

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 experiences, and/or workshop experiences. 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)

June Cottrell, Adviser
323 Sprau Tower (616) 383-4080
An interdisciplinary program of:

COLLEGE OF ARTS AND SCIENCES

COMMUNICATION ARTS AND SCIENCES

English Languages and Linguistics

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. This program satisfies the guidelines of the Michigan Department of Education for competency based programs, and provides opportunities for a wide variety of individual interests and alternative learning styles.

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 strategies, 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.

INTERDISCIPLINARY PROGRAMS

57

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, June Cottrell, 323 Sprau Tower, 383-4080. A minor slip is required. Students must see an adviser before they have completed 8 hours in the minor.

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/SPPA 260 Linguistic Development of the Child

Intermediate Courses:

ILAM/CAS 365 Oral Communication and the Early Elementary Child

ILAM/CAS 366 Oral Communication and the Later Elementary Child

ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child

ILAM/ENGL 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
Dean, College of General Studies

AFRICAN STUDIES PROGRAM

Claude Phillips, Chair

ASIAN STUDIES PROGRAM

Alfred Ho, 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 within two categories: (1) undergraduate co-ordinate majors of twenty-four semester hours, and (2) undergraduate minors of fifteen semester hours, including minors approved for the 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, literature and fine arts, social institutions, political processes, major intellectual currents, geography, economic problems, linguistic heritage, 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 education, industry, 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 develop and promote opportunities for students enrolled in these programs to study and travel in foreign countries—thereby acquiring a firsthand understanding of contemporary conditions while further developing facility in one or more foreign languages. Academic credit earned as a result of study or research undertaken abroad may be accepted toward completion of requirements for the coordinate major or minor.

Students should consult the appropriate adviser for the development of a program of study and for each registration if necessary.

### African Studies Program

**Coordinate Major**

Claude Phillips (Political Science), Adviser 3007 Friedman Hall 383-0492

The African Studies Program is an interdisciplinary 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. Its specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements, to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs, and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning the importance of Africa in the world.

This program is ideally organized for the student who wishes to take advantage of the Student-Planned Curriculum available at Western. A student who enrolls for the coordinate major in African studies must also have a disciplinary major in any college of the University. The program requires 24 semester hours of courses for the major and 15 semester hours for the minor (24 hours for students enrolled in any curriculum in the College of Education). In the planning of the major and minor, students must consult with the adviser in African studies.

### Asian Studies Program

Alfred K. Ho (Economics), Adviser 5043 Friedmann Hall 383-1707

This is a program for the study of Asia, which is a large area in terms of geography and population and is an important area because of the position it has in world affairs. This area stretches from Micronesia in the East to Afghanistan in the West and from Mongolia and China in the North to India in the South. It has about fifty-five percent of the world's population. It is going through adjustments of urbanization, industrialization, modernization, and technological change. It is an area of different political, social and economic systems and institutions. This program is to help the students to gain an understanding of Asia and prepare them for careers in that part of the world.

**Coordinate Major**

Undergraduates interested in Asian affairs and culture or who hope to pursue an Asia-related career may choose an interdisciplinary coordinate major in Asian studies. This is a double major program. In addition, to fulfill the requirements of a disciplinary major in any college of the University, the student is required to take 24 credit hours of approved Asian studies courses. An Asian language is not required for this major; however, it is strongly recommended for any student planning an Asia-related career or Asian studies at the graduate level.

**Minor**

Undergraduates in any college of the University may choose an interdisciplinary minor in Asian studies. Fifteen semester hours (24 for students enrolled in education curricula) of approved Asian studies courses are required. The minor in Asian studies has been approved by the State Board of Education for teacher certification at the secondary education level.

### European Studies Program

**Coordinate Major**

William Ritchie (Political Science), Adviser 3025 Friedman Hall 383-8002

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's outlook on the European area in general. Students are encouraged to concentrate on one of the major cultural-linguistic regions of Europe. For those students who have a broad interest in European culture and its institutions, and who do not wish to specialize in one of the major area complexes, there is the general option.

1. A minimum of 24 hours will be required for the completion of the coordinate major in European studies. The European studies coordinate major will be offered in the following options concerning these specific areas:
   - **British Studies**—Professor Dale Patterson (Department of History)
   - **Germanic Studies**—Professor Peter Krawutschke (Department of Languages and Linguistics)
   - **Romance Studies**—Professor Joseph G. Reish (Department of Languages and Linguistics)
   - **Slavic Studies**—Professor William Ritchie (Department of Political Science)
   - **General Option**—See William Ritchie, General Adviser

2. The 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. Students who elect the general option of the coordinate major must select an advisory committee. The committee shall consist of the European studies adviser, or an adviser pertinent to the student's general option, and a
The Latin American studies program offers student a combination of area specialized courses in geography, political science, economics, sociology, history, and anthropology to be linked to Spanish and Portuguese and complemented by coordinate majors in other fields. Especially appropriate choices would be international business, tourism, or economics. In addition, secondary education certification would be especially relevant. Beyond core courses focused especially on Latin America, students should also select cognate courses covering developmental problems of all third world regions. Individual directed readings courses are also available on Latin American topics from a wide range of faculty. A special feature of this program is the opportunity to participate in field seminars in Guatemala or Mexico, as well as spending a year abroad in approved schools in Latin America or Spain or Portugal. Such experiences are very valuable aid to linguistic fluency.

### Latin American Studies Program

**Coordinate Major**

David Chaplin (Sociology), Adviser  
2408 Sangren  
383-1735  

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 are required to 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 in 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, seminar classes, and is above all, tailored to each individual's interest.

**Minor**

Fifteen semester hours (24 for students enrolled in education curricula) are required for completion of a minor concentration in Latin American studies. A minimum of twelve semester hours must be selected from the list of core courses. Students enrolled in this minor are strongly urged to acquire a proficiency in Spanish.

Students wishing to enroll in this minor concentration are required to 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 student a combination of area specialized courses in geography, political science.

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<table>
<thead>
<tr>
<th>Minor Program</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students with an undergraduate minor must elect twenty hours, to include the following:</td>
<td></td>
</tr>
<tr>
<td>1. One history course chosen from the approved list</td>
<td></td>
</tr>
<tr>
<td>2. One literature course chosen from the approved list</td>
<td></td>
</tr>
<tr>
<td>3. One course in intellectual history, philosophy, or theology chosen from the approved list</td>
<td></td>
</tr>
<tr>
<td>Electives from the approved list with the approval of the adviser.</td>
<td></td>
</tr>
</tbody>
</table>

**Approved Courses**

<table>
<thead>
<tr>
<th>Art</th>
<th>History (to the Renaissance)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>220</td>
<td>2-3</td>
<td></td>
</tr>
<tr>
<td>520</td>
<td>Independent Study in Art History</td>
<td></td>
</tr>
<tr>
<td>583</td>
<td>History of Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>585</td>
<td>History of Renaissance Art</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Arts and Sciences</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>Foreign Studies Seminar: Social Sciences</td>
</tr>
<tr>
<td>505</td>
<td>Foreign Studies Seminar: Humanities</td>
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</table>

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**Interdisciplinary Programs**

<table>
<thead>
<tr>
<th>English</th>
<th>252 Shakespeare</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>372</td>
<td>Development of Modern English</td>
<td>4</td>
</tr>
<tr>
<td>452</td>
<td>Shakespeare Seminar</td>
<td>4</td>
</tr>
<tr>
<td>510</td>
<td>Special Topics: Norse Literature and Mythology</td>
<td>4</td>
</tr>
<tr>
<td>530</td>
<td>Medieval Literature</td>
<td>4</td>
</tr>
<tr>
<td>532</td>
<td>English Renaissance Literature</td>
<td>4</td>
</tr>
<tr>
<td>555</td>
<td>Studies in Major Writers (Dante, Chaucer)</td>
<td>4</td>
</tr>
<tr>
<td>598</td>
<td>Reading in English</td>
<td>1-4</td>
</tr>
<tr>
<td>History</td>
<td>354 Medieval History</td>
<td>3</td>
</tr>
<tr>
<td>550</td>
<td>Topics in Medieval History</td>
<td>3</td>
</tr>
<tr>
<td>554</td>
<td>Renaissance and Reformation</td>
<td>3</td>
</tr>
<tr>
<td>598</td>
<td>Independent Study in History</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Languages and Linguistics</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>550 Independent Study in French</td>
</tr>
<tr>
<td>560</td>
<td>Studies in French Literature (Medieval)</td>
</tr>
<tr>
<td>560</td>
<td>Studies in French Literature (Renaissance)</td>
</tr>
<tr>
<td>German</td>
<td>556 Survey of German literature (early)</td>
</tr>
<tr>
<td>550</td>
<td>Independent Study in German</td>
</tr>
<tr>
<td>559</td>
<td>History of the German Language</td>
</tr>
<tr>
<td>Latin</td>
<td>450 Greek and Roman Mythology</td>
</tr>
<tr>
<td>550</td>
<td>Independent Study in Latin</td>
</tr>
<tr>
<td>560</td>
<td>Medieval Latin</td>
</tr>
<tr>
<td>Spanish</td>
<td>322 Life and Culture of Spain</td>
</tr>
<tr>
<td>550</td>
<td>Independent Study in Spanish</td>
</tr>
<tr>
<td>560</td>
<td>Studies in Spanish Literature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Linguistics</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>421</td>
<td>The Development of Language: History and Dialects</td>
</tr>
<tr>
<td>598</td>
<td>Readings in Linguistics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medieval Studies</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>Heroes and Villains of the Middle Ages</td>
</tr>
<tr>
<td>500</td>
<td>Interdisciplinary Studies in Medieval Culture</td>
</tr>
<tr>
<td>270</td>
<td>Music History and Literature (early)</td>
</tr>
<tr>
<td>498</td>
<td>Readings in Music</td>
</tr>
<tr>
<td>517</td>
<td>Collegium Musicum</td>
</tr>
<tr>
<td>582</td>
<td>Western Music before 1600</td>
</tr>
<tr>
<td>Philosophy</td>
<td>300</td>
</tr>
<tr>
<td>498</td>
<td>Independent Study</td>
</tr>
<tr>
<td>598</td>
<td>Readings in Philosophy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Political Science</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>360</td>
<td>Introduction to the History of Political Theory</td>
</tr>
<tr>
<td>598</td>
<td>Studies in Political Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religion</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>305</td>
<td>The Christian Tradition</td>
</tr>
<tr>
<td>306</td>
<td>The Jewish Tradition</td>
</tr>
<tr>
<td>307</td>
<td>The Islamic Tradition</td>
</tr>
<tr>
<td>500</td>
<td>Historical Studies in Religion (Christian Theology to 1500)</td>
</tr>
<tr>
<td>500</td>
<td>Historical Studies in Religion (Renaissance and Reformation Theology)</td>
</tr>
<tr>
<td>510</td>
<td>Morphological and Phenomenological Studies in Religion (Great Thinkers)</td>
</tr>
<tr>
<td>510</td>
<td>Morphological and Phenomenological Studies in Religion (Millennium, Utopia, and Revolution)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Theatre</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>370</td>
<td>Theatre History</td>
</tr>
</tbody>
</table>
Course Descriptions

(Course described in italics is approved for General Education.)

145 Heroes and Villains of the Middle Ages
3 hrs.
An interdisciplinary course designed to introduce beginning students to the medieval roots of the individual, social, and institutional ideals and values of modern Western culture as they are expressed and exemplified in the images of medieval heroes and their counterparts. Faculty from different departments will deal with the topic of the course by examining and interpreting the evidence in light of their respective fields of study such as art, history, literature, music, religion, and sociology.

500 Interdisciplinary Studies in Medieval Culture
3 hrs.
An interdisciplinary course organized around selected topics in medieval and Renaissance studies. The focus may be in a specific period (The Twelfth Century), a religious movement (Monasticism), a political structure (Venice-A Renaissance city-state), or the social fabric (Medieval Man: Image and Reality). Each case faculty from several departments will approach the semester’s topic from the perspective and with the methodological tools of their respective disciplines, such as art, history, literature, music, philosophy, political science, and religion.

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

Group Science Majors and Minors

Departmental major and minor requirements are listed under the individual science departments (biology, chemistry, geography, geology, mathematics, physics, and psychology) and students must consult departmental advisers concerning them. Group majors and minors are intended for students in the middle school and junior high school curricula. Group science minors are also available for students in special education. Group science minors are not available for students in other curricula, except in rare cases with special permission of the group science advisor. For information contact the College of Arts and Sciences Advising Office.

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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 101</td>
<td>Animal Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 102</td>
<td>Plant Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>Ecology</td>
<td>4</td>
</tr>
<tr>
<td>BMED 210</td>
<td>Mammalian Anatomy</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 220</td>
<td>Applied Botany</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 234</td>
<td>Outdoor Science</td>
<td>4</td>
</tr>
<tr>
<td>BMED 250</td>
<td>General Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 541</td>
<td>Invertebrate Zoology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Earth Science**

11-12
One of the following:
- GEOL 105 Our Physical Environment 4
- GEOL 226 Physical Geography 3

Two of the following:
- GEOL 130 Physical Geology 4
- GEOL 131 Earth History & Evolution 3
- GEOL 300 Oceanography 3
- GEOL 301 Minerals and Rocks 3
- GEOL 225 Intro to Meteorology & Climatology 4

- GEOL 350 Principles of Conservation & Environmental Management 3

**Physical Science**

11-12
One of the following:
- 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 II 4
- CHEM 140 Intro. Environmental Chemistry 4

One of the following:
- CHEM 120 General Chemistry II 4
- PHYS 111 General Physics II 4
- PHYS 104 or
- PHYS 105 Astronomy 3-4

Minimum Total 36

**Related Course Offering**

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

**Science and Mathematics Teaching Minor**

Adviser: Science and Mathematics Education, SAME Center

This minor is open to students enrolled in the elementary education curriculum. Advising is provided by the College of Education, SAME Center, B-302 Ellsworth Hall. Students planning to major or minor in social science should consult with William Fox (2000 Friedmann Hall).

**Social Science Major and Minor**

In addition to majors and minors in the individual Social Science departments (Anthropology, Economics, History, Political Science, and Sociology), a major and a minor in social science are offered. Requirements for the departmental majors may be found under the departmental listings. Students planning to major or minor in social science should consult with William Fox (2000 Friedmann Hall).

**Requirements for the major in social science**

1. At least 36 hours credit in the social science departments listed above. Courses listed under "General Studies" may not be counted toward the major in social science.
2. The following basic courses must be completed. They may be applied towards either the social science major or a minor in one of the departments.
   - ANTH 240 or 210
   - ECON 201 and 202
   - HIST 210 and 211
   - PSY 203
   - 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.
5. Majors in secondary and middle school and junior high school education curricula may include up to two courses in geography in their major program, provided such courses are not specified for "science credit."
6. In addition to the above, majors in the secondary education curriculum must elect Social Science 300 (Teaching of Social Studies in Secondary Schools).

**Requirements for the minor in social science**

1. The social science minor in the secondary education curriculum is open only to students who are majoring in English, geography, or one of the social science departments listed above.
2. At least 24 hours credit in the social science departments listed above. (Must include all basic courses indicated for above major.) This may not include any
courses listed under "General Studies." Students enrolled in the elementary or secondary education curricula may include one course in geography, provided such course is not specified for "science credit."

3. At least 6 hours credit in 300 to 500 level courses.

4. In the event the major is in one of the listed social science departments, the minor in social science must include courses in all of the other listed departments.

Related Course Offering

Additional Social Science Programs

Two additional interdisciplinary social science programs are available through the Division of Continuing Education listed under General University Studies Curriculum. The first is social science studies—interdisciplinary, the second is criminal justice. The latter program is designed for students possessing an Associates Degree in Criminal Justice, Law Enforcement, or Police Science from a community college who desire the bachelor's degree in this field.

For more detailed information see a description of these programs in the Undergraduate Catalog under the heading "Division of Continuing Education" (for contact one of the Western Michigan University Regional Centers in Battle Creek, Benton Harbor, Grand Rapids, Lansing, or Muskegon).

Course Descriptions

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 programs in 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

Gilda M. Greenberg, Director and Adviser

209 Moore Hall

Change in the role of women, whether in response to the reawakening of feminism or the pull of new technology, is a significant element in our current period of social change. The women's studies minor is designed to aid students in the area of personal growth by fostering the development of their capacity to make intelligent choices in considering their own adjustments to life and its demands.

The program seeks to provide students an expanded view of their cultural heritage, enhancing their capacity for objective and critical thinking through the examination of previously unexamined assumptions and knowledge about themselves and their past. In so doing, the student is better prepared to deal in a creative fashion with the content and methodology of the various disciplines.

In addition, the women's studies minor is designed to enhance career preparation by preparing students to deal with others in non-stereotypic fashion in their future professions.

The women's studies minor may be used in all curricula other than education. Students must select courses to be used in the minor in consultation with the adviser. Exceptions, such as the inclusion of independent studies through departmental reading courses, may be made with the approval of the adviser. For specific descriptions of the courses consult the departmental sections of the catalog.

The minor consist of 20 hours.

Required:

- GSSC 222 Status of Women ......... 4

Electives to total 16 hrs. selected from the following:

*Check with adviser if the topic announced in the Class Schedule will be applicable towards the minor.

100 Level

- ENGL 111 Topics: Man and Woman in Literature ......... 3
- GSCI 133 Issues in Social Biology ......... 4
- SOC 190 Men and Women in Contemporary Society ......... 3

200 Level

- CRT 210 Introduction to Human Sexuality ......... 3
- PSCI 270 Topics: Women in Politics ......... 1-3

300 Level

- HIST 303 Women in the Western World ......... 3
- GENL 305 Non-Western World: Role and Status of Women ......... 4
- PHIL 314 Philosophy and Public Affairs* ......... 4
- ANTH 345 Topics: Women in Other Cultures ......... 3

400 Level

- GUMH 409 Women Past, Present and Future ......... 4
- ENGL 416 Women in Literature ......... 4
- GSSC 444 Female and Male in Psychological Perspective ......... 4
- SOC 495 Topics: Women* ......... 3

500 Level

- REL 510 Morphological and Phenomenological Studies in Religion* ......... 4
- GSCI 510 Studies in Social Problems* ......... 3
- MGMT 512 Women in Management ......... 3
- PSY 524 Human Sexuality ......... 3
- PSY 525 Behavior Analysis and Women ......... 3
- CAS 579 Female/Male Interaction ......... 3

World Literature Minor

William Combs, English Department, Adviser
Joseph Reish, Department of Languages and Linguistics, Adviser

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

INTERDISCIPLINARY PROGRAMS

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 obvious 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 yet a teaching minor.

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

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

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

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

Minor slips are required. Both the English and the Languages and Linguistics Departments have world literature minor advisers with regular office hours, either of whom may issue minor slips. For information, stop at or call the English Department office (620 Sprau 383-1684) or the Department of Languages and Linguistics (410 Sprau 383-0084).

Requirements

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 210 Film Interpretation ......... 4
- ENGL 252 Shakespeare ......... 4
- ENGL 312 Western World Literature, if not used under Requirement (1) ......... 4

- ENGL 313 Asian Literature, if not used under Requirement (1) ......... 4
- ENGL 314 African Literature, if not used under Requirement (1) ......... 4
- ENGL 315 The English Bible as Literature ......... 4
- ENGL 410 Special Topics in Literature (If the topic is appropriate it may be approved by the minor adviser. A regularly offered approved topic is Introduction to Folklore) ......... 4
- ENGL 442 Modern Drama ......... 4
See "Interdisciplinary Programs" in the College of Arts and Sciences.

American Studies Program

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

Anthropology (ANTH)

Robert Jack Smith, Chair
William Cremin
Elizabeth Garland
William Garland
Norman Greenberg
Alan Jacobs
Erika Loeffler
Reinhold Loeffler
Robert Maher
Robert Sundick

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, biology and biomedical 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.

Course Descriptions

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

100 Man in Evolutionary Perspective 3 hrs.

The nature, causes and prospects of being human as seen through the examination of the events and processes of biocultural evolution.

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.

120 Peoples of the World 3 hrs.

A general survey of the rich variety and types of traditional and contemporary societies in major culture areas of the world, such as hunting and gathering peoples, nomads, small-scale versus large-scale societies, and Non-Western kingdom states. Intended as a general introduction to the field of ethnography, with emphasis on detailed descriptions of representative societies.

210 Introduction to Archaeology 3 hrs. Fall, Winter

The science of archaeology is explored in terms of the methods and concepts used to discover and interpret past human behavior. Select portions of the Old and New World prehistoric cultural sequences provide the frame of reference.

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.)

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.)

250 Introduction to Physical Anthropology 3 hrs. Fall, Winter

A survey of physical anthropology: hominin and primate evolution; the living primates, human osteology; human genetics and population variation.

300 The Prehistory of North America 3 hrs.

A survey of the major prehistoric cultures of North America north of Mexico, including American Indian origins, early big-game hunters of the Great Plains, ecological adaptations of the Archaic stage, the complex burial mound and temple mound cultures of the East, and prehistoric Pueblo cultures of the Southwest.

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 strategy, survey and excavation techniques, classification, systems theory, model building and the reconstruction of prehistoric social organizations. Prerequisite: ANTH 210 or consent of instructor.

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 relations 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.

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-communal, 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.

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.

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

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.)

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.

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.

370 Culture and Communication 3 hrs.
A consideration of the nature and role of various symbolic systems of communication, especially non-verbal, such as dress, art forms, use of space, mytholgy and folklore. Intended as a general introduction to such fields as semiology, proxemics, aesthetics, folklore analysis, structuralism, ethnosemantics, and modern linguistic theories of communication as they relate to cultural systems of cognition and social organization.

490 Undergraduate Seminar in General Anthropology 2-4 hrs.
An informal seminar oriented to the integrative and synthesizing dimensions of anthropology. Through classroom discussions, group papers, and talks on various current concepts and topics in anthropology, students and faculty explore the relevance of the anthropological perspective for an understanding of both the general human situation and their professional development. Variable credit depending upon extent of oral and written presentations by student. Prerequisite: consent of instructor.

498 Honors Study 2 hrs.
A program of independent study (reading or research) to provide the honors student with the opportunity to pursue 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 Honors Adviser.

500 Topics in Archaeology 3 hrs.
A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. (May be repeated for credit.) Prerequisite: Varies with topic.

501 The Rise of Civilization 3 hrs.
The archaeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area (e.g. the Near East or Meso-America), or it may give equal emphasis to two or more areas in a comparative framework. The specific area or areas to be studied will be announced each semester. (May be repeated for credit.) Prerequisite: 210 or consent of instructor.

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

510 Field Methods in Archaeology I 3 hrs. Spring
Instruction in the archaeology of a particular area (e.g. the Great Lakes, Midwest Riverine area) with emphasis on cultural processes and ecological relationships as these emerge during the course of field work on the specific problems chosen for investigation in a given field season. (May be repeated for credit.) Prerequisite: consent of instructor.

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

520 History of Ethnological Theory 3 hrs.
A systematic examination of the evolution of the significant theoretical problems and contributions in 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.

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. Consider the importance of research design and operations in generating more accurate observations on which theory building and testing rest. Includes introduction to ethnographic methodology, e.g., participant-observation, structured and semi-structured interviews, questionnaires, sampling, technical equipment, etc. Prerequisite: ANTH 240, 220 or consent of instructor.

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.

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 medi 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.

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.

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

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.

540 Social Impact Assessment 3 hrs.
The application of anthropological knowledge to assess and evaluate...
the socio-cultural effects of proposed development 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.

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, millennial movements). Topic will be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 240, 220 or consent of instructor.

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.

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.

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

Biology and Biomedical Sciences

Richard W. Pippen, Chair
Leonard J. Beuving
Richard D. Brewer
Darwin A. Buchala
David P. Cowan
Elwood B. Ehrie
Robert C. Eisenberg
Joseph G. Engemann
Gyula Ficsor
Donna J. Fowler
Stephen B. Friedman
Leonard C. Gritzberg
Edgar Inselberg
Leo C. VanderBeek
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 Biology and Biomedical Sciences offers major and minor programs designed to provide today’s student with effective knowledge and training in various areas of the life sciences.

The Biology Major 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 local 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.M., D.P.M., or pharmacy.

The Biomedical Sciences Major is designed to prepare students for biomedical careers by providing them with an effective foundation in the basic biomedical sciences, including physiology, microbiology, genetics, and cell biology, coupled with extensive training in modern laboratory techniques associated with the above disciplines. Courses in other biomedical areas such as anatomy, histology, embryology, and immunology are also available. Students have the opportunity, through an appropriate choice of electives, to either specialize in one of the major disciplines or develop a broad background. Three options are currently 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 students with the technical training required for employment in hospitals, clinical and basic research laboratories, industrial laboratories, and state and federal agencies, and (2) producing highly qualified students who will pursue training in the health sciences at the graduate or professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.M., 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, accounting, 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 certified 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 well-versed in the performance of these tests and possess a keen awareness for the importance of quality control within the laboratory. Such competence requires a strong background in biomedical sciences, chemistry, physics, mathematics, as well as adequate clinical laboratory training.

Students interested in pursuing a teaching career in the biological sciences should follow the special guidelines for the Biology Major—Secondary Education Curriculum section below.

Minors are available in biology, biomedical sciences, botany, or zoology. It is possible to major in biology or biomedical sciences and also minor in botany or zoology.

An honors program in biology and biomedical 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, (room 100, Wood Hall, 616-383-1674, or room 3301 McCracken Hall, 616-383-1544) for information concerning the 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 a departmental adviser. Students who want to major or minor in biology or biomedical sciences should consult with the appropriate departmental adviser during freshman or transfer student orientation and regularly thereafter.

Only departmental courses (BIOL and BMED) on which a grade of "C" or better is obtained may be counted towards a major or minor in biology and biomedical sciences.

Biology Major—Arts and Sciences, Liberal Arts, and Preprofessional Curricula

A major in biology (BIO) consists of a minimum of thirty-two hours of coursework in BIOL courses, including the core courses and electives. Biology electives chosen to complete the thirty-two hour major should reflect the student’s interests and educational objectives. A minimum of six hours of biology electives must be taken at the 500 level.

Core Course Requirements
BIOL 101, 102, 201, 202 and one of the following: BIOL 315, 317, or 319

Cognate Requirements
Arts and Sciences (ASC) and Liberal Arts (LA) curricula.
Chemistry 101 (or 102) and 120, and a course in organic chemistry; any two of the following courses in Mathematics: 118, 122, 123, 200, 260, Physics 110 (or 210) and 111 (or 211); Geology 130 may be substituted for Physics 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. Chemistry 361. Geology 130 may not be substituted for Physics 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 curricula, the following cognates are needed for admission to most graduate schools. Geology 130 (in addition to Physics 111 and 211), a course in statistics (Mathematics 260, 364, or 366), a course in computer programming (Computer Science 105 or 306).

Transfer students must complete a minimum of nine hours of biology coursework at Western.

Biology Major—Secondary Education Curriculum

All of the requirements for biology majors listed above apply to biology majors in the SED curriculum, with the following variations: BIOS 404, and an approved course in each of the following areas is required: plant taxonomy, animal taxonomy, and anatomy. Approval for these three courses must be obtained from the secondary education advisor in the Department of Biology and Biomedical Sciences.

Cognate requirements include: CHEM 101 (or 102), 120, and 365 (or 360 and 361), any two of the following Mathematics courses—118, 122, 123, 200, 260; PHYS 110 (or 210) and 111 (or 211).

It is recommended that students in the SED curriculum who are majoring or minoring in biology complete a group science minor of twenty-four hours by using the twelve hours of college chemistry and eight hours of physics and adding another four hours of electives in either physics or geology.

Biomedical Sciences Major—Secondary Education Option

Biomedical Sciences Requirements

A student in the ASC, LA, PD, and PM curricula may elect a minor in biology, botany, or zoology, including BIOL 101, BIOL 102, and electives. BIOL 404, Problems in Teaching Biology (3 hours) is required.

Cognate requirements for the minors include: CHEM 101 (or 102) and 120 and MATH 118 (or 122, or 200).

A student majoring in biology may elect a minor in either botany or zoology. In such a case, no courses taken toward the major may be applied to the minor. Only those biology courses in which a grade of "C" or better is obtained may be counted for a minor. Transfer students must complete a minimum of six hours of biology coursework at Western.

Biology Minor—Secondary Education Curriculum

A student in the SED curriculum may elect a biology minor (but not the botany or zoology minor) which consists of a minimum of twenty hours of coursework in biology, including BIOL 101, BIOL 102, and electives. BIOL 404, Problems in Teaching Biology (3 hours) is required.

Cognate requirements for a minor include: CHEM 101 (or 102) and 120 and MATH 118 (or 122, or 200).

Only those biology courses in which a grade of "C" or better is obtained may be counted for a minor.

Biomedical Sciences Minor—General and Preprofessional Option

Biomedical Sciences Requirements

A student in the Biomedical Sciences (BMED) consists of a minimum of thirty credit hours in BMED courses, including the basic core curriculum and electives. The electives must include a three credit BMED laboratory course, and at least six credit hours of electives must be at the 500 level (excluding 598 and 599). A student may be eligible for equivalency and transfer credit toward the major (see Transfer Students).

Core Curriculum

BMED 112, 113, 200, 250, 312, and 350. BMED 112 and 113 are not required of students demonstrating satisfactory performance on proficiency exams covering the content of these courses.

Cognate Requirements

Fifteen hours of college chemistry including organic chemistry and biochemistry, eight hours of college mathematics (must include one of the following options: MATH 118 or 122 or 200, MATH 122 and 123, MATH 122 or 200 and 260 or 366), and eight hours of general physics.

Biomedical Sciences Major—Medical Service Representative Option

Biomedical Sciences Requirement

A major in Biomedical Sciences with Medical Service Representative Option consists of a minimum of thirty credit hours in BMED courses, including the core curriculum and two of the following: BMED 518, 531, 534, 570, or 574.

Core Curriculum

BMED 112, 113, 200, 250, 312, 350 and 536. BMED 112 and 113 are not required of students demonstrating satisfactory performance on proficiency exams covering the content of these courses.

Cognate Requirements

Fifteen hours of college chemistry including organic chemistry and biochemistry, eight hours of college mathematics (must include the following options: MATH 118 or 122 or 200, MATH 122 and 123, MATH 122 or 200 and 260 or 366), and eight hours of general physics.

In addition, the following specific courses must be taken: PSY 194 or 344; ECON 201 and 202; ACTY 201; MRTG 270; BUS 340; GSCI 434; and at least six hours from the following CAS courses: 104, 170, 331, and 370.

Biomedical Sciences Major—Medical Technology Option

The student takes courses on the Western campus for four years obtaining a Bachelor of Science degree with a Biomedical Sciences major and a Chemistry minor. For a full description of the program consult its listing under the "Interdisciplinary Programs" section of the College of Arts and Sciences.
Transfer Students

A minimum of nine hours of coursework in the Biology Major, fifteen hours in the Biomedical Sciences Major, including BMED 200, and six hours in any of the departmental minor options must be earned at Western Michigan University. Questions about transfer credits or equivalencies of biology and biomedical sciences courses taken elsewhere to those at WMU are generally decided by the credit evaluators of the Office of Admissions. Where "credit by departmental approval" is indicated on a "Credit Evaluation Slip," consult a departmental adviser. Transfer students should consult with a departmental adviser before registering for classes.

Proficiency examinations covering the content of BMED 112 and 113 will be given upon request to students transferring into the biomedical sciences major program who wish to waive the requirement of taking these courses. Successful passage of the examinations provides a waiver but not academic credit for BMED 112 and 113. The student will be provided with a signed waiver form, which will become part of his/her major or minor slip. The proficiency exam may be repeated only once. There will be no charge for the exams.

Equivalent courses taken elsewhere may be substituted for BMED 112 and/or 113. These and other substitutions will require approval of the major adviser.

Suggested Sequence of Coursework

For the Biology Major

<table>
<thead>
<tr>
<th>Freshman year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Fall (15-17 hours)</td>
<td>BIOL 101 or 102</td>
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<tr>
<td>Winter (15-17 hours)</td>
<td>BIOL 102 or 101</td>
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<tr>
<td>Sophomore Year</td>
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<tr>
<td>Fall (14-15 hours)</td>
<td>BIOL 202</td>
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<tr>
<td>Winter (13-16 hours)</td>
<td>BIOL 315, 317, or 319</td>
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<tr>
<td>Junior Year</td>
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<tr>
<td>Fall (13-16 hours)</td>
<td>BIOL 201</td>
</tr>
<tr>
<td>Winter (12-18 hours)</td>
<td>Biology Electives</td>
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</tbody>
</table>

Requirements for a minor (or second major): | 3-4 |
General Education Electives | 3-4 |

For the Biomedical Sciences Major, General and Professional Option

<table>
<thead>
<tr>
<th>Freshman year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Fall (15-16 hours)</td>
<td>BMED 112</td>
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<tr>
<td>Winter (14-15 hours)</td>
<td>BMED 250</td>
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<tr>
<td>Junior year</td>
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<tr>
<td>Fall (13-17 hours)</td>
<td>BMED 350</td>
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<tr>
<td>Winter (13-17 hours)</td>
<td>BMED 350</td>
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<tr>
<td>Senior year</td>
<td></td>
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<tr>
<td>Fall (13-17 hours)</td>
<td>BMED 530 or 518</td>
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<tr>
<td>Winter (12-17 hours)</td>
<td>GSCI 434</td>
</tr>
</tbody>
</table>

Note: *Mathematics requirement: 8 hours. 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. **A course in writing is recommended. ***At least 6 hours from CAS 104, 170, 270 and 331.

Course Descriptions

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

Biology (BIOL)

101 Animal Biology | 4 hrs. |

An introductory course in biology in which animals are used to illustrate basic biological principles. The relationships between the
structure, function, and habitat of representative animals are emphasized. Surveys of the major animal systems and the major animal phyla are included. This course may be taken concurrently with BIOL 102, Plant Biology.

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 monera, fungi, algae, and multicellular plants is included. This course may be taken concurrently with BIOL 101, Animal Biology.

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.)

107 Biological Science
4 hrs.
Designed to present basic biological principles, and to give the student an understanding of the operation of the world of life. (Credit does not apply toward a major or minor in biology, botany or zoology.)

201 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, structure and function in the community and ecosystem are considered. Prerequisite: 8 hours of biology.

202 Heredity in Plants and Animals
3 hrs.
A beginning course in genetics covering patterns of heredity, DNA as the genetic material, induction of genetic changes, the genetic basis of evolution, developmental genetics, behavioral genetics and the role of the environment in genetic expression.

220 Applied Botany
4 hrs.
Lectures, discussions, field trips and greenhouse experience are used to develop an understanding of the practical applications of botany. Principles and practices in indoor and outdoor gardening, landscaping, plant propagation, and the care and identification of cultivated plants are emphasized.

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.

315 Cell Physiology
3 hrs.
The cell is examined as the setting of life. Its structures and organelles are related to their functions. The molecules of life are described and then followed as they participate in important processes such as the synthesis of proteins under the control of DNA, photosynthesis, and various types of respiration. The lab encourages the development of scientific reasoning and provides opportunities for discovery, while learning about the functioning of the cell and about some of the tools and techniques used by the biologist to explore and understand it. Prerequisites: BIOL 101 and 102, CHEM 101, or equivalent courses.

317 Animal Physiology
4 hrs.
The field of comparative animal physiology is reviewed. Organs are compared and considered in their function of maintenance of homeostasis (healthy state). The structure and physiology study are combined in lectures and practical laboratory experiences. Emphasis is placed on the experimental investigations of physiological processes, laboratory instrumentation and scientific writing. Prerequisites: organic chemistry, introductory physics, and one year of biology or consent of instructor.

319 Plant Physiology
3 hrs.
Investigations into plant functions. Basic principles are examined extensively; advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisites: BIOL 102 and CHEM 101 or consent of instructor.

342 Comparative Vertebrate Anatomy
4 hrs.
A study of the major structural and functional transformations that have occurred in the organ systems of vertebrates during the course of their phylogeny. Laboratory sessions provide the opportunity to carry out comprehensive dissections of the dogfish shark, the mudpuppy, and the tadpole. Prerequisite: 8 hours of biology, including BIOL 101.

404 Problems in the Teaching of Biology
3 hrs.
Class discussions, laboratory experiences and field work concerned with the teaching of biology in high school. Required of all students who are following a secondary education curriculum and list biology as a major or minor. This course assumes a working knowledge of plants, animals, and body chemistry, and of ecology, physiology, as well as physics and genetics. Limited to majors and minors enrolled in a secondary education curriculum.

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. Adaptation will be considered as adjustments in both behavior and physiology. Ecological interactions between the environment and the organisms at the molecular cell and organ levels will be studied. Plants, animals, and microorganisms will be used as examples. Prerequisite: consent of instructor.

502 Human Ecology
3 hrs.
A survey of the various aspects of the ecology of humans, including pollution, population, land use, and nutrition. One student project and required field trips. Prerequisite: 8 hours of biology or consent of instructor.

505 Quantitative Biology
3 hrs.
The use of the computer and statistics to perform and coordinate biological research. Emphasis will be placed on ecological and physiological analyses. Lectures and regularly assigned homework exercises.
is considered. Prerequisite: 8 hours of biology.

525 Biological Constituents 3 hrs.
The chemical elements in plants and animals, as well as the synthesis, characterization, and degradation products of the more important compounds. Prerequisites: 12 hours of biology and one year of chemistry or consent of instructor.

526 Plant Diseases 3 hrs.
Considers plant diseases as a set of phenomena within the much larger complex of the biological sciences. Rather than being a catalyst of diseases, their symptoms, characteristics and control, it portrays plant pathology in general terms. Prerequisite: 8 hours of biology.

528 Biology of Non-Vascular Plants 3 hrs.
A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and bryophytes. Laboratory study will be supplemented by field investigations. An independent project may be required. Prerequisite: BIOL 102.

529 Biology of Vascular Plants 3 hrs.
A detailed comparative study of the morphology, life cycles, and phylogeny of the vascular plants. Laboratory study will be complemented by field trips. An independent project may be required. Prerequisite: BIOL 102.

533 Neuroendocrinology 3 hrs.
Neuroendocrinology is designed to acquaint the student with the interrelationships of the nervous and endocrine systems as mediated by the neuroendocrine system. The physiology and morphology 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. Prerequisites: a course in physiology, organic chemistry or consent of instructor.

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 makeup nutrient solutions, grow various plants in them, and observe the effects of nutrient deficiencies. Prerequisites: BIOL 102, CHEM 101, and a course in physiology.

538 Field Natural History 3 hrs.
A study of biological communities, with particular emphasis on those accessible for use by public schools, e.g., school grounds, vacant lots, roadsides, parks, and undeveloped areas. Primarily for teachers.

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 biology or consent of instructor.

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 biology, including BIOL 101.

542 Entomology 3 hrs.
A general survey of insects, their structure, classification, life histories, ecological relationships and economic importance. Collection and identification of local species is included. Prerequisite: 8 hours of biology, including BIOL 101.

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.

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: BIOL 201 or equivalent.

549 Ecology of Southwestern Michigan 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.

550 Plant Anatomy 3 hrs.
An embryological and histological approach to the study of morphogenesis in seed-bearing plants. Primary emphasis will be placed on monocots and dicots. Prerequisite: BIOL 102.

551 Parasitology 3 hrs.
A study of parasites and host-parasite relationships illustrated by representatives of the major parasite groups. Special attention is given to the parasites of humans. Prerequisite: 12 hours or biology, including BIOL 101.

552 Plant Ecology 3 hrs.
A detailed study of the growth, distribution, survival, and environmental interactions of plants. Ecological plant analysis methods will be given strong emphasis. There will be laboratory and field investigations. An independent project may be required. Prerequisites: BIOL 102 and 201.

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: BIOL 101 and 102. CHEM 101 recommended.

554 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: BIOL 101 and 102.

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 biology or consent of instructor.

559 Radiation Biology 3 hrs.
A study of the fundamentals of radiobiology, including radioactive decay, radiation measurements, radiation and interaction in living matter, isotope technology, as well as health and safety regulations in the laboratory. Prerequisites: twelve hours of chemistry and consent of the instructor.

560 Ichthyology 3 hrs.
A general survey of fishes that considers their anatomy, physiology, ecology, behavior and phylogeny. Field and laboratory work emphasizes the methods of collection, preservation and identification of Michigan fishes. A paper may be required. Prerequisite: 8 hours of biology, including BIOL 101.

598 Readings in Biology 1-3 hrs.
APPROVED APPLICATION REQUIRED

599 Independent Studies in Biology 1-4 hrs.
APPROVED APPLICATION REQUIRED. For students who wish to carry on advanced work in special fields. Prerequisite: consent of instructor.

Biomedical Sciences (BMED)

112 Introduction to Biomedical Sciences 3 hrs. Fall, Winter
A course designed to provide a natural science foundation for majors, minors, and general education students. Through analysis of health and medically related topics, foundation concepts in physiology, microbiology, genetics, anatomy and related disciplines are presented for students who do not have strong biology and chemistry backgrounds. This class provides a better understanding of the biomedical sciences and a conceptual framework for more advanced study.

113 Cell Biology 3 hrs. Fall, Winter
An introduction to the major concepts of cell biology necessary to understand the working principles of modern biomedical science. Concepts which are stressed are cell structure and function, cell types, cell chemistry, cell reproduction, the transfer of information, and cell-cell interaction. This
course serves two functions: (1) to provide the foundation on which further study in genetics, microbiology, and animal physiology is based, and (2) to represent the major biological principles appropriate for a terminal biological science course for the serious liberal arts student (or Honors College student). A college course in general chemistry is strongly recommended for liberal arts students as a prerequisite to this course.

200 General Biomedical Sciences Laboratory
3 hrs. Fall, Winter
A laboratory course covering the principles and biomedical applications of microscopy, molecular separation methods, spectrophotometry and radiometric methods
Prerequisites: BMED 112 and 113 and introductory chemistry.

211 Human Anatomy
4 hrs. Fall, Winter
A lecture and laboratory course which focuses upon the human skeleton, muscles, organ systems and their related structures.
Prerequisites: BMED 112 or equivalent.

220 Microbiology and Man
3 hrs. Fall
A course describing the nature of microorganisms, their harmful and beneficial effects on humanity and their role in nature. Not for credit towards a Biomedical Sciences major but does apply toward a minor.

230 Microbiology and Infectious Diseases
4 hrs. Winter
An introductory microbiology course emphasizing the characteristics and modes of transmission of those microorganisms which cause human disease. Credit does apply toward a minor in Biomedical Sciences.

240 Human Physiology
4 hrs. Fall, Winter
This course is designed to provide non-majors with an understanding of the basic functioning of the human body and their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms.
Prerequisite: BMED 112.

250 General Genetics
3 hrs. Fall, Winter
A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisite: 2 courses in Biomedical Sciences or Biology.

312 Microbiology
5 hrs. Fall, Winter
An introduction to the fundamental relationships among microorganisms with an emphasis on unifying principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BMED 200, 250, and a course in organic chemistry, or consent of instructor.

319 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.

320 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 nonpathogenic microorganisms in a clinical microbiology laboratory.
Prerequisites: BMED 312.

350 Human Physiology for Majors
5 hrs. Fall, Winter
An introduction to the function and interrelationships of the human body organ systems with description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing.
Prerequisites: BMED 250 and organic chemistry.

401 Principles and Techniques of Laboratory Diagnosis
3 hrs. Winter
This course describes the common diseases and their treatment with emphasis on the significance of laboratory findings in their diagnosis. Students must be in Physician Assistant curriculum or permission of instructor.

430 Hematology—Serology
4 hrs. Winter
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: BMED 350, CHEM 450 and 456.

495 Medical Genetics
3 hrs. Winter (alternate years)
This course will provide the information necessary to understand Medical Genetics. The principal focus will be on syndromes. The regulatory mechanisms of the immune response and clinical significance of antibodies, antigens, and mucosal and ploid genomes is presented.
Prerequisite: BMED 250 or equivalent.

496 Medical Genetics
3 hrs. Winter (alternate years)
This course is designed to provide non-majors 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: Consent of instructor.

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

519 Endocrinology Laboratory
3 hrs. Winter (alternate years)
Laboratory experience in endocrinological concepts involves hormone research and clinical testing.
Prerequisite: Permission of instructor.

520 Human Genetics
3 hrs. Winter (alternate years)
The principles of human heredity with particular emphasis on the clinical significance of biomechanical and chromosomal variation. Abnormalities of development and methods of risk analysis in genetic counseling are discussed.
Prerequisite: BMED 250, biochemistry is recommended.

522 Cytogenetics
3 hrs. (alternate years)
The molecular, morphological and dynamic aspects of chromosomes, nuclei and allied structures in the nuclear organisms are considered. The chromosomal basis of transmission genetics involving normal, mutant and ploid genomes is presented.
Prerequisite: BMED 250 or equivalent.

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: BMED 250 and 312 or consent of instructor; biochemistry is recommended.

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: BMED 250 or equivalent.

531 Biology of Aging
3 hrs.
This course is designed to provide non-majors 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.

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; reading assignments are from the scientific literature.
Prerequisites: a microbiology course and a biochemistry course.

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: BMED 312; biochemistry is recommended.

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: BMED 312; biochemistry is recommended.

**537 Histology**
3 hrs. Fall
A study of the function and microscopic anatomy of mammalian tissues. Prerequisite: BMED 210 or consent of instructor.

**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.

**554 Histological Techniques**
2-3 hrs. Winter (alternate years)
A variety of techniques including celluloid, paraffin, decalcification and special stains will be used to prepare mammalian tissues for histological examination. Prerequisites: BMED 537 or consent of instructor.

**560 Reproductive Physiology**
3 hrs. Winter (alternate years)
An introduction to the physiological events associated with reproduction in higher animals. Emphasis is placed upon reproduction in mammals with constant comparison among mammals and between these and other animal groups. This course also introduces the subjects of contraception and population control, artificial insemination and birth defects. Prerequisite: BMED 350.

**570 General Pathology**
4 hrs. Fall (alternate years)
An introduction to pathology which describes the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BMED core curriculum and organic chemistry.

**572 Biology of Cancer**
3 hrs. Fall (alternate years)
A comprehensive examination of the biological basis of cancer using animal models as examples with application to its expression in humans. This multi-disciplinary subject will utilize information from the areas of immunology, biochemistry, histology, virology and cell biology to give a current view of this disease. Prerequisite: BMED 350; biochemistry is recommended.

**574 Embryology**
4 hrs. Winter (alternate years)
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: BMED 113, 250 or equivalent.

**596 Readings in Biomedical Sciences**
1-3 hrs.
Approved application required.

**599 Independent Studies in Biomedical Sciences**
1-4 hrs.
Approved application required.

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**Black Americana Studies**

See “Interdisciplinary Programs” in the College of Arts and Sciences.

**Chemistry (CHEM)**

Robert C. Nagler, Chair
Robert H. Anderson
Donald C. Berndt
Donald J. Brown
Dean W. Cooke
J. Lindsay Foote
Robert E. Harmon
Paul E. Holkeboer
Thomas Houser
James A. Howell
Aditi S. Kanaan
Joseph M. Kanamueller
George G. Lowry
Michael E. McCarville
Ralph K. Steinhaus
Jochanan Stenesn
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 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 upon graduation. In order to complete an American Chemical Society Certified chemistry major, the following would be the expected minimum schedule of chemistry and prerequisite courses:

**Freshman Year:**
CHEM 101 or 102, General Chemistry I
CHEM 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 chemistry, mathematics or physics as approved by the Chemistry adviser. Reading knowledge of German or Russian 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
of 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 4 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 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 professional degree leading to health science areas such as medicine, dentistry, veterinary medicine, nutrition, clinical chemistry, toxicology, pharmacology, etc. A minimum of 33 chemistry credit hours must be selected according to the following:

CHEM 101 or 102, General Chemistry I
CHEM 120, General Chemistry II
CHEM 360, Organic Chemistry I
CHEM 461, Organic Chemistry II
CHEM 222, Quantitative Analysis
CHEM 450 and 456, Intro. Biochem. and Lab. or CHEM 552 and 556, Biochem. I and II with Laboratory
CHEM 535, Introduction to Physical Chemistry or CHEM 430, Physical Chemistry I
CHEM 436 (1 hr.), Physical Chemistry Laboratory
CHEM 506, Chemical Laboratory Safety or CHEM 564, Drugs and Pesticides, and additional 500 level Chemistry electives if necessary to meet the minimum hour requirement.

The Business-Oriented Chemistry Major is available to provide chemical understanding to the level needed by students who intend to prepare for careers in non-laboratory functions of chemical industry and distribution of its products and technology, principally in the areas of management and sales, as well as for some aspects of government service. Those who elect this major are required to complete a minor in either General Business—option I (21 hrs.), Management (21 hrs.), or Marketing—option 5 (21 hrs.) in the 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 445, Introductory Biochemistry
CHEM 535, Introduction to Physical Chemistry or CHEM 430 and 431, Physical Chemistry I and II
CHEM 506, Chemical Laboratory Safety
CHEM 520, Instrumental Methods

Other specialized chemistry programs can be developed through the undergraduate chemistry adviser.

All chemistry majors must satisfactorily complete one of the following writing courses prior to their senior year: ENGL 105 or 305, BIS 142 or 242, or IEGM 102, or equivalent courses.

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 insure that students are placed in beginning professional chemistry courses based upon the skills they possess in mathematics and chemistry. It tests mathematics at the level of one year of high school algebra (or MATH 110) and chemistry at the level of one year of high school chemistry. Passing only the mathematics portion allows a student to enroll in CHEM 100. Passing both portions meets the prerequisite for CHEM 101 and 103. A high level passing grade allows the student to enroll in CHEM 102.

Course Descriptions

(Courses described in italics are approved for General Education)

100 Introduction to General Chemistry

4 hrs. Fall, Winter
A course for students with insufficient background in high school 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. It is assumed that students have a mathematical competence equivalent to MATH 110.

101 General Chemistry I

4 hrs. Fall, Winter
A course primarily for students in Engineering and Applied Sciences curricula and others planning only a one or two semester terminal review of chemistry. This course surveys principles of chemistry with emphasis on calculations, descriptive and applied chemistry. Prerequisite: CHEM 100 with a grade of “C” or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. May be used as a prerequisite for CHEM 120 if passed with a grade of “C” or better. This course includes lectures and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.

103 General Chemistry I

4 hrs. Fall, Winter
A course primarily for students in Engineering and Applied Sciences curricula and others planning only a one or two semester terminal review of chemistry. This course surveys principles of chemistry with emphasis on calculations, descriptive and applied chemistry. Prerequisite: CHEM 100 with a grade of “C” or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. May be used as a prerequisite for CHEM 120 if passed with a grade of “C” or better. This course includes lectures and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.

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.

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 chart, electrochemistry, and the equilibrium principle are also treated. Prerequisite: CHEM 101, 102 or 103.

140 Introductory Environmental Chemistry

4 hrs. Winter
Purpose of course is to develop an appreciation of the chemical aspects of environmental problems and an acquaintance with the basic principles involved. This limited treatment considers elementary concepts of the nature of matter with 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.

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.

206 Chemistry for Physician Assistant
5 hrs. Fall
A simplified non-theoretical approach to physiological chemistry. The course serves both as a background for pharmacology and for interpreting biochemical parameters in the didactic medical course. Students must be in Physician Assistant Curriculum.

222 Quantitative Analysis
4 hrs. Fall, Winter
This course includes the theory, techniques and calculations of quantitative analysis. Instrumental techniques are used to supplement classical analytical procedures in the laboratory. Prerequisite: CHEM 120.

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.

360 Organic Chemistry I
4 hrs. Fall, Winter
The preparation and chemical properties of aliphatic and aromatic compounds are studied. Emphasis is placed upon the nature of covalent bonds and molecules and the general reactions of functional groups. The course includes lectures and laboratory. Prerequisite: CHEM 120.

361 Organic Chemistry II
4 hrs. Fall, Winter
A continuation of CHEM 360. Prerequisite: CHEM 360.

365 Introduction to Organic Chemistry
4 hrs. Fall, Winter
A one semester course which surveys the chemistry of aliphatic and aromatic compounds, designed for those needing a working knowledge of organic chemistry without the theoretical detail of a full year course. Credit may not be received for both CHEM 365 and 360. This course, which includes laboratory, will not serve as a prerequisite for CHEM 361. Prerequisite: CHEM 120.

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.

430 Physical Chemistry I
3 hrs. Fall
Lectures on kinetic theory of gases, thermodynamics, phase rule, equilibrium, 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.

431 Physical Chemistry II
3 hrs. Winter
A continuation of CHEM 430. Prerequisite: CHEM 430.

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.

450 Introductory Biochemistry
3 hrs. Winter
A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins and nucleic acids. Not applicable to chemistry majors. Prerequisite: CHEM 365 or 361.

456 Introductory Biochemistry Laboratory
2 hrs. Winter
Basic biochemical laboratory techniques; isolation and properties of proteins, enzymes, cofactors, lipids and nucleic acids; studies of metabolism; determinations of clinical interest involving blood, urine, liver and brain. Prerequisite or corequisite: CHEM 450 or 550.

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.

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. Assigned problems involving literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

506 Chemical Laboratory Safety
1 hr. Winter
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: 24 hours of chemistry.

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.

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.

520 Instrumental Methods in Chemistry
3 hrs. Fall
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. Prerequisite or corequisite: CHEM 431, 436.

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.

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.

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.

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.

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.

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.

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.
Communication Arts and Sciences (CAS)

Richard J. Dieker, Chair
Roy Beck
June Cottrell
Loren Crane
James Gilchrist
Ruth Heining
Charles Helgesen
James Jaksa
Steven Lipkin
Peter G. Northouse
Thomas F. Pagel
Steven C. Rhodes
George Robeck
Jules Rossman
Thomas Sill
Robert L. Smith
Ernest L. Stech
Shirley A. Van Hoeven
Earl Washington
Shirley C. Woodworth
Paul Yelsma

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective oral communication is an educational imperative for all human beings.

The Department of Communication Arts and Sciences is dedicated to meeting the personal and professional communication objectives of our students. Several emphases within the major and minor are available: public relations, interpersonal communication, organizational communication, education and training, and film. While some students specialize in one emphasis, most take coursework in two or more of these general areas.

The study of communication is important to virtually every profession that involves working with people, making an excellent major, minor, or cognate for communication-related jobs in education, business, government agencies, health care professions, social services, industry, and other public and private organizations.

Communication is central to positions in public relations, corporate communication, public information management, employee communication, training and development, and radio, television, and film.

Excellent production training facilities and professional curricular programs in radio, television and film provide both the background knowledge and training for positions in mass media production, performance, and management.

The department also encourages a close relationship between academic classes and extracurricular and co-curricular experiences. Students may become involved in a variety of activities, including community service projects, readers theatre performances, oral interpretation festivals, WIDR-AM and FM radio stations, video-taping of special events, film-making, and internships in a variety of organizations.

Academic credit may be earned for significant participation in many of these communication activities.

Students planning to major in CAS or Public Relations or minor in CAS should discuss their program needs and interests with a departmental adviser at the earliest possible date. Appointments to see a departmental adviser may be made at the departmental office, 301 Sprau Tower, or by calling 383-4071. A Handbook for Majors and Minors in Communication, which describes career opportunities and suggested programs of study in CAS, is available free of charge from the department office.

General Program Requirements

1. All major/minor programs must be approved by a departmental adviser. Declaration of a major in communication arts and sciences must be made with a departmental adviser prior to completing twelve semester hours of CAS credit, and not before completing six hours of CAS credit. Declaration of a minor in communication arts and sciences must be made with a departmental adviser before the completion of nine semester hours of CAS credit.

2. Students must earn a grade of "C" or better in all coursework applied toward a major/minor program.

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

Majors

Communication Arts and Sciences Major

A communication arts and sciences major requires 30 semester hours of CAS, including CAS 170, CAS 200 and 24 hours of electives to be arranged in consultation with the departmental adviser. Twelve of these hours must be taken at the 300-500 level.

Communication Arts and Sciences—Education Major

An education major in communication arts and sciences requires 30 semester hours of CAS, including the following courses: CAS 170, CAS 200, CAS 562 (for the secondary education major) or CAS 561 and CAS 365 or CAS 366 (for the middle school education major) and electives to be arranged in consultation with a departmental adviser. Students should note that methods courses are offered only once yearly. CAS 561 fall seminars and CAS 562 winter seminars.

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 1, February 1, and June 1.

A major in public relations consists of 36 hours of CAS credit, and 14 hours of required cognate courses, for a total of 50 hours.
Communication Arts and Sciences—Education Minor

An education minor requires 20 semester hours of CAS for teaching in secondary and middle school and junior high schools. CAS 170 is required for the secondary and middle school and junior high school minors. To teach speech in a Michigan school accredited by the North Central Association, speech teachers are required to have either 24 semester hours in speech or 20 semester hours in speech and 4 semester hours in English. (Courses in CAS are counted as courses in speech.)

Interdisciplinary Minors

Integrated Language Arts Minor

The Department of Communication Arts and Sciences 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, June Cotrell, 323 Sprau, 383-4080.

Integrated Creative Arts Minor

The Department of Communication Arts and Sciences 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 arts and sciences.

Course Descriptions

(Courses described in italics are approved for General Education.) Note: Of courses CAS 104 and CAS 130, only one may be taken for academic credit.

104 Business and Professional Speech

3 hrs.

A beginning course in speech dealing with the study and application of basic principles underlying effective oral communication. Particular attention is given to developing skill in meeting the speech situations encountered in the business and professional world.

106 Voice and Diction

3 hrs.

Individual improvement program emphasizing voice production and diction.

130 Public Speaking

3 hrs.

Study of public speech and audience psychology principles. Frequent practice to develop skill in speech composition, clarity of language, logical development and effectiveness as a speaker.

131 Parliamentary Procedure

1 hr.

Study and practice of the principles and rules which govern business meetings in voluntary organizations.

170 Interpersonal Communication I

3 hrs.

An introductory course in communication theory and practice in which a student utilizes his/her powers of speech to increase his/her effectiveness in interpersonal relationships through understanding of self and others.

200 Introduction to Communication Theory

3 hrs.

A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication.

210 Oral Interpretation I

3 hrs.

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.

211 Oral Interpretation II

3 hrs.

A continuation of CAS 210, CAS 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: CAS 210.

232 Discussion

3 hrs.

Study and practice in discussion and conference. Skill in participation, leadership, group thinking, and evaluation are emphasized. Recommended for students whose vocational plans involve work with groups.

236 Social Issues and Action Laboratory

1 hr.

A laboratory designed to offer experience in analyzing and participating in the communication processes related to current social issue programs. Students may accumulate a maximum of 4 hours credit.

240 Broadcast Communication

3 hrs.

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.

241 Film Communication

3 hrs.

An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary experimental, documentary and feature films. $10 lab fee.

256 Broadcast Operations

3 hrs.

Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio/television production, storage and distribution.

257 Radio Programming and Production

3 hrs.

Analysis of sound as a creative element in
radio broadcasting and production. Studio experience in writing and producing radio formats, commercials, drama, documentary and other types of aural messages. $10 lab fee. Prerequisite: CAS 256.

305 Special Topics in Communication 1-3 hrs.
Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Department offices, 301 Sprau Tower. Six hours of CAS 305 and CAS 505 may be accumulated as credit toward a major or minor in CAS.

307 Intrapersonal Communication 3 hrs.
The examination of intrapersonal communication models showing how imagery and symbolic processes organize patterns of thinking that permit self-direction and regulation.

311 Readers Theatre 3 hrs.
Selecting and arranging materials for readers theatre, directing and participating in performances. Prerequisite: CAS 210 or consent.

331 Persuasive Speaking 3 hrs.
The study and application of logical, emotional and ethical principles of persuasion.

334 Argumentation and Debate 3 hrs.
Theory and practice in argumentation and debate. Included are the analysis of propositions and the use of logic and evidence. Students will build, present, and defend cases. Debate is taught as a process of inquiry and advocacy.

335 Leadership 3 hrs.
A study of the characteristics and behaviors of leaders with emphasis on the development of leadership abilities in the individual for different group situations.

342 The Film Industry 3 hrs.
The history and development of the American film medium from an economic, social, and cultural perspective. Emphasis will be on methods of production, distribution, exhibition, and legal issues. $10 lab fee. Prerequisite: CAS 241.

355 Small Format Video Production 3 hrs.
Practical experience in the design, production, implementation and evaluation of small-format television programs. Applications of portable video technology to the broadcast industry and community cable television systems will be stressed. $20 lab fee. Prerequisite: CAS 256.

356 Film Production 3 hrs.
Production of short experimental films; scripting, planning, editing, directing and photography. Work in this course will be done within the limitations of a 16 mm format. In addition to text materials, students must provide supplies averaging about $30.00 per student. $15 lab fee. Prerequisite: CAS 241.

357 TV Studio Production 3 hrs.
Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. $20 lab fee. Prerequisite: CAS 256.

358 TV and Film Scripting 3 hrs.
The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary.

359 Broadcast Journalism 3 hrs.
Radio and TV as news and information media. Studies and applies principles of news gathering and reporting, commentary, on-the-spot news coverage, features, and structure of the newscast. $10 lab fee.

365 Oral Communication and the Early Elementary Child 4 hrs.
This course focuses on the oral communication processes, particularly as they relate to personal and social development. Particular attention is paid to the acquisition and development of oral communication by the young child; the role of oral communication in the teaching/learning environment; and the relationship between oral language and reading and writing. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

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.)

370 Interpersonal Communication II 3 hrs.
An analysis of relational communication with particular emphasis on the nature of transactional relationships. Prerequisite: CAS 170 or consent of instructor.

372 Introduction to General Semantics 3 hrs.
A study of the function of language. The course deals with the nature and meaning of symbols and differences between the communication systems of the human animal and other species. Examines the assumptions held by Western man about the structure/function of his universe as reflected in language, the problem of "reality" as distinct from "meaning." The purpose of the course is to increase the student's awareness of his/her effectiveness as a thinker or symbolizer.

373 Communication Skills and Career Planning 3 hrs.
Systematic self-assessment and job search, making use of intrapersonal and interpersonal communication skills. The student attempts to fit his/her personality with specific favorable job environments, researches those jobs, and builds a resume to communicate these findings. The course makes use of real interviews and outside resource people as an integral part of the experience.

398 Independent Study Communication 1-6 hrs.
Designed to allow outstanding students to work independently under staff supervision. Includes extensive study, research or special creative projects in any of the several areas of communication arts and sciences. One to six hours credit may be obtained. Prerequisite: Consent. Chair of Department.

441 Documentary in Film and Television 3 hrs.
A study of documentary philosophies, strategies, and accomplishments through an examination of important documentary, movements, and films. $10 lab fee.

457 Advanced TV Studio Production 3 hrs.
Individual and group projects in the development and production of television programs stressing experimental techniques. $20 lab fee. Prerequisite: CAS 357 or consent of instructor.

458 Television Performance 2 hrs.
Exercises in television performance, stressing the special problems of the video performer. $15 lab fee. Prerequisite: Consent of instructor.

470 Communication, Social Issues and Change 3 hrs.
A study and practical application of communication and rhetorical methodology in contemporary social problems.

Open to Advanced Undergraduate and Graduate Students

505 Special Topics in Communication 1-3 hrs.
Advanced group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Department offices, 301 Sprau Tower. Six hours of CAS 305 and CAS 505 may be accumulated as credit toward a major or minor in CAS.

530 Studies in Attitude Change: Variable Topics 3 hrs.
Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under CAS 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. Ethics and Freedom of Speech
2. Historical Bases of Rhetoric

Analysis in depth of continuing issues in mass communication. Topics vary from...
semester to semester and students may take one or all topics for credit. Topics include:

1. Teaching Mass Media in the School
2. Television and Politics

541 Mass Communication Law 3 hrs.
The laws, principles and issues of mass communication regulation. Includes media ownership and licensing, programming, political broadcasting, controversy, determination, obscenity, advertising, and the roles of the FCC, FTC, and other regulatory agencies.

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.

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.

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 programs and series. The course will cover the history of television and its role in society.

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.

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. $15 lab fee.

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.

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 organizational boundaries.

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: CAS 549.

551 Methods of Film Analysis 3 hrs.
An investigation of the approaches to film analysis (autourist, intentionalist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. Prerequisite: CAS 241 or CAS 356.

560 Studies in Communication Education: Variable Topics 3 hrs.
Selected studies in background, method, materials, and procedures in any one of the several speech areas. Possible topics include directing speech activities, communication behaviors of change agents, as well as others. Topics will vary from semester to semester and students may take one or all topics for credit.

561 Teaching Communication in the Elementary School 4 hrs.
Examination of the linguistic development of pre-school and elementary school children, the functions of language, study of the nature of the emotional and physical development of children as related to symbol using behaviors, study of materials and methods for affecting desired behaviors in children's thinking, communicating and enjoyment. The undergraduate student must have completed at least twelve hours of work in CAS or obtain consent of instructor. Prerequisite: ED 300 and CAS 365 or CAS 366. Offered fall semesters only.

562 Teaching Communication in the Secondary School 4 hrs.
This is a course in becoming a professional teacher of communication. The focus of the course is self-examination, openness, and individual initiative. Some of the major topics are an examination of self in relation to teaching, the teacher's role in changing philosophies of speech communication education, the world of high school teaching as it now exists, innovative procedures in teaching communication, and how to get and hold a job in speech communication. The class is, for the most part, a laboratory-workshop, using a mixture of group work, guest visits and special projects. The student must have completed at least fifteen hours of work in CAS and, ideally, take the course immediately prior to student teaching. Prerequisite: ED 301. Offered winter semesters only.

564 Creative Drama for Children 4 hrs.
Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences.

570 Studies in Communication: Variable Topics 3 hrs.
Selected areas of study within the total range of communication. Each topic carries separate credit, and a student may take any or all of the different offerings under CAS. 570. Selected topics each semester will be listed in the Schedule of Classes.

571 Theories of Interpersonal Communication 3 hrs.
A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations and models which explain how people interact at the content and relationship levels.

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.

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.

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. Topics include: systems of selected cultures are described and analyzed.

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.

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.

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.
Computer Science (CS)

Donald Nelson, Chair
Cari Hobson
David Johnson
Donna Kaminski
Elise de Doncker Kapenga
John Kapenga
Mark Kerstetter
Dionysios Kountanis
Mohammad Meybodi
Dalia Motzkin
Denise Natour
Iyad Natour
Robert Trenary
Kenneth Williams
Joann Wykoff

Computer Science is the study of the uses of digital computers for the effective processing of information. Degree programs offered are primarily concerned with the uses of computers (software aspects) rather than the physical construction of computers (hardware aspects). Several introductory courses in computer programming are offered 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, Dr. Marvin Druker 4064 Friedmann, as soon as possible—certainly within the second semester the student is enrolled in computer science courses. Eligibility requirements for admittance to a major or minor program are available from the computer science adviser.

Students majoring in computer science are required to complete a minor in mathematics. In addition, students in this program are urged to consider completion of a second minor in some application field of interest to them. Graduates of this program should be qualified for jobs in industry and government as well as in computer consulting and software firms.

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 in their major areas.

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.

Prerequisites will be strictly enforced. Students who fail to earn a "C" or better grade in a prerequisite course will not be permitted to enroll in the next course in the sequence.

Enrollment will not be honored in any course if the student does not attend the first two clock hours, unless prior arrangements have been made with the instructor. Under no circumstance will enrollment be honored if it is found that prerequisites are not properly met. Students whose enrollment is not honored for whatever reason are responsible for processing drop slips with the Registration Office.
is designed primarily to give students in introduction to the WMU computer system. This course provides an introduction to the significance of computers in contemporary society will be given. A student may not receive credit for both BIS 102 and CS 105.

106 BASIC for Engineers

This course provides an introduction to programming in the BASIC language and an introduction to the WMU computer system. It is designed primarily to give students in computer literacy. The emphasis is on non-numeric problem solving. Students learn about system commands necessary to create and execute computer programs written in a high-level programming language and are introduced to problem solving, program design, coding, and debugging using the BASIC programming language. Programming assignments are given to build technical skill. These general language concepts will be discussed: program syntax, declaration and basic data types, constants and variables, arrays, executable instructions, statements and expressions, statement types (i.e., assignments, decision, looping, subscript definition and use, functions with parameters). This course cannot be used for a major or minor in computer science nor can it be taken for any credit after completing CS 111 or a higher level CS course. Prerequisite: Computer Literacy.

110 Introduction to Computer Programming Using BASIC

3 hrs. This course is designed for those with little previous programming experience beyond computer literacy. The emphasis is on non-numeric problem solving. Students learn about system commands necessary to create and execute computer programs written in a high-level programming language and are introduced to problem solving, program design, coding, and debugging using the BASIC programming language. Programming assignments are given to build technical skill. These general language concepts will be discussed: program syntax, declaration and basic data types, constants and variables, arrays, executable instructions, statements and expressions, statement types (i.e., assignments, decision, looping, subscript definition and use, functions with parameters). This course cannot be used for a major or minor in computer science nor can it be taken for any credit after completing CS 111 or a higher level CS course. Prerequisite: Computer Literacy.

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 algorithmic solutions to problems in a structured computer language. Applications will involve the use of the Pascal language to solve numerical and non-numerical problems on the computer. Prerequisite: 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.

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.

201 Programming in FORTRAN

2 hrs. Details of the FORTRAN computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Prerequisite: CS 111 or CS 110 and one and one-half years of high school algebra or MATH 111.

202 Programming in COBOL

2 hrs. Details of the COBOL computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Prerequisite: CS 111 or CS 110 and one and one-half years of high school algebra or MATH 111.

223 Computer Organization and Assembly Language

3 hrs. The structure and internal organization of digital computers will be emphasized. Additional topics include addressing techniques, internal machine representation of numbers, characters, and programs; program control; arithmetic and logical operations; input-output, subroutines and linkage, system control programs in timesharing and batch environments. An introduction to assembly languages will be given. Prerequisite: CS 111.

224 Systems Programming Concepts

3 hrs. This course introduces concepts and examples of systems software: assemblers, linkers, loaders, macroprocessors, compilers, and language run time systems. An introduction to operating systems concepts including device drivers, time sliced and interrupt driven processes, interprocess communication, reentrant and shareable code, and data and instruction space will also be provided. A discussion of the structure of a single user operating system will take place. Prerequisite: CS 112 and CS 223.

306 Introductory Programming: FORTRAN

2 hrs. An introduction to computer programming using the FORTRAN language (FORTRAN I). 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.

309 Introductory Programming: ALGOL

2 hrs. An introduction to computer programming using the ALGOL language (ALGOrithmic Language). Prerequisite: A programming course.

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 idea of a data base will be introduced. Prerequisite: CS 112 and 223.

342 Analysis of File Systems and Structures

3 hrs. Programming projects will be assigned to give students experience in systems programming and file processing. Topics will include: records, file blocking, data base management systems, characteristics of storage media, algorithms to process direct access devices, inverted lists, multilists, indexed sequential and hierarchical structures. Prerequisites: CS 331, CS 201 or 202.

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 compiler 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, and one language in addition to Pascal.

495 Topics in Computer and Information Science 1-3 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.

499 Senior Seminar 1 hr.
An introduction to a variety of advanced topics in Computer and Information Science will be given. Several instructors may present the material. Prerequisite: Senior status.

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 a term project. This course may not be used towards a major or minor in Computer Science.

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 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. Prerequisite: MATH 150 or equivalent.

503 Programming the Microcomputer for Teachers 3 hrs.
A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher's area of interest will be assigned. Not for Computer Science majors or minors. Prerequisite: CS 502 or equivalent experience.

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. Prerequisite: CS 503.

506 Scientific Programming 3 hrs.
Designed to give preparation in the use of numerical methods of digital computers for scientific and engineering computations. The FORTRAN language will be used. Problems such as series evaluation, multiplication and inversion of matrices, numerical integration and pointwise differentiation as well as general numerical approximation will be prepared for the computer. Prerequisites: MATH 230 or 374 and CS 201 or 306. Jointly listed with Mathematics.

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.

542 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. Prerequisite: CS 202 or BS 362.

544 Software Systems Development 3 hrs.
Advanced computer programming techniques used in the specification, design and implementation of large software systems. Testing and maintenance of software systems. Modular programming, top down structured design, composite design, HIPO, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331.

554 Operating Systems 3 hrs.
Fundamentals are stressed. A historical survey of the development and growth of operating systems is given to lend perspective to the ideas that follow. Basic concepts and terminology will be emphasized. Programming assignments leading to the construction of a simple operating system are required. Processes, communication and synchronization, shared resources, memory management, resource allocation, scheduling, deadlock, file management, and protection are discussed. Applications to a real system are investigated to motivate the ideas presented in the text and lectures. Prerequisite: CS 331.

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.

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.

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.

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 minor in economics consists of a minimum of 15 hours in the department. A major in economics consists of a minimum of 30 hours of work in the department. The following are required courses for majors: Principles of Economics (201, 202), Income Analysis and Policy (306), Price Theory (303), and Statistics (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 at least, 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 and who is particularly interested in exploiting them to the fullest extent. Students wishing to participate in this program should consult a member of the economics honors committee.

Course Descriptions

Principles of Economics (ECON)

100 Contemporary Economic Problems
101 Principles of Economics
201 Principles of Economics
202 Principles of Economics
303 Price Theory
306 Income Analysis and Policy
400 Managerial Economics
501 Studies in Economic Problems: Variable Topics
502 Studies in Quantitative Economics
503 Health and Economics
504 Applied Econometrics
505 History of Economic Thought
509 Econometrics

Labor and Resource Economics
313 Poverty and Economic Security
315 The Economics of Medical Care
319 Environmental Economics
410 Labor Problems
419 The Political Economy of Food and Nutrition
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

100 Contemporary Economic Problems
3 hrs. Fall, Winter
Focuses on several of the most important economic problems confronting our society—for example, unemployment, environmental pollution, inflation, poverty, balance of international payments, monopoly power, the standard of living in developing nations and other problems which the students may suggest. Utilizing a non-technical approach, an attempt is made to show what economics can contribute to the analysis and to possible solutions to these problems. Cannot be used to satisfy major or minor program requirements in Economics.

201 Principles of Economics
3 hrs. Fall, Winter
An introduction to microeconomics, the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system.

202 Principles of Economics
3 hrs. Fall, Winter
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. Prerequisite: ECON 201.

203 Price Theory
3 hrs. Fall, Winter
A basic course on economic theory, with emphasis on the theory of consumer behavior (the derivation of the demand curve), the theory of the firm and factor pricing. Prerequisites: ECON 201 and 202.

306 Income Analysis and Policy
3 hrs. Fall, Winter
An examination of macroeconomic theory with particular emphasis on inflation, unemployment, economic growth, and price level instability. The interplay between theory and policy is analyzed. Prerequisites: ECON 201 and 202.

313 Poverty and Economic Security
3 hrs. Fall
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.

318 The Economics of Medical Care
3 hrs.
This course is designed to familiarize the student with the basic medical economics problems that exist in the field of health care. It introduces the student to some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the reorganization and delivery of medical care services is discussed. Prerequisites: ECON 201 and 202, or permission of instructor.

319 Environmental Economics
3 hrs.
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, pollution, and environment quality are analyzed. Prerequisite: ECON 201.

400 Managerial Economics
3 hrs. Fall, Winter
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.

404 The Structure and Performance of Industry
3 hrs. Fall
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.

410 Labor Problems
3 hrs. Winter
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

419 The Political Economy of Food and Nutrition
3 hrs.
An examination of the economic and socio-political aspects of food, diet and nutritional patterns in the U.S. and world economies. Prerequisites: ECON 201 or 202, or consent of instructor.

420 Money and Credit
4 hrs. Fall, Winter
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.

424 Federal Government Finance
3 hrs. Fall
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.

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 will be 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.

480 International Economics
4 hrs. Winter
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.

484 Comparative Economic Systems
3 hrs.
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.

487 Studies in Asian Economics
3 hrs. Fall
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.

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.

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.

502 Studies in Quantitative Economics
4 hrs.
The course deals with statistical and mathematical techniques and concepts useful in economic analysis and their application to various areas in economics. Subject matter of the course will vary from semester to semester and may be chosen from such diverse topics as linear programming, game theory, input-output analysis, statistics, welfare economics, utility theory and business cycles. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

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.

505 History of Economic Thought
4 hrs.
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.

507 Monetary Theory and Policy
3 hrs. Winter
This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. Prerequisite: ECON 240.

509 Econometrics
3 hrs. Winter
An introductory course in analytical and quantitative methods in economics. Applied economic problems like linear programming and input-output analysis will be considered. Simple regression models and their uses in economics are also included. Prerequisites: ECON 201 and 202.

512 Collective Bargaining
3 hrs. Fall
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.

515 Economics of Human Resources
3 hrs.
The course will examine 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.

516 Collective Bargaining in Public Employment
3 hrs. Winter
This course examines collective bargaining developments in local, state and federal governments, including bargaining units, negotiations, grievance procedures, strikes and dispute settlement. Prerequisites: ECON 201 and 202, or consent of instructor.

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.

525 State and Local Government Finance
3 hrs. Winter
Practices, effects and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisites: ECON 201 and 202.

588 Economic Development
4 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.

591, 592 Guest Economist Seminar
1 hr.
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.

598 Readings in Economics
1-3 hrs. Fall, Winter
An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of chairperson of department.
English (ENGL)
Edward Galligan, Chairman
Thomas Bailey
Bernadine Carlson
Norman Carlson
William Combs
John Cooley
Seamus Cooney
Nancy Cutbirth
Clifford Davidson
Robert Davis
Stephanie Demetrapoulos
Philip S. Denenberg
Rollin Douma
Kathleen Drzick
Stuart Dybek
Philip Egan
Hugh F ullerton
C. J. Gianarakis
Martin Gingerich
Clare Goldfarb
Jammy Gordon
Maryellen Hains
Bradley Hayden
Robert Hinkel
Kara Holloway
Edward Jayne
W. Arnold Johnston
Else B. Jorgens
Lois Matthews
John Murphy
David Rugh
Herbert Scott
Shirley Scott
Thomas Seiler
Robert Shafer
Thomas Small
Nancy Stone
John Stroup
Larry Syndergaard
Anne Szalkowski
Constance Weaver
John Woods

The English Department serves students in two principal ways: in developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present.

Courses and programs offered by our department—in writing, English language, and literature (including film)—enable students to concentrate in English, complement their other studies, or simply explore and sample the worlds of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors

The English Department offers many courses, including a variety of writing courses, suitable for students not majoring in English. 105 Thought and Writing, 107 Good Books, 110 Literary Interpretation, 111 Contemporary Topics in Literature, 150 Literature and Other Arts, 210 Film Interpretation, 223 Black American Literature, 252 Shakespeare, 264 News Writing, 266 Writing Fiction and Poetry, 292 Children's Literature, 305 Practical Writing, 307 Good Books II, 311 Perspectives Through Literature, 312 Western World Literature, 313 Asian Literature, 314 African Literature, 315 The English Bible as Literature, and certain advanced courses that may be appropriate to the interests and background of the student: Many of these English courses may be used to satisfy General Education requirements.

English advisers will help any student select courses in writing, English language, or literature which will be useful in General Education or as background for a career. Advisers' offices are on the sixth floor of Spraul Tower (phone 383-1628)

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/C" or "D" credit may be applied to an English major or minor.

4. Foreign Language Requirement: English majors must have at least one college year of a foreign language or its equivalent (at least two years of the same language in high school). The department recommends as much additional work in the language as students can manage. Students planning to do graduate work beyond the M.A. ought to study at least two languages. French and German are most frequently required in graduate school.

5. Special Note to Transfer Students. All transfer students majoring or minoring in English should consult with one of the department's undergraduate advisers (383-1628) about transferring credit in English courses form other colleges. An early conference will enable students to avoid duplication of courses and possible loss of transfer credit and may enable them to bypass some of the department's basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and 12 hours of transferred credit toward a minor.

6. Honors Program. The English Department honors program allows especially capable students to work for honors in English through several different means, depending on the temperament and needs of the particular student: independent study; group study in honors seminars; an "enriched" major program of at least 40 hours; special examination, research papers, or writing projects; and various combinations of these. Students who anticipate being able to meet the grade point average requirements for honors of 3.0 in all university work and 3.5 in the major should consult with the department's honors director to work out an individualized honors program.

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. 322 Major American Writers;
3. An English language course (371, 372, or 572);
4. Two courses chosen from those indicated with an * (courses which emphasize literature written before 1950);
5. Plus electives to complete the 30 hours.

Secondary 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. 322 Major American Writers;
3. An English language course (other than English or 572 American Dialects);
4. 379 Writing for the Secondary Teacher;
5. Two courses from those indicated with an * (courses which emphasize literature written before 1950);
6. 380 Teaching of Literature in the Secondary Schools is required. It is required for certification but does not count toward the 30 credits in English required for the major. ED 301 Teaching and Learning-Secondary is the prerequisite for this course.

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. 322 Major American Writers;
3. An English language course (371, 372, or 572);
4. Two courses chosen from those indicated with an * (courses which emphasize literature written before 1950);
5. Plus electives to complete the 30 hours.

Secondary 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. 322 Major American Writers;
3. An English language course (other than English or 572 American Dialects);
4. 379 Writing for the Secondary Teacher;
5. Two courses from those indicated with an * (courses which emphasize literature written before 1950);
6. 380 Teaching of Literature in the Secondary Schools is required. It is required for certification but does not count toward the 30 credits in English required for the major. ED 301 Teaching and Learning-Secondary is the prerequisite for this course.

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. 282 Children's Literature
2. 369 Writing for Elementary Teachers
3. 373 Reading and Writing as Psycholinguistic Processes
4. Two literature courses in addition to 110 and 282
5. One 400 or 500 level course (other than 497, 597, or 582). This course may count as one of the two literature courses required in No. 4.
6. Plus electives to make 30 hours.

No more than two of the following courses—282 Children's Literature, 283 Literature for Adolescents, and 528 Studies in Children's Literature—may count toward the 30 hours.

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 major will be given under this option. This option requires a major slip. The student should see an adviser before completing the first eight hours of coursework under this option. Students with this English major should not register for courses in the teaching of English (380) without consulting with an English adviser.

English Major With Writing Emphases

Major slips required. Transfer students who wish to enter these programs should see an adviser as soon as possible after admission to work out the details of taking at least 18 hours before graduation.

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: 365 Advanced Fiction Writing, 365 Advanced Poetry Writing, 365 Playwriting, 566 Creative Writing Workshop. (365, 366, and 368 may be taken concurrently. The prerequisite for 566 is 6 hours of creative writing courses);
3. 16 hours (four courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences English Major. See above.
4. Electives to make 30 hours.

English Major With Practical Writing Emphasis

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 or any option of 305 Practical Writing. (One of these courses is prerequisite to all other writing courses in this major."
2. 364 Feature and Article Writing (may be taken concurrently with 462, below);
3. 462 Advanced Writing (may be taken concurrently with 364, above);
4. 464 Professional Writing (Prerequisite: 2 upper level writing classes);
5. 461 Form in Non-Fiction;
6. Twelve hours (three courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences Major. See above.
7. Electives to make 30 hours.

The English Major with Practical Writing Emphasis may be expanded from 30 to 44-46 hours by taking 3-4 courses selected from the following cognate options. GE means that the courses listed carry General Education Credit.

Practical Writing Program Cognate Options

CAS 104 Business and Professional speech (3 cr. hr)
CAS 130 Public Speaking (3 cr. hr)
CAS 358 Television and Film Scripting (3 cr. hr)
CAS 359 Broadcast Journalism (3 cr. hr)
CAS 547 Organizational Uses of Radio and TV (3 cr. hr)
ED 548 Audiovisual Media I (3 cr. hr) or
ED 550 Photography Workshop (3 cr. hr)
EGEO 311 Geography of Michigan (3 cr. hr.
GEOG 311 Geography of Michigan (3 cr. hr.
GEOG 311 Geography of Michigan (3 cr. hr.
GHUM 315 Human Communication (4 cr. hr.
GHUM 316 Mass Media: Messages and Manipulation (4 cr. hr.
HIST 204 Business History (3 cr. hr) or
HIST 310 History of Michigan (3 cr. hr)
ITE 150 Graphic Arts (3 cr. hr)
MATH 368 Introduction to Statistics (4 cr. hr.
One English course to be selected in consultation with the department adviser.

Community Journalism Program Cognate Options

CAS 359 Broadcast Journalism (3 cr. hr)
CAS 541 Mass Communications Law (3 cr. hr)
CAS 543 Mass Communication. News and Public Affairs (3 cr. hr)
ED 550 Photography Workshop (3 cr. hr)
EGEO 311 Geography of Michigan (3 cr. hr.
GHUM 316 Mass Media: Messages and Manipulation (4 cr. hr.
HIST 310 History of Michigan (3 cr. hr)
ITE 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.

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 (383-1628).

Secondary Education Curriculum
Required: 110 Literary Interpretation; either 371 The English Language or 572 American Dialects; 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 and Writing as Psycholinguistic Processes; 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, 528 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. Elemen-
tary education minors should not register for the course in the teaching of English (380) without consulting an English adviser.

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 course work 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: one course in English language or literature, to be taken early in the sequence from those courses which presently count toward an English major or minor, approved by an English adviser prior to enrollment, plus at least twelve hours to be selected from ENGL 305 Pre-Professional Writing, 305 Research and Report Writing, 305 other topic listed in schedule (e.g. Analytical Writing), 364 Feature and Article Writing, 464 Professional Writing, 462 Advanced Writing (recommended as capstone), plus one other course in the department, including any of the above not already taken, to be selected in consultation with an English adviser. Minor slips are required for the practical writing minor.

Journalism Minor

This minor, which can include key courses outside the department, is useful preparation not only for prospective reporters and editors but also for people who plan careers in broadcasting and the media, advertising, marketing, public relations, business, industry, and government. Courses within the program may also be good choices for anyone who wants to understand a vital subject: the ways we communicate in our society.

The minor allows great flexibility in course selection so that students can combine the journalistic skills and insights of their minor with any of a wide variety of major programs; political science, engineering, economics, business, and history, for example. Some of the courses listed in Groups I, II, and III below have prerequisites. See course listings. Minor slips are required: see an English adviser (383-1628).

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
CAS 358 Broadcast Journalism

GROUP II: RELATED COURSES IN WRITING
ENGL 266 Writing Fiction and Poetry
ENGL 368 Practical Writing (any option)
ENGL 464 Professional Writing
CAS 358 TV and Film Scripting

GROUP III: RELATED COURSES IN MEDIA AND COMMUNICATIONS
CAS 240 Broadcast Communication
CAS 540 Studies in Mass Communication (where topic is applicable and with permission of adviser)

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 (383-1717).

Integrated Language Arts Minor

The Department of English is one of several 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 or its listing in the College of Education or the College of Health and Human Services or call the English Department (383-1684).

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

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.

105 Thought and Writing: Variable Topics
4 hrs.
A writing course in which the students will work closely with the instructor to develop their sense of language as a means for shaping and ordering their experience and ideas, and to develop imagination, thought, organization, and clarity in their written work. Students have a choice of options which vary in emphasis and approach. Current options are Writing-Exposition, Writing-Description, and Writing and Science. May be repeated for credit, but may be counted only once toward fulfillment of General Education requirements. Does not count as credit toward English major or minor. Fulfills the University Intellectual Skills college-level writing requirement.

107 Good Books
4 hrs.
An exploration of good literature, selected from all times and countries and 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.

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.

111 Contemporary Topics in Literature
4 hrs.
Exploration of fiction, poetry, drama, and film related to current concerns. Topics are: A. Myth and Folk Literature, B. Man, Woman and Marriage in Literature.

An exploratory course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

150 Literature and Other Arts
4 hrs.
Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representations in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting.

210 Film Interpretation
4 hrs.
Studies in the motion picture as art form.

222 American Literature and Culture
4 hrs.
A study of some of the recurrent themes in American life as seen in American literature.

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.

252 Shakespeare
4 hrs.
A survey of Shakespeare’s art through study of selected tragedies, histories, and comedies.

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.

265 News Editing
4 hrs.
Instruction and extensive practical experience in copy editing, typography, headline writing, handling wire
copy and photographs, and layout.  
Prerequisite: 264 News Writing.

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.

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—fables, fantasy, fiction and non-fiction, myth and poetry.  
If this course is counted toward the English major or minor, 283 Literature for Adolescents may not be counted, except by elementary education English majors proceeding under 1975-76 and later catalogs.

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, 262 Children's Literature may not be counted, except by elementary education English majors proceeding under 1975-76 and later catalogs.

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.

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.

310 Literary History and Criticism  
4 hrs.  
Discussion of important topics and problems, both historical and critical, involved in the systematic study of literature. Emphasis includes study in the chronology of English literature, its development and continuity, and an introduction to the nature and uses of formal literary criticism. Prerequisite: 110.

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.

312 Western World Literature  
4 hrs.  
Study of works selected from the Western literary tradition, including 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.

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).

314 African Literature  
4 hrs.  
Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

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.

322 American Literature: Major Writers  
4 hrs.  
Intensive reading of representative works of major American writers. Prerequisite: 110.

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: 110.

344 (244) 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: 110.

353 Reporting  
4 hrs.  
Instruction and practice in covering news beats, writing complex news stories, and developing good interviewing skills. Prerequisite: 264.

364 Feature and Article Writing  
4 hrs.  
Study and practice in writing feature and magazine articles, attention to contemporary techniques and styles in documentary and personal reportage. Prerequisite: A previous college-level writing course.

365 Reviewing for the Press  
4 hrs.  
Theory and practice in writing reviews of books, drama, films, television, concerts, and exhibitions for various kinds of mass-audience publications. Prerequisite: Previous course work in journalism, creative writing, literature, or media.

366 Advanced Fiction Writing  
4 hrs.  
An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing. Prerequisite: 266 or permission of the department.

367 Advanced Poetry Writing  
4 hrs.  
An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing. Prerequisite: 266 or permission of the department.

368 Playwriting  
4 hrs.  
An introductory course in the writing of drama, with class discussion and criticism of each student's writing, and including study of selected examples of drama in print and in production. Prerequisite: ENGL 266 or permission of the department.

369 Writing for Elementary Teachers  
4 hrs.  
A course intended to develop the writing skills of prospective teachers and to explore the means by which the writing ability of elementary school children can be encouraged, developed, and evaluated.

371 The English Language  
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.

372 Development of Modern English  
4 hrs.  
A course in the history of the language treating the historic and linguistic forces which have affected pronunciation, grammar and vocabulary.

373 Reading and Writing as Psycholinguistic Processes  
4 hrs.  
A study of the processes of reading and writing English as these are explained by developments in linguistics and psycholinguistics. Particular attention is paid to the degree of complexity in sentence structure as it affects writing maturity, writing style, and reading.

375 Acquisition of Literacy and the Early Elementary Child  
4 hrs.  
This course focuses on the psycholinguistic nature of the reading and writing process, emphasizing how literacy builds upon oracy. Particular attention is paid to literature for the young child and to how children's literature can further the acquisition of literacy. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

376 Acquisition of Literacy and the Later Elementary Child  
4 hrs.  
This course focuses on the psycholinguistic nature of the reading and writing process, 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.)
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.

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.

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: 110

416 Women in Literature
4 hrs.
A study of the writing of women. Prerequisite: 110

417 Women Writers
4 hrs.
A study of the work of women writers from the 17th century to the present. Some Middle English works will be studied in the original; works in Old English and continental literature will be mainly in translation. Prerequisite: 110

421 Advanced Writing
4 hrs.
Practice in the covering and reporting of the police, courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: 264 and 363

422 Advanced Writing
4 hrs.
Practice in the covering and reporting of the police, courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: 264 and 363

424 Shakespeare Seminar
4 hrs.
Intensive study of selected aspects of Shakespeare's poetic and dramatic art. Prerequisite: 110 or 252

461 Form in Non-Fiction
4 hrs.
A literary analysis of the form and development of non-fiction. Prerequisite: 110

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.

463 Reporting Community Affairs
4 hrs.
Practice in the covering and reporting of the police, courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: 264 and 363

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

466 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.

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.

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: 110 or permission of the department.

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: 110

532 English Renaissance Literature
4 hrs.
Readings in representative writers of the period 1500-1660. Prerequisite: 110

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: 110

536 Nineteenth Century British Literature
4 hrs.
Readings in representative writers focusing on one or more principal movements of the century. Prerequisite: 110

538 Modern Literature
4 hrs.
Readings in representative writers who have come to prominence chiefly since 1945. Prerequisite: 110

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: 110.

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.

572 American Dialects
4 hrs.
A study of regional, social, and stylistic variation among American dialects, with emphasis on the dialects of minority ethnic groups as structured systems

574 Linguistics for Teachers
4 hrs.
An introduction to the field of linguistics. May be repeated for credit as long as the topics are different. Prerequisites: 371, 373, or permission of the department.
**Geography (GEOG)**

Joseph P. Stoltman, Chair  
David G. Dickason  
Val L. Eichenlaub  
Rainer E. Ehrath  
Charles F. Heffer  
Oscar H. Horst  
Eugene C. Kirschner  
Phillip P. Micklin  
Eldor C. Quaintt  
Henry A. Raup  
Hans J. Stolle  
George Vuichich

These programs are designed to provide students with an improved understanding of humanity's physical and cultural surroundings and the interrelations of these. Students are prepared through geography as a physical and social science for careers in such diverse fields as urban and regional planning, cartography, environmental studies and analysis, teaching in elementary and secondary schools, and tourism and travel. A program is also available for those who desire to continue in graduate studies.

A core of three courses (GEOG 105, 205, 206) and CS 105 are required of majors. A non-teaching major in geography with specialization provides for a minimum of 32 hours. It is recommended that 6 additional hours of work from the complementary disciplines be taken in support of the area of specialization. An internship for variable credit (GEOG 412) may be arranged in this program. For those who intend to pursue graduate work, it is recommended that courses in mathematics and foreign languages be considered as electives. The department will accept toward the major or minor, credits earned at community and junior colleges which correspond to the 100-, 200-, 300-level offered by this department. However, transfer students should meet with the undergraduate adviser as soon as possible in order to finalize their program and avoid the danger of duplication of course work. Courses taken on a Credit/No Credit basis may not be counted toward the major except with the approval of the department chairperson. An honors program is available for students so recommended by members of the faculty of the Department of Geography.

Students are invited to call at Room 317, Wood Hall (383-1839) for information concerning the departmental major, minor, honors program, or financial assistance.

### Geography Major

**32 hours credit**

105 Physical Geography  
205 Our Human World  
206 Geographical Inquiry  

Two courses from Group I at the 200 level or above  
One course from Group II  
CS 105 Introduction to Computers  

Remaining courses to be selected with consent of adviser.

### Geography Minor

**20 hours credit**

105 Physical Geography  
205 Our Human World  
206 Geographical Inquiry  

One of the following: GEOG 203, 265, 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, the environment, geographic information systems, physical geography, regional geography, and tourism and travel. 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  
- 205 Our Human World  
- 206 Geographical Inquiry  
- 460 Concepts and Strategies in the Teaching of Geography  

remaining courses must be selected with consent of adviser.

### Secondary Education—Geography Major

**32 credit hours**

- 105 Physical Geography  
- 205 Our Human World  
- 206 Geographical Inquiry  
- 460 Concepts and Strategies in the Teaching of Geography  

remaining courses to be selected with consent of adviser. GEOG 460 may be waived and another geography course substituted if SSCI 300, Teaching of Social Studies in Secondary Schools (3 hrs.) is required in another sequence.

### 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.

- 105 Physical Geography  
- 205 Our Human World  
- 206 Geographical Inquiry  
- 265 Map, Chart and Air Photo Reading  

remaining courses to be selected with consent of adviser.

### 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, 206, 225, 265, 350, 375, 521, 553, 554, 555, 557, 568, 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 Our Human World  
- 225 Introduction to Meteorology and Climatology  
- 237 Environmental Earth Science  
- 244 Geographic Patterns of Economic Activity  
- 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  
- 380 United States and Canada  
- 381 South America  
- 382 Mexico and the Caribbean  
- 383 Western and Southern Europe  
- 384 Soviet Peoples  
- 385 The Pacific Realm  
- 386 Sub-Saharan Africa  
- 387 The Middle East and North Africa  
- 389 Monsoon Asia
The student will have an opportunity to investigate social and environmental problems through data collection, analysis, 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.

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

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.

102 World Geography Through Media and Maps 3 hrs. This course presents an introduction to the geography of the earth. This includes the earth as the home of humans, major urban concentrations, descriptive physical characteristics of continents and countries, political subdivision, and general man-hand relationships which reflect cultural preferences. Information delivery will be through material with a major concentration of carefully selected audiovisual and map study activities to enhance investigating the character of distant places.

105 Physical Geography 4 hrs. (Science credit) A study of the physical environment of human beings. The course examines the seasonal and latitudinal distribution of solar energy and its effect on weather, vegetation, soils, surface and subsurface waters, and the earth’s major landforms. Terrestrial energy is reviewed in relation to earth materials and earth-forming processes. Artificially induced energy changes are interwoven into each topic. Maps, aerial photographs and outdoor observations are utilized as primary investigative tools. Laboratory in physical geography is part of this course.

203 Geographic Inquiry 3 hrs. The student will be introduced to geography as a field of study, of research, and occupational opportunity. Geography provides a means for analyzing the physical and cultural attributes of the environment. The student will have an opportunity to investigate social and environmental problems through data collection, analysis, interpretation, and map representation. The development of the various inquiry techniques in geography will be reviewed and case studies exemplifying such development will be examined. Emphasis throughout will be on the application of inquiry models to geographic problems. Prerequisite: CS 105 or equivalent.

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.

205 Our Human World 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.

206 The Atmospheric Environment and Man 3 hrs. (Science credit) A non-mathematical integrative approach to the atmospheric environment. Emphasis is placed on the interaction of the atmosphere with other environmental features with particular stress given to the role of the atmosphere in affecting the lives and activities of people. Inadvertent modification of the atmosphere by people, weather control, and air pollution also receive special treatment.

225 Introduction to Meteorology and Climatology 4 hrs. (Science credit) A non-mathematical analysis of systematic and regional atmospheric behavior. First part of course deals with fundamental physical laws affecting the elements of weather—temperature, moisture, and humidity, pressure, and wind. Second part of course examines the distribution of various types of climates over the earth’s surface, with particular emphasis on the interaction of geographic factors with the major atmospheric climatic controls, and upon the effects of various climates on the economic activities of people. Prerequisite: GEOG 105 or consent.

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 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.

244 Geomorphic Patterns of Economic Activity 3 hrs. A survey of locational economic patterns and their interrelationships, including the study of spatial variations in economic development, primary production, energy generation, manufacturing, transportation, service occupations, and trade.

265 Map, Chart, and Air Photo Reading 2-3 hrs. (Science credit) Course introduces the student to a variety of maps, charts and aerial photographs. Information recognition and analysis from maps and photo form are emphasized for various uses. Included are topographic analysis, grid, scale determination and conversion, marine and aerial navigation applications, recreation uses, orienteering, landscape and vegetation analysis, and basic mapping skills.

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.

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 using computers form the core of the course. Geographic theories related to diffusion and nodal development shall be examined. The effects of regulations on flow patterns will be investigated.

311 Geography of Michigan 3 hrs. An introduction to the physical and cultural patterns of Michigan with emphasis upon an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems.

350 Principles of Conservation and Environmental Management 3 hrs. (Science Credit) Critical evaluation of the major natural resources of the United States, particularly soils, water, forests, wildlife, and minerals; examination of the utilization of these resources so as to yield the maximum benefit to people. Emphasis is placed on principles, policies and issues in the management of natural resources.

356 Introduction to City and Regional Planning 3 hrs. Intended to provide the student with an introduction to planning thought and professional practice: examination of the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic elements; consideration of the impact of planners and planning movements of the 19th and early 20th centuries such as the “New Towns” programs; relationship of planning to zoning, the emergence of regional administrative units and regional planning programs.

361 Population: The Crowding World 3 hrs. Population distribution and settlement patterns are examined geographically. Population topics include mapping and analysis, theories of population change, and types of migration. Emphasis is also placed on functions and structure of urban and rural settlements in selected world regions.

375 Principles of Cartography 4 hrs. (Science credit) Introduction to map construction with primary emphasis on the conceptual planning and designing of maps as a medium for communication and
research. Lectures are supplemented by laboratory assignments to familiarize students with the history of cartography, drafting techniques, lettering and symbolism, the concept of scale and scale transformations, map layout and design, processes of map reproduction, the employment of projections, and the compilation procedures and creation of various map products. One-hour lecture and two-hour laboratory periods. Prerequisite: GEOG 265 or consent.

380 United States and Canada
3 hrs.
A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area's population and economy. The basis for the regional differentiation of the USA and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena.

381 South America
3 hrs.
Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included.

382 Mexico and the Caribbean
3 hrs.
Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social and political trends of the region.

383 Western and Southern Europe
3 hrs.
Intensive regional study of those Western European nations situated west of the Iron Curtain. The physical elements (climate, landforms, resources, etc.) examined and the derivative cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Western Europe.

384 Soviet Peoples and Landscapes: Continuity and Change
3 hrs.
A general examination of the most important aspects of the Soviet peoples and landscape set in a spatial framework. Topics discussed include: The physical environment, population distribution and dynamics, the Soviet strategy of economic development (both national and regional), problems of agricultural development, industrial and transport patterns, and problems of environmental deterioration.

385 The Pacific Realm
3 hrs.
Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, Micronesia and Polynesia.

386 Sub-Saharan Africa: Man, Environment, Resources
3 hrs.
Survey of the principal physical and political patterns of Africa south of the Sahara, followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence and commercial agriculture, status of mineral and power resource development, transportation routes, regional development programs.

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 given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim World on the current political scene.

389 Monsoon Asia
3 hrs.
Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.

408 Geography of Travel and Tourism
4 hrs.
The student studies global environments and transportation systems to analyze tourism and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined.

412 Professional Practice
2-5 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 Chairperson.

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.

521 Studies in Climatology & Meteorology
3 hrs.
(Science Credit) Studies at an advanced level in climatology and meteorology. Topics of current interest to atmospheric scientists are examined in depth. Dynamic, complex, and synoptic methods of climatic description are also examined, and regional climatic phenomena and their relation to atmospheric circulation patterns are investigated. Prerequisites: GEOG 225 or consent.

544 Studies in Economic Geography
2-3 hrs.
Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors.

1. Agriculture. Discusses and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

2. Industry. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

3. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems.

545 Studies in Human Geography
2-3 hrs.
Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems. Prerequisites: GEOG 203, or GEOG 205 or GEOG 244, or by consent of instructor. Course may be repeated for credit.

1. Cultural Geography. Techniques of special analysis applicable to the study of humans and their environment. The place of religion, diffusion, and the present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.

2. Historical Geography. Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.

3. Political Geography. General survey of the principles and the applied aspects of political geography; primary emphasis on the physical and cultural resource bases and conflicts of national states, the assessment of location, boundary delimitation and the territorial sea, politically-organized territories within the administrative hierarchy, and electoral geography.

553 Water Resources Management
3 hrs.
(Science credit) Examination of water resources management with emphasis upon rational development and utilization of available supplies. Topics include supply and demand, methods of supply augmentation (desalination, inter-basin transfers), water administration and policies, and various water problems together with their solutions.

554 Outdoor Recreation: Resources and Planning
3 hrs.
(Science credit) Examination of extensive resource-based outdoor recreation (such as parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.
555 Contemporary Issues in Resources Management 3 hrs. (Science credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resources 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.

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.

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.

566 Field Geography 2-4 hrs. The theory and application of geographic techniques in field investigations, collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field observations. Desirable prerequisite: GEOG 375 or consent.

567 Computerized Geodata Handling and Mapping 4 hrs. Principles and procedures involved in structuring and using computerized geographic data systems (applicable to land use analysis, impact assessments, and urban and regional planning), and in representing these data by computer mapping methods. Equivalent applications of these methods will be made to both microcomputers and larger main-frame computer systems. Prerequisite: Senior or graduate standing.

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.

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.

580 Advanced Cartography 4 hrs. (Science credit) The compilation of data and the design of maps and graphs for research papers and the application of statistical techniques in mapping geographic phenomena are applied to the more advanced cartographic techniques and photocartography. Students are assigned special problems to develop their proficiency in the use of cartography as a tool in research. One hour of lecture in conjunction with independent student projects. Prerequisite: GEOG 375 or consent.

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.

598 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. Prerequisite: Consent of department adviser and instructor.
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 higher specific need.

Required Courses

- GEOL 130 Physical Geology (4 hours)
- GEOL 131 Earth History and Evolution (4 hours)
- GEOL 300 Oceanography (3 hours)
- GEOL 560 Introduction to Geophysics (3 hours)

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 hours)
- GEOL 131 Earth History and Evolution (4 hours)
- GEOL 301 Minerals and Rocks (3 hours)
- GEOL 430 Structural Geology (3 hours)
- GEOL 560 Introduction to Geophysics (3 hours)

Physics (PHYS) (15-16 hours)
- PHYS 111 General Physics II (4 hours)
- PHYS 352 Electricity and Light (4 hours)
- PHYS 434 Microprocessor Electronics (3 hours)

One of the following (3-4 hours)
- PHYS 300 Thermodynamics and Kinetic Theory
- PHYS 352 Optics
- PHYS 540 Electricity and Magnetism I

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
- MATH 123 Calculus II
- MATH 222 Vector and Multivariate Calculus
- CS 306 Introduction to Programming

Total Minor Hours: 21

Required Supporting Course CHEM 101 or 102 (4 hours)

Total Required Hours: 69-75

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 advisor. This minor is not acceptable for education majors and minors.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>Biology (BIOL) (4 hours)</td>
<td></td>
</tr>
<tr>
<td>Chemistry (CHEM) (8 hours)</td>
<td></td>
</tr>
<tr>
<td>General Chemistry I (4 hours)</td>
<td></td>
</tr>
<tr>
<td>General Physics I (4 hours)</td>
<td></td>
</tr>
<tr>
<td>General Physics II (4 hours)</td>
<td></td>
</tr>
<tr>
<td>Mechanics and Heat (4 hours)</td>
<td></td>
</tr>
<tr>
<td>Electricity and Light (4 hours)</td>
<td></td>
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</tbody>
</table>

Electives

At least 4 credit hours selected from the physical or biological sciences with approval of student's advisor.

Earth Science: Teaching Major and Minor

The earth science teaching major and minor are designed for students preparing to teach in the elementary and secondary schools. No grade below a "C" will be accepted in the required courses. All majors must complete a minimum of one semester each of college physics and college chemistry.

Major (30 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104 or 105, Astronomy</td>
<td></td>
</tr>
<tr>
<td>GEOL 225 Introduction to Meteorology and Climatology</td>
<td></td>
</tr>
<tr>
<td>GEOL 130 Physical Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 131 Earth History and Evolution</td>
<td></td>
</tr>
<tr>
<td>GEOL 300 Oceanography</td>
<td></td>
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<tr>
<td>GEOL 301 Minerals and Rocks</td>
<td></td>
</tr>
<tr>
<td>GEOL 339 Field Studies in Geology</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>5-6</td>
</tr>
</tbody>
</table>

Minor (20-21 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104 or 105, Astronomy</td>
<td></td>
</tr>
<tr>
<td>GEOL 225 Introduction to Meteorology and Climatology</td>
<td></td>
</tr>
<tr>
<td>GEOL 130 Physical Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 131 Earth History and Evolution</td>
<td></td>
</tr>
<tr>
<td>GEOL 300 Oceanography</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>2</td>
</tr>
</tbody>
</table>

Earth Science: Non-Teaching Major and Minor

The non-teaching earth science major and minor program is a broad and flexible course of instruction for students anticipating careers in conservation and related professions, state and federal parks and planning agencies. The program is interdisciplinary in nature and offers students an opportunity to select earth science and related courses from the Departments of Geology, Engineering, Biology, Geography, Chemistry, Physics, and others. Courses are selected in consultation with the earth science advisor in order to design programs that will satisfy students' needs and professional objectives. A complete list of approved courses is available from the Department of Geology. A minimum of 15 credit hours in Geology is required for a major and 10 credit hours for a minor including GEOL 130, 131 and 301 and/or 339.

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 the listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Course Descriptions

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

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 should take GEOL 130.

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.

129 Physical Geology Laboratory

1 hr

A laboratory experience covering minerals and rocks, and the interpretation of topographic and geologic maps.
Prerequisite: Minimum 3 hours of nonlaboratory geology.

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.

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.

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 7-½ weeks in environmental geology and 7-½ 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.

300 Oceanography 3 hrs. Fall, Winter, Spring
Survey of oceanographic sciences including physical, chemical, biological, and geological oceanography. Lecture 3 hours a week.

301 Minerals and Rocks 3 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.

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).

335 Mineralogy 4 hrs. Fall
Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 100 or 130 and General Chemistry or consent of instructor.

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).

339 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, regional geology, and so forth. The required course, GEOL 339, in the teaching of Earth Science major is normally taught the two weeks of summer prior to the fall term, but may be offered at other times during the summer. Students planning to take this course should check with the Earth Science adviser in the Department of Geology.

430 Structural Geology 3 hrs. Fall
Development of rock structures and mechanics of rock deformation. Structural interpretation of geologic maps, cross-sections, and aerial photographs. Lecture 2 hours a week. Laboratory 2 hours a week. Prerequisites: GEOL 131 or consent of instructor.

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.

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 instructor.

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.

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 instructor.

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 instructor.

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 tenets of plate tectonics. Prerequisites: GEOL 131, 301, or 335.

532 Surficial Processes and Ground-water Geology 3 hrs. Winter
Detailed consideration of fluviatile, eolian, and glacial processes and the geological aspects of surface water and ground-water hydrology. Qualitative and quantitative aspects of ground-water movement, location, and evaluation and the influences of man on the hydrologic system. Prerequisite: GEOL 130.

535 Sedimentation and Stratigraphy 4 hrs. Fall
Processes, characteristics, and relationships among fluviatile, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural analysis, sedimentary structures, paleocurrent analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems; and basin analysis. Course includes a 3-day field trip. Three lectures and one three-hour laboratory per week. Prerequisite: GEOL 131.

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 instructor.

543 Palaeoecology 3 hrs.
Study will include the ecology, life, habits and environmental interactions of ancient organisms. Prerequisite: GEOL 433 or BIOL 541.

544 Environmental Geology 3 hrs. Fall
Geology related to human affairs and land use planning, includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131 or consent.

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.

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 hr. practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOL 130, MATH 122, two semesters of college physics.

561 Seismic Methods 3 hrs.
Reflection and refraction seismology as applied to the search for petroleum, site studies in civil engineering, and other geologic problems. Two lectures and 3 hr. practical laboratory and field exercises and problem. Prerequisites: GEOL 560, CS 308, and MATH 123.

562 Gravity and Magnetic Methods 3 hrs.
Potential field methods as used in mining and petroleum exploration, for geologic mapping, and groundwater problems. Analytical solutions, numerical modeling, and other interpretation techniques. Prerequisites: GEOL 560, CS 306, and MATH 123.

563 Electrical Methods 3 hrs.
Resistivity sounding and profiling, induces 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).

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. Course also includes 1-week trip to Michigan's Upper Peninsula to apply magnetic, self potential, electromagnetic, and gravity methods in Precambrian terrain. Prerequisite: GEOL 560.

German
See "Languages and Linguistics" in the College of Arts and Sciences.

History (HIST)
Ernst A. Bresach, Chair
George T. Beech
Alan S. Brown
Walter J. Brunhumer
Richard T. Burke
Albert E. Castel
Sherwood S. Coddier
Ronald W. Davis
Ross Gregory
Robert J. Hahn
H. Nicholas Hamner
Graham P. Hawks
John R. Houtek
Paul L. Maier
Andrew C. Nahm
Emanuel Nodel
Dale P. Patterson
Peter Schmitt

The Department of History offers training in several broad professional and preparatory areas:

1. Public History: historical administration, consultancy, conservation and interpretation, applied research.
2. Education: teaching at various levels.
3. Pre-Professional and Graduate: preparation for graduate study in history, law, theology, related social sciences and humanities.
4. Liberal Education: development in all areas of historical awareness and perspective, an autonomous structure of understanding that taps the vast human experience which no longer may be observed directly.

Programs
Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall (383-1731)

Advising: All students in history programs are strongly urged to meet with the department's undergraduate adviser prior to registering for each semester or session. Major and minor slips are required for graduation audits.

Transfer Students: Transfer students who major in history must complete at Western at least 18 hrs. of coursework applied to major requirements. Transfer students who minor in history must complete at Western at least 12 hrs. of coursework applied to minor requirements. Questions about transfer credit, or equivalencies of history courses elsewhere to those at Western should be addressed to the undergraduate adviser.

Advanced Placement: Credit earned through various advanced placement examinations ordinarily entitles students to proceed with additional advanced work but does not reduce the minimum number of hours required for a major or minor in history.

Correspondence Courses: Courses taken by correspondence may not be used to fulfill major or minor requirements.

Minimum Grades: Only courses in which a grade of "C" or better is earned may be applied toward history major or minor requirements.

Honors in History: Each year the department faculty designates a small number of majors as honors graduates. To be eligible for consideration for such designation, students must possess a minimum grade point average of 3.5 in history and overall. It is not necessary to be involved with the Honors College in order to be considered for honors in history.

Secondary Education Curriculum: Students enrolled in this curriculum and majoring or minoring in history are required to complete with a grade of "C" or better SSCI 300.

Teaching of Social Studies in Secondary Schools, unless some other course, recognized by the College of Education as a teaching methods course and acceptable to the Department of History as such, is substituted. Credit earned in SSCI 300 does not count toward fulfillment of credit hour requirements for a history major or minor.

Major Requirements
Major requirements for students in arts and sciences, education, business, preprofessional, and other curricula:

1. Basic Courses
100 Early Western World ............... 4 hrs.
101 Modern Western World .......... 4 hrs.
201 Historians in the Modern World .. 1 hr.
210 United States to 1877 ............ 3 hrs.
211 United States since 1877 ......... 3 hrs.

2. Advanced Courses: At least 15 hrs.
exclusive of theory and practice courses, in courses numbered 300 through 563, including at least 9 hrs. in courses numbered 500 through 563. Advanced coursework must be distributed in three of the following areas:

North America
Europe
Non-Western World
General

3. Theory and Practice: At least two courses chosen from:
390 Introduction to the Study of History ...... 2 hrs.
505 Local and Regional History ......... 3 hrs.
511 Introduction to Archives .......... 3 hrs.
591 Current Developments in Historical Theory and Practice .......... 2-3 hrs.

4. A total of at least 34 hrs. of coursework in history.

Major requirements for students in the public history curriculum:

1. Basic Courses
100 Early Western World ............... 4 hrs.
101 Modern Western World .......... 4 hrs.
201 Historians in the Modern World .. 1 hr.
210 United States to 1877 ............ 3 hrs.
211 United States since 1877 ......... 3 hrs.

2. Advanced Courses: At least 15 hrs.
exclusive of theory and practice courses, in courses numbered 300 through 563, including at least 9 hrs. in courses numbered 520 through 527 and at least one course in European history.

3. Theory and Practice: At least two courses chosen from:
505 Local and Regional History ......... 3 hrs.
511 Introduction to Archives .......... 3 hrs.
512 Introduction to Museum Studies .. 3 hrs.
513 Historic Preservation ............. 3 hrs.

4. A total of at least 36 hrs. of coursework in history.

Minor Requirements—All Curricula

1. Basic Courses
100 Early Western World ............... 4 hrs.
101 Modern Western World .......... 4 hrs.
210 United States to 1877 3 hrs.
211 United States since 1877 3 hrs.

2. Advanced courses: At least 9 hrs. in courses numbered 300 through 591, including at least 3 hrs. in courses numbered 500 through 591. Advanced coursework must be distributed in at least two of the following areas:
   North America
   Europe
   Non-Western World
   General
   Theory and Practice

3. A total of at least 23 hrs. of coursework in history.

Public History Curriculum

This program is designed to prepare students for a wide variety of entry-level positions in fields of public history. It includes a 36 hr. major in history (see above), a cognate package and an internship experience. The cognate package comprises:

1. A core of public history courses, required coursework in anthropology, courses in art history and laboratory science.
2. A minor in one of the following fields: anthropology, applied statistics, art history, biology, communication arts and sciences, earth science, general industrial education, geography, interior design, political science, sociology.

NOTE: In some cases minor requirements are quite specific and may differ from standard departmental requirements. Courses for the minor should be chosen in consultation with the History Department undergraduate adviser as well as with departmental advisers.

3. Electives chosen from an approved list. Students in the public history curriculum also must complete University requirements in General Education and physical education and compile at least 122 hrs. of credit for graduation.

Admission to the curriculum requires prior consultation with and consent of the History Department undergraduate adviser.

Public History Minor

This minor is designed for students in anthropology, business, geography, public administration, art history, and other areas who wish an introduction to the fundamental aspects of public history. It is not a teaching minor.

1. Required Courses
   HIST 201 Historians in the Modern World 1 hr.
   HIST 210 United States to 1877 3 hrs.
   HIST 211 United States since 1877 3 hrs.
   HIST 511 Introduction to Archives 3 hrs.

2. Two of the following:
   ANTH 210 Introduction to Archaeology 3 hrs.
   HIST 505 Local and Regional History 3 hrs.
   HIST 512 Introduction to Museum Studies 3 hrs.
   HIST 513 Historic Preservation 3 hrs.

3. One of the following:
   ART 220, 221, 597
   CRT 326, 327, 355, 356
   HIST 315

4. Electives:
   ANTH 540
   HIST 390, 500, 520, 521, 522, 523, 524, 525, 526, 527, 591, 599

5. A total of at least 23 hrs. of coursework is required for the minor.

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
521 Era of the American Revolution, 1763-1789
522 The Age of Democracy and Expansion, 1789-1848
523 The American West
524 The Civil War and Reconstruction
525 The Emergence of Modern America, 1877-1914
526 United States, 1914-1945
527 United States Since 1945

Europe

349 The Ancient Near East
350 Ancient Greece
351 Ancient Rome
354 Medieval History
361 British History
369 The Soviet Union
549 Topics in Ancient History
550 Topics in Medieval History
554 Renaissance and Reformation
556 Studies in Modern European History
559 The French Revolution and Napoleon
560 Nineteenth Century Europe
561 Victorian England: The Era of the Middle Class
562 Hitler's Europe, 1914-1945
563 Europe since 1945

Non-Western World

370 History of Latin America
371 Modern Latin America
372 History of Mexico and the Caribbean
381 The Modern Far East
386 Introduction to African History and Civilization
389 Modern Middle East

General History

301 Law and Justice in Western History
302 History of Medicine and Medical Care
303 Women in the Western World
321 Topics in the History of War
325 Jewish History
420 War in the Modern World

Theory and Practice

390 Introduction to the Study of History
505 Local and Regional History
511 Introduction to Archives

470 Senior Thesis
471 Thesis
599 Independent Reading in History
599 Internship

Course Descriptions

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

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 expressions. 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.

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. Period covered: 1648 to the Present.

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.

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 what 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.

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.
201 Historians in the Modern World 3 hrs.
A survey of the historical professions and the academic preparation needed to enter them.

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 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.

210 United States to 1877 3 hrs.
This is an introductory course, but not the traditional, narrative survey. Emphasis is placed upon basic intellectual, 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.

211 United States Since 1877 3 hrs.
The story of how modern America was shaped begins 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 from urbanization, industrialization, and reform that reveal continuities in the American experience. Particular attention is given to various attempts to interpret twentieth century American development.

275 Introduction to Canadian Studies 3 hrs.
An interdisciplinary survey of contemporary Canada taught by a faculty team from various departments of the University.

298 Directed Reading in History 1-3 hrs.
Designed for students with special interests. Registration requires a minimum of 2.6 GPA, sophomore standing, approval of the supervising faculty member and the Department Chairman. May be repeated to a maximum of 3 semester hours.

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.

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 moralist who expresses it, the investigator of crime, the criminal, and the pursuer; 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 these interact help establish the tone and quality of life of that society. The course observes and analyzes these activities on a comparative basis over the centuries of Western history.

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 Arabic 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.

303 Women in the Western World 3 hrs.
This course is designed to explore the history of women in various periods of European and American history from early Christendom to the present. 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.

310 History of Michigan 3 hrs.
The development of Michigan from a frontier wilderness to an industrial state, with emphasis on the relation of the history of the state to that of the nation.

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 nineteenth 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.

314 Black American History 3 hrs. Fall
A survey of the Black American experience from African origins to the contemporary American scene. Although the changing cultural and historical framework will not be ignored, attention will center on what Black Americans did, said, and thought. Individual reading assignments on the lives of outstanding African Americans. The course will be taught by John Hope Franklin, William Rainey Harper Professor of History.

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 American, the Environment, the Frontier, the City, and International Design. Extensive use will be made of local illustrations which could be adapted to elementary and secondary teaching.

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.

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.

325 Jewish History 3 hrs.
The fate 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 Romanian 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.

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.

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.

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.

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 kingdom, and its rise as reflected in the role of the church, monasticism, the schools and universities and in medieval art and architecture.

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.

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.

370 History of Latin America 3 hrs.
A survey is undertaken of the historical development of the Latin American region from its pre-Columbian Indian 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.

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.

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 require our understanding as do the present developments in Central America. The course surveys the history of the area in order to further that understanding.

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.

381 The Modern Far East 3 hrs.
A survey of the international relations of China, Japan, and Korea, reform and revolution in East Asia, arms 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.

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.

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.

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.

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.

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.

500 Studies in History 3 hrs.
Selected topics in historical studies. Topics announced in the Schedule of Classes. Courses may be repeated under different topics.

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 and 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.

511 Introduction to Archives 3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

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 cataloging, and museum ethics.

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 rehabilitation, public, private and citizen interaction.

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.

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.

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.

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.

524 The Civil War and Reconstruction 3 hrs.
Examines the origins of the Civil War, the reasons for Northern victory and Southern defeat, and the conflicts over Reconstruction policy and the status of Black Americans.

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 and values, the problems of generalization, and the anonymous American.

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.

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.

549 Topics in Ancient History 3 hrs.
Selected topics in ancient history such as recent archaeological discoveries, 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.

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.

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 thought of Luther, Calvin and Zwingli; renewal of the Roman Catholic Church; Anglicanism; the Radical Reformation; religious wars, and cultural activities in the Reformation

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.

559 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.

560 Nineteenth Century Europe
3 hrs.
Major developments in European history from the fall of Napoleon to the beginning of World War I. Confrontation between the forces of reform, conservatpism, and nationalism; unification of Germany and Italy; the changing diplomatic balance; arts and culture of the era.

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.

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.

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 blocs in international affairs.

591 Topics in Theory and Practice
2-3 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 currently before the academic world and the public. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

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 Chairman.

599 Internship
Variable hours
Professional internship experiences in museums, historical administration, historic preservation, editing, etc. Normally restricted to students enrolled in the Public History program. Approval of the Undergraduate Adviser and the Department Chairman.

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.

Languages and Linguistics
Robert A. Palmatier, Chair
John Benson
Gary E. Bigelow
Roger L. Cole
D.P.S. Dwarkesh
Benjamin Ebling
Jorge Felices
Robert Felkel
Jeffrey Gardner
Robert Griffin
Dieter H. Haidenick
Daniel P. Hendriksen
Johannes Kissel
Peter W. Krawutschke
Paule M. Miller
LaLita M. Muzaine
George F. Osmun
Josephine Raulston
Herman Teichert
Lindsey Willhite

Modern and Classical Languages (LANG)
For students majoring or minoring in a modern foreign language a course in modern European history is desirable. For Latin majors and minors a course in Roman history is recommended. A student in the Arts and Sciences curriculum (ASC) may apply eight (8) credits toward a Latin major by taking both GREK 100 and 101. A student in the Secondary Education curriculum (SED) may apply four (4) credits toward a Latin major by taking both GREK 100 and 101. English majors are encouraged to take as much 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 prior to 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 a minor until the required level is reached.

2. A student may overplace by one or two courses. This student is allowed to decide on whether to omit the course overplaced. If he/she chooses to omit the course, he/she is eligible to receive credit, but must check with the Placement Director.

Native speakers of a given language must consult with a departmental adviser 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 100-level to include 316, 317, 328, 329, and two 500-level courses (one of them must be 560). Students in the secondary education curriculum who are required to take Modern Language Instruction 558 may count this course as one of the 500 courses.

#### French Minor

Twenty hours beyond 100-level to include 316 and 317. Modern Language Instruction 558 may not be counted toward a minor.

#### German Major

Thirty hours beyond 100-level to include 316, 317, 322, 325, and at least two 500-level courses other than 558. Students in the secondary education curriculum are required to take Modern Language Instruction 558.

#### German Minor

Twenty hours beyond the 100-level to include 316, 317, and 322 or 325 plus one 500-level course. Modern Language Instruction 558 may not be counted toward a minor.

#### Latin Major

Thirty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series which may include LANG 250, 350, 375, 450 and GREEK 100 and 101. Teaching majors must include 200, 201, 324, 550, 557, and 560.

#### Latin Minor

Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series which may include LANG 250, 350, 375, and 450. Teaching minors must include 200, 201, and 557.

#### Latvian Major

Thirty hours beyond the 100 level, to include 200-201, 316, 320, 322, 325, 551, 560, 597, and PSCI 548, with the remaining hours from 500-level LATV courses.

#### Latvian Minor

Twenty hours beyond the 100 level, to include 200-201, 316, 320, 322, and 325, with the remaining hours from 500-level LATV courses.

#### Russian Minor

Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series.

#### Spanish Major

Thirty hours beyond the 100-level to include 329 or 333, 325, and three 500-level courses (to include 3 hrs. of 526, 527, 528, 529, or 660). 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 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. Reish, 509 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, 393-0958.

### 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.

### 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. Representative topics which may be treated in this course include:
    - **Classical Drama in English Translation**
    - Reading and analysis of selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes as dramas and as expression of the Greek view of life. Some attention to Roman Drama.
    - **French Literature in English Translation**
    - A thematic and stylistic analysis of major French writers from LaFayette to the present, to include Stendhal, Balzac, Flaubert and Proust.
    - **German Literature in English Translation**
    - A comparative study of literary themes and techniques of major German writers from Hauptmann to the present, including Mann, Brecht, Kafka, and Borchert.
    - **Russian Literature in English Translation**
    - A survey of the development of great Russian prose in its historical and cultural context. The course will include but not be restricted to works by Pushkin, Gogol, Turgenev, Dostoevski, Tolstoy, Gorki, Sholokhov, Pasternak, and Solzhenitsyn.
    - **Spanish-American Literature in English Translation**
    - Selected prose and poetry from late 19th century (Ruben Darío and Modernismo) to the contemporary writers of Hispanoamerica.
    - **Spanish Literature in English Translation**
    - Selected Spanish prose and poetry from the Middle Ages to the twentieth century. The course will include, but will not be restricted to, works by Lope de Vega, Cervantes, St. Teresa, Calderon de la Barca, Unamuno and Garcia Lorca, as well as the Anonymous Poem of the Cid and Lazarrillo de Tormes.

### Classics Courses

(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-Roman Studies
  - **3 hrs.**
  - The course is designed to examine the Greco-Roman world and its influence on the modern world in as many perspectives as possible. Examples: the rebel in society, concepts of justice, ancient literary criticism, ancient and modern technology. Topics vary and will be announced each year. May be repeated for credit with different topics.

- **LANG 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.
Language Teaching Courses

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 557. Teaching of Latin is described under Latin.

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

Classics
See Greek, Latin, and Classics Courses in English.

French (FREN)

100 Basic French 4 hrs.
Fundamentals of French with audiolingual emphasis. French cultural readings.

101 Basic French 4 hrs.
Continuation of 100. Prerequisite: FREN 100 or equivalent.

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 insights, and practice in written and spoken French.

200 Intermediate French 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.

201 Intermediate French 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.

316 French Composition 4 hrs.
Emphasis upon increasing the student's command of written French. Prerequisite: FREN 201 or equivalent.

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.

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.)

322 French Civilization 3 hrs.
A study of selected aspects of French life and culture and their historical settings. Prerequisite: FREN 201 or equivalent.

328 Introduction to French Prose 3 hrs.
A close examination of selected French prose works, to include the novel, the short story and the essay. Prerequisites: FREN 316 and 317 or permission of instructor.

329 Introduction to French Poetry and Drama 3 hrs.
A close examination of selected French poetry and dramatic literature. Prerequisites: FREN 316 and 317 or permission of instructor.

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.

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.

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.

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

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

560 Studies in French Literature 3 hrs.
An appreciation of French literature through reading and critical interpretation of selected works of various literary types. Prerequisite: FREN 201 or equivalent.

560 Studies in French Literature 3 hrs.
An appreciation of French literature through reading and critical interpretation of selected works of various literary types. Prerequisite: FREN 201 or equivalent.

German (GER)

100 Basic German 4 hrs.
Fundamentals of German with audiolingual emphasis. German cultural readings. Does not count toward a major or a minor.

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

200 Intermediate German 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.

201 Intermediate German 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.

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

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

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.

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.

400 Elementary German for Reading Proficiency 4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The
Latin (LAT)

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

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

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 two years of high school Latin.

201 Lyric Poetry
4 hrs.
Intermediate Latin. Readings from Latin lyric poetry, with special attention to development in use of fundamental language skills, prosody, literary style and appreciation. Prerequisite LAT 101 or two years of high school Latin.

324 Latin Literature
4 hrs.
Selections from Latin prose and poetry from the beginning of Latin literature through the Silver Age. Prerequisite LAT 200 or equivalent.

550 Independent Study in Latin
1-3 hrs.
Directed individual study of a specific topic or genre in Latin, with greater attention to individual aspects. Prerequisite: LAT 100 or equivalent.

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

101 Basic Greek
4 hrs.
Continuation of 100. Prerequisite: GREK 100 or equivalent.

100 Basic Greek
4 hrs.
Fundamentals of classical Greek, readings emphasize Greek thought, culture, and civilization.

101 Basic Latvian I
4 hrs.
Continuation of 100. Prerequisite: LATV 100 or equivalent.

200 Intermediate Latvian I
4 hrs.
Continuation of 101, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Analysis of the structure of Latvian; vocabulary building and use of idioms; exercises in spoken and written Latvian, reading selections in various topics, short compositions in Latvian. Prerequisite: LATV 101 or equivalent.

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.

316 Latvian Composition
3 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.

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.

322 Life and Culture of Latvia
3 hrs.
A study of selected aspects of Latvian life and culture and their historical settings. Prerequisite: LATV 200 or equivalent.

325 Introduction to the Study of Latvian Literature
3 hrs.
Variable topics, e.g.: 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 different topics. Prerequisite: LATV 201 or equivalent.

515 Methods of Teaching Latvian
2 hrs.
Examination of different language teaching methods. Psychological and sociological aspects of teaching at various levels in the Latvian community schools. Latvian teacher certification program. Opportunities to tutor beginning Latvian students, to engage in student teaching in the Kalamazoo Latvian School, and/or to work on a Latvian teaching-materials project. Prerequisite: LATV 201 or equivalent.

100 COLLEGE OF ARTS AND SCIENCES
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)

100 Basic Russian
4 hrs.
Fundamentals of Russian with audiolingual emphasis.

101 Basic Russian
4 hrs.
Continuation of RUSS 100. Prerequisite: RUSS 100 or equivalent.

104 Scientific Russian
4 hrs.
Basic grammar and practice in translation of scientific and technical material from Russian to English. Course is intended for undergraduates who are declared majors in physical or social sciences and desire a knowledge of Russian for reading purposes only. Course is open on a non-credit basis to graduate students and interested faculty and staff.

200 Intermediate Russian
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.

201 Intermediate Russian
4 hrs.
Continuation of 200. Prerequisite: RUSS 200 or equivalent.

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.

316 Russian Composition
4 hrs.
Emphasis on increasing the student’s command of written Russian. Prerequisite: RUSS 201 or equivalent; required for minors.

550 Independent Study in Russian
1-3 hrs.
Directed individual study of a specific topic in a Russian literary or linguistic area. Departmental approval required for admission. Prerequisite: One 500-level course.

Spanish (SPAN)

100 Basic Spanish
4 hrs.
Fundamentals of Spanish with audiolingual emphasis.

101 Basic Spanish
4 hrs.
Continuation of 100. Prerequisite: SPAN 100 or equivalent.

200 Intermediate Spanish
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.

201 Intermediate Spanish
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 201 or equivalent.

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.)

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.)

322 Life and Culture of Spain
3 hrs.
A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. Prerequisite: SPAN 316 and 317 or equivalent (SPAN 315 and 317 may be taken concurrently with 322 with permission of Spanish adviser).

323 Life and Culture of Latin America
3 hrs.
A study of Latin-American life and culture based on ethnical, historical, social, religious and literary considerations. Prerequisites: SPAN 316 and 317 or equivalent (SPAN 315 and 317 may be taken concurrently with 323 with permission of Spanish adviser).

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.

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.

526 Survey of Spanish Literature to the 18th Century
3 hrs.
A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317 and 325.

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.

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.

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.

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.

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.

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.

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 526, 527, 528, 529 or departmental permission. Representative topics which may be treated in this area include: Cervantes—Don Quijote and other works of Cervantes together with his life and thought.

Seventeenth Century Theater—Main works of Lope de Vega through Calderon de la Barca.

Nineteenth Century—The Romantic Movement.

Nineteenth Century Novel—Development of the regional novel from Ferron Caballero through Biauco Ibaniez.

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 one 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 seminars 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, 201, 315, 316, 597.

Both majors and minors are required to consult with the adviser, 410 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 arts and sciences, 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 language supervisor to determine which languages are eligible and to receive a signed recommendation for their program.

## Linguistics Programs

### Linguistics Major and Minor (LING)

#### I. Core Courses in Linguistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 105 The Nature of Language</td>
<td>4</td>
</tr>
<tr>
<td>LING 200 Intermediate Critical Languages I</td>
<td>4</td>
</tr>
<tr>
<td>LING 201 Intermediate Critical Languages II</td>
<td>4</td>
</tr>
<tr>
<td>LING 315 Reading Critical Languages</td>
<td>4</td>
</tr>
<tr>
<td>LING 316 Writing Critical Languages</td>
<td>4</td>
</tr>
</tbody>
</table>

### II. Elective Courses in Linguistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 316 Methods of Teaching English as a Second Language</td>
<td>4</td>
</tr>
<tr>
<td>LING 312 Principles of TESL</td>
<td>4</td>
</tr>
<tr>
<td>LING 315 Methods of Teaching Critical Languages</td>
<td>4</td>
</tr>
<tr>
<td>LING 540 Generative Grammar</td>
<td>4</td>
</tr>
</tbody>
</table>

### III. Cognate Courses in Other Departments

<table>
<thead>
<tr>
<th>Department</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Communication and Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>Communication and Arts Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Intro. to Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>Intro. to General Semantics</td>
<td>3</td>
</tr>
<tr>
<td>Non-Verbal Communication</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>4</td>
</tr>
<tr>
<td>English Language</td>
<td>4</td>
</tr>
<tr>
<td>Development of Modern English</td>
<td>4</td>
</tr>
<tr>
<td>Reading and Writing as</td>
<td>4</td>
</tr>
<tr>
<td>Psycholinguistic Processes</td>
<td>4</td>
</tr>
<tr>
<td>American Dialects</td>
<td>4</td>
</tr>
<tr>
<td>Linguistics for Teachers</td>
<td>4</td>
</tr>
</tbody>
</table>

### Modern and Classical Languages

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>Modern Language Instruction</td>
<td>3</td>
</tr>
<tr>
<td>History of the German Language</td>
<td>3</td>
</tr>
<tr>
<td>Speech Pathology and Audiology</td>
<td>3</td>
</tr>
<tr>
<td>Normal Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>Linguistics for Teachers</td>
<td>4</td>
</tr>
</tbody>
</table>

### Critical Language Minor (CRI)

20 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 105 The Nature of Language</td>
<td>4</td>
</tr>
<tr>
<td>LING 200 Intermediate Critical Languages I</td>
<td>4</td>
</tr>
<tr>
<td>LING 201 Intermediate Critical Languages II</td>
<td>4</td>
</tr>
<tr>
<td>LING 315 Reading Critical Languages</td>
<td>4</td>
</tr>
<tr>
<td>LING 316 Writing Critical Languages</td>
<td>4</td>
</tr>
</tbody>
</table>

### Admission to the Program

Undergraduate students (including linguistics majors and minors) may be admitted to the critical language minor at any level, provided that they are in a teacher education curriculum and are not native, fluent, and literate speakers of the language.

### Eligible Languages

The eligibility of languages varies from year to year. Languages currently scheduled by name are automatically eligible. The eligibility of others depends on available resources. Contact the critical languages supervisor in Linguistics for up-to-date information.

### Linguistics Majors and Minors

Undergraduate majors and minors in linguistics, who are already required to take an introductory linguistics course for their program, must take a literacy course in the given language (315 or 316) in order to complete the requirements for the critical language minor.

### Credit by Examination

Undergraduate students who feel that they possess the equivalent of 100, 101, 200, 201, 315, or 316 may 'comp out' of these courses for credit, provided that they pay the fees and pass an examination with a grade of "C" or better.

### Integrated Language Arts Minor

The Department of Languages and Linguistics is one of five participating departments in the integrated language arts methods 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.

### Course Descriptions

Courses described in italics are approved for General Education.

#### General Linguistics Courses

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.

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.

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.

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.

500 Introduction to Linguistics
4 hrs.

An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

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.

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.

515 Methods of Teaching Critical Languages 2 hrs.
Study of the application of linguistics to the teaching of one or more "critical" languages. Emphasis will be on modern and traditional methods and approaches with a view to the ability and need to test. Course work will include tutorial experience. May be repeated for credit for a different language. Prerequisite: LING 201 or equivalent.

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.

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.

552 Sociolinguistics 4 hrs.
A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

587 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.

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.

English as a Second Language Courses (for foreign students)

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.

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 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.

101 Basic Critical Languages II 4 hrs.
Continuation of 100. Prerequisite: LING 100 or equivalent.

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.

201 Intermediate Critical Languages II 4 hrs.
Continuation of 200. Prerequisite: LING 200 or equivalent.

310 Introduction to Translation 3 hrs.
Intensive practice in translation, primarily of non-literary documents, into English. The course will include some practical work in lexicography error analysis, translation quality assessment, and general problem solving. Prerequisites: LING 105; ENGL 305; LING 316, 317, 325, or SPAN 316, 317, 325, 552.

550 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 contact hours per week, 3 credit hours per semester, total of 6 credit hours) or in a single semester (32 contact hours per week, 6 credit hours). Prerequisite: TRNS 510.
Latin
See "Languages and Linguistics" in the College of Arts and Sciences.

Latvian
See "Languages and Linguistics" in the College of Arts and Sciences.

Linguistics
See "Languages and Linguistics" in the College of Arts and Sciences.

Mathematics (MATH)
Joseph T. Buckley, Chair
Yousef Alavi
Robert Blefko
Dwayne Channell
Gary Chartrand
A. Bruce Clarke
Paul Feingold
Anthony Gioia
Donald Goldsmith
Christian Hirsch
Benerece Houchard
Philip Hsieh
S.F. Kapoor
Virginia Keen
Robert Laing
Joseph McCully
Joseph McKean
Ruth Meyer
Dennis Pence
John W. Petro
James H. Powell
James Riley
Erik A. Schreiner
Robert Sechier
Gerald Sievers
Arthur Stoddart
Michael Stoline
Jay Treiman
Walter Turner
Arthur White
Kung-Wei Yang

The Mathematics Department offers a wide variety of courses and programs in both theoretical and applied areas. There are four majors available: Applied, General, Secondary Teaching, and Statistics. Minors available include the General Minor, Applied Statistics Minor, Statistics, Secondary Teaching of Mathematics, and the Science and Mathematics Teaching Minor. These major and minor programs incorporate emphasis on computer methods, mathematical modeling, and problem solving.

The various mathematics majors all require two semesters of calculus as well as introductory computer science courses. Students may begin coursework in these areas while deciding on a branch of mathematics in which to specialize.

During the first year interested students should contact Dr. James Powell, associate chair, or Marjorie McCall, student advisor, to the chair, through the Mathematics Department, Phone (616) 383-6165 or write: Mathematics Department, Western Michigan University, Kalamazoo, MI 49008. All majors must contact a faculty advisor in mathematics during their second year of study. All minors except General Math minors must contact an advisor.

At most, one course with a grade below "C" can be applied toward a major or minor in Mathematics or Statistics.

Mathematics Major Options

Applied Mathematics Option
The Applied Mathematics Option is designed primarily for those students whose goal is to work with other scientists including computer scientists and with engineers, formulating and solving problems in both industry and government. There is a growing demand for qualified people to work as applied mathematicians in industry, business, and government. Students in this option also obtain a computer science minor.

MATH 122 ................................ 4
MATH 123 ................................ 4
MATH 230 ................................ 4
MATH 272 ................................ 4
MATH 274 ................................ 3
MATH 310 ................................ 3
MATH 364 ................................ 4
MATH 402 ................................ 3
MATH 445 ................................ 3
Two of MATH 330, 408, 490, 507, 510, 570, 572, 574 .................................... 6
Plus: Minor in Computer Science including MATH 506 (18 hrs.). Note: Students planning graduate study should also take MATH 314, and elect MATH 330 and 570.

General Mathematics Option
The General Mathematics Option is a flexible program that may be combined with minors in diverse areas such as physics in the natural sciences, economics in the social sciences, or even be used as a base for law school. This option also serves as excellent preparation for graduate study in mathematics. A student in this program should develop, in addition to a broad background in mathematics, an ability for communicating mathematics and for rigorous logical thinking.

MATH 122 ................................ 4
MATH 123 ................................ 4
MATH 230 ................................ 4
MATH 272 ................................ 4
MATH 314 ................................ 3
MATH 330 ................................ 4
MATH 440 or 445 ................................ 3
MATH 570 ................................ 3
Three of MATH 274, 362, 364, 402, 408, 490, 506, 510, 530, 572, 574, 580 (at least one at 400 level or above) .................................................. 9
Plus CS 111

Secondary Teaching Option
The Secondary Teaching Option, which combines theoretical mathematics with teaching techniques, is designed for students planning to teach in a junior or senior high school. With the current national focus on the improvement of mathematics and science education, this program offers a timely and attractive option.

MATH 122 ................................ 4
MATH 123 ................................ 4
MATH 230 ................................ 4
MATH 250 ................................ 3
MATH 314 ................................ 3
MATH 330 ................................ 4
MATH 340 ................................ 3
MATH 350 ................................ 2
MATH 364 ................................ 4
MATH 440 ................................ 3
MATH 550 ................................ 3
One of MATH 490, 506, 540, 570, 580 ................................ 3

Statistics Major
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. Statistics frequently work in government and industry as part of a team of specialists, in areas such as business, biology, pharmacology, demography, economics, and the health sciences. Shortages of qualified statisticians are anticipated through the next decade.

MATH 122. 4
MATH 123. 4
MATH 230. 4
MATH 272. 4
MATH 314. 3
MATH 362. 4
MATH 364. 4
MATH 391. 1
MATH 460. 3
MATH 567. 4
Two of MATH 563, 566, 568, 570. 6
Plus CS 111, and 201, and MATH 506 or CS 306, and MATH 508 (5-8 hrs.). A minor in Computer Science is recommended. Students planning graduate study in statistics should elect MATH 570.

Mathematics Minor Options

General Mathematics Minor Option

Students interested in the General Mathematics Minor Option may plan their program using the information below. An advisor's approval is not necessary unless a change in the requirements is requested.

MATH 122. 4
MATH 123. 4
MATH 230 or 374. 4
Computer Science courses: One of CS 105, 106, 110, 306. 1-3 Electives

Two of the following: MATH 272, 274 (not if 374 is elected), 310 or 314, 330, 340, 360 or 362 or 364, 402, 408, 440 or 445, 506, 507. Substitutions or exceptions require approval of departmental advisor. Some electives have other prerequisites.

Secondary Teaching Minor Option

MATH 122. 4
MATH 123. 4
MATH 250. 4
MATH 314. 3
MATH 350. 2
Approved electives (MATH 330 or 340). 3-4

Statistics Minor Option

MATH 260, 364 or 366. 4
MATH 362. 3
MATH 364 of 568. 4-3
CS 306. 2
Approved Elective. 3-4
The elective would normally be selected from the follow: MATH 563, 566, 567 and 568. An approved introductory course in statistics may be substituted for either 260, 364 or 366.

Applied Statistics Minor Option

CS 306. 2

Middle School and Junior High School Teaching Option

Students in a Middle School and Junior High School curriculum must contact a mathematics adviser for information on available mathematics programs.

Science and Mathematics Teaching Minor

The Department of Mathematics participates in the Science and Mathematics Teaching Minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Honors in Mathematics

Qualified students may plan a program to graduate with honors in mathematics or statistics. The requirements are:

1. Grade point average of at least 3.7 in mathematics and statistics courses.
2. Overall grade point average of at least 3.25.
3. Completion of two of the following:
   - an honors seminar (can be the Putnam Seminar)
   - an upper-level theoretical course
   - an approved independent study project leading to a paper or presentation.

Interested students should see the associate chair in their junior year or early in their senior year to plan an "honors program."

Putnam Seminar

The Putnam Seminar is a problem solving seminar offered under the course number MATH 390. Under the direction of a faculty member students practice techniques for solving very challenging problems. Students in the seminar participate in the William Lowell Putnam national intercollegiate mathematics competition.

Course Descriptions

Students who fail to earn a "C" or better in a prerequisite course will not be permitted to enroll in the next sequence course.

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

101 Trigonometry

2 hrs.
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 trigon functions. Students cannot receive full credit for both MATH 101 and 118. Prerequisite: Three years of college preparatory mathematics and satisfactory score on placement test, or MATH 111.

109 Computational Skills

2 hrs.
A mastery-based remedial course designed to sharpen computational skills involving whole numbers, fractions, decimals, percents, signed numbers and simple geometric figures. These skills are used in solving word problems. All entering students must take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation.

110 Algebra I

3 hrs.
A course in algebra at the level usually covered in high school. Review and practice with basic algebraic skills. Topics include arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, and systems of linear equations. This is a continuous program, 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.

111 Algebra II

3 hrs.
A continuation of MATH 110. Topics include polynomials, fractional and radical equations, logarithmic and exponential functions, complex numbers, quadratic equations, and systems of quadratic equations. Credit for MATH 111 will not be granted to anyone having already received credit with a grade of "C" or better in any of MATH 101, 118, 122, 200 or equivalent transferable courses. Prerequisite: MATH 110, or 1 year of high school algebra and satisfactory score on placement test.

116 Finite Mathematics with Applications

3 hrs.
This course is designed to give the student a background in the elements of finite mathematics. Included will be a discussion of sets, relations and functions; systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables and distribution functions, applications of linear algebra and probability. Prerequisite: MATH 110, or 2 years of college preparatory mathematics and satisfactory score on placement test.

118 Precalculus Mathematics

4 hrs.
This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometry and trigonometric functions. Prerequisite: MATH 111, or at least 3 years of college preparatory mathematics and satisfactory score on placement test.

122 Calculus I

4 hrs.
The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, trigonometric, logarithmic and exponential functions. Prerequisite: MATH 118, or at least 3 1/2 years of college preparatory mathematics.
including trigonometry and satisfactory score on placement test. Students cannot receive full credit for MATH 122 and 200.

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.

150 Structure of Arithmetic
4 hrs.
This course is designed to provide the elementary teacher with a minimum foundation in the structure of arithmetic. Included will be a discussion of sets, relations, and properties of natural numbers, 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 requirement of a program leading towards elementary teacher certification. Prerequisite: MATH 110 or adequate performance on placement test.

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.

190 Survey of Mathematical Ideas
4 hrs.
A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability theory, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics.

200 Analysis and Applications
4 hrs.
Topics include: sets, functions, rates, limits, differentiation, integration, applications. The course should not be elected by those students taking courses in the Mathematics 122-123 sequence. Prerequisite: MATH 111, or 1½ years high school algebra and 1 year high school geometry and satisfactory score on placement test. Students will not receive full credit for MATH 200 and 122 or 123.

230 Elementary Linear Algebra
4 hrs.
Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in $R^2$ and $R^3$, generalizations to the vector spaces $R^n$, inner products, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

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: Satisfactory completion of the University Computer Literacy Requirement and MATH 123.

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 260, 360, 364, 366. Prerequisite: MATH 120 or 122.

265 Probability and Statistics for Elementary Teachers
4 hrs.
The topics in this course will include the organization of statistical data into graphs and tables, descriptive statistical measures, probability and decision making, testing hypotheses, and correlation. Students will learn the rudiments of 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.

272 Vector and Multivariate Calculus
4 hrs.
Vector calculus, functions of several variables, partial differentiation, multiple integration. Prerequisite: MATH 123.

274 Introduction to Differential Equation
3 hrs.
Techniques of solving differential equations. Prerequisite: MATH 123.

310 Discrete Mathematical Structures
3 hrs.
Sets, functions, relations, graphs, digraphs, trees, 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. MATH 310 and 314 may not both be used for the same major or minor. Prerequisites: MATH 230 or 374, and an introductory programming course.

314 Mathematical Proofs
3 hrs.
The prime objective of this course is to involve the students in the writing and presenting of mathematical proofs. The topics in this course will include logic, types of proof, sets, functions, relations, mathematical induction, proofs in an algebraic setting such as divisibility properties of the integers, proofs in an analytic setting such as limits and continuity of functions of one variable. Additional topics may include elementary cardinal number theory, paradoxes and simple geometric axiom systems. MATH 314 and 310 may not both be used for the same major or minor. Prerequisite: MATH 123, and 230 or 374.

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.

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.

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.

360 Probability and Statistics for Engineers
4 hrs.
The purpose of this course is to provide the engineering student with an adequate background in probability and a brief introduction to the methods of statistical inference. Topics include: discrete probability spaces, conditional probability, discrete and continuous random variables, joint distributions, population moments, special distributions, sampling distribution, interval estimation, hypothesis testing. Students can receive credit for only one of MATH 260, 360, 364, 366. Prerequisite: MATH 272.

362 Probability
4 hrs.
Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint distributions, special distributions. Prerequisite: MATH 123.

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 260, 360, 364, 366. Prerequisite: MATH 123.

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 260, 360, 364, 366.

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.

390 Undergraduate Seminar
1 hr.
This seminar features student participation covering mathematical topics not normally
An introduction to the methods of
Case studies considered will involve many
areas of application and several different
and may allowprediction of future events.
The major aim of this course is to teach the formulation of
mathematical models. The major aim of mathematical modeling 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.

Linear inequalities, convex geometry, optimization in linear systems, zero-sum games. Applications. Prerequisites: MATH 230 or 374.

Elements of Graph Theory, including the study of Eulerian graphs, Hamiltonian graphs, planar graphs, trees, digraphs, and the applications of graphs as models. Examples of other discrete models and case studies will be used as a tool in learning some of these problems. Prerequisite: MATH 272, 374 or (230 and 274), and a computer programming course.

Linear Programming 3 hrs.

An introduction to the basic techniques of combinatorial problem solving. An emphasis will be placed on the analysis of problems and general combinatorial reasoning. The course will consist of two parts, enumeration and graph theory. Students can receive credit for only one of MATH 440, 445. Prerequisites: MATH 310 or 314, or consent of instructor.

An introduction to the basic techniques of combinatorial problem solving. An emphasis will be placed on the analysis of problems and general combinatorial reasoning. The course will consist of two parts, enumeration and graph theory. Students can receive credit for only one of MATH 440, 445. Prerequisites: MATH 310 or 314, or consent of instructor.

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

An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling's T-square methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, cluster analysis, and factor analysis. Emphasis will be on graphical methods and applications. Prerequisites: an introductory course in statistics and a course in linear algebra.

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.

This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Prerequisite: An introductory statistics course and consent of instructor.
564 Introduction to Statistical Computing
2 hrs.
An introduction to the use of statistical computer software. The emphasis will be on how to use existing software effectively. Statistical packages discussed will include MINITAB, SAS, SPSS, and BMDO. 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.

566 Nonparametric Statistical Methods
3 hrs.
This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course.

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.

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.

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).

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.

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).

580 Number Theory
3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

595 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.

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 (PHIL)
Michael Pritchard, Chair
John Dilworth
Joseph Elin
Arthur Fark
Richard Pulaski
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 advisors 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, normally $50, 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 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.

Philosophy Minor

A minor consists of at least 16 hours in philosophy. Minors may choose any courses they find suitable. Students interested in philosophy should 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 201, 303, 310, 311, 313, 314, 534
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.

Students Not Majoring or Minoring in Philosophy

Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to the 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 development.

In recognition of this, the department offers a wide range of courses for non-major/minors. Students interested in a general introduction to philosophy should consider PHIL 100 or 200; students interested in a philosophical approach to a more specialized area should consider 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 identically numbered course previously completed.

Course Descriptions

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

Introductory Courses

100 Critical Thinking and Writing

4 hrs.

An introductory seminar for students who wish to improve their ability to think analytically, argue logically, and express a train of thought carefully, cogently 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.

200 Introduction to Philosophy

4 hrs.

An introductory course to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, what is the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define the questions and to present typical answers.

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? This course considers the nature of law and the goals, policies and limitations of a legal system. The connections between law and justice, law and freedom, and law and morality will be examined.

220 Elementary Logic

4 hrs.

A study of the rules and techniques of deductive reasoning and the sources of some common fallacies. Topics included are syllogisms and the logic of propositions.

300-Level Courses

Each semester detailed course descriptions are posted outside room 5011 Friedmann Hall prior to pre-registration. If you are in doubt whether you have adequate background for taking a course, talk with the instructor.

300 Ancient and Medieval Philosophy

4 hrs.

A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers such as Plato, Aristotle, Augustine, and Aquinas will be emphasized.

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.

303 Existentialist Philosophies

4 hrs.

A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Camus.

307 Phenomenology

4 hrs.

A systematic study of the origins and developments of the phenomenological movement. The writings of several major phenomenologists will be considered, e.g. Husserl, Heidegger, Merleau-Ponty, etc.

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.

311 Political Philosophy

4 hrs.

An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience; tolerance and dissent; the aims of political institutions; law and morality.

312 Philosophy of Art

4 hrs.

An analysis of the nature of art and aesthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music.

313 Philosophy of Law

4 hrs.

This course considers the nature of law and the goals, policies and limitations of a legal system. The connections between law and justice, law and freedom, and law and morality will be examined.

PHILOSOPHY 109
314 Philosophy and Public Affairs
4 hrs.
A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as racial and sexual equality, abortion, privacy, censorship, violence, and goals and methods of social change, as well as social movements such as Marxism, the women's movement, and various utopian ideals. Topics to be announced in the Schedule of Classes.

320 Introduction to Formal Logic
4 hrs.
The study of general methods of analyzing and validating deductive reasoning. Arguments expressed in everyday language are analyzed and translated into the symbolic notation of logic, and calculations are performed in this notation to check the validity of the arguments. The course may include a brief consideration of the application of logic to computers. Open to qualified first-year students.

324 Philosophy of the Sciences
4 hrs.
A critical examination of the concepts, methods, presuppositions and conclusions of the natural and social sciences.

325 Decision Theory
4 hrs.
Can there be a formal theory of what it is to be rational in one's beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. No prerequisite. A working knowledge of high school algebra is assumed.

332 Theory of Knowledge
4 hrs.
An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent attacks on soluble topics: skepticism and certainty, knowing and believing, perception, memory, "a priori" vs. "a posteriori" knowledge, self-knowledge, knowledge of others.

333 Metaphysics
4 hrs.
A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and particulars, identity, space and time, causation, mind and body, persons, free will.

334 Philosophical Problems of Psychology
4 hrs.
Problems in the philosophy of mind with emphasis on recent analysis and solutions. Among the possible topics are the definition of "mind" and its relation to "the body," "behavior," and "experience," teleological and mechanistic explanations of behavior, including behaviorism, and functionalism, machine-models of thinking, "thinking machines," robots, servomechanisms and the concept of a person; privacy of one's own mind and one's knowledge of other minds; consciousness of self and of world; free will and determinism.

Advanced Courses

470 Seminar in Philosophy—Variable Topics
2-4 hrs.
Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester's length.

498 Independent Study
2-4 hrs.
Independent study is for those students who have attained a degree of competence in philosophy and wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course. Prerequisite: Permission of the instructor with whom the student wishes to work.

510 Professional Ethics
4 hrs.
A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of the professions, professional/client relationships, regulation of the professions, and codes of ethics.

520 Mathematical Logic
3 hrs.
This course covers the basic ideas in modern mathematical logic. First the fundamentals of the propositional and quantificational calculi (including the symbolism of English sentences) are discussed. Next comes a study of the basic features of formal languages and axiomatic theories with special emphasis on the notions of formal proofs in, and models for, such systems. Finally, the course includes an introduction to the metamathematics of formal theories through a study of such topics as consistency and completeness, the deduction theorem, recursive functions, the Godel and Church theorems, decidable vs. undecidable theories. Prerequisite: MATH 310 or MATH 314, or permission of instructor.

534 Moral and Philosophical Foundations of Health Care
4 hrs.
In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include the role of the health sciences, the interplay of fact and value in health care, compelling 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.

570 Philosophical Topics
1-4 hrs.
An examination of special philosophical topics. Topics to be listed in the Schedule of Classes.

598 Readings in Philosophy
2-4 hrs.
Research on some selected period or topic under supervision of a member of the Philosophy faculty. Approval of instructor involved must be secured in advance of registration.

Physics (PHYS)

Eugene Bernstein, Chair
David Carley
Dean Halderson
Gerald Hardie
Dean Kaul
Arthur McGurn
Larry Oppinger
Alvin Rosenthal
Robert Shamu
Michitoshi Soga
John Tanis
James Zietlow

The Department of Physics offers two programs of study leading to a major in physics. The physics major program in the arts and sciences curriculum (ASC) prepares students for graduate study or professional employment in physics, and the secondary education (SED) physics major program prepares students to teach physics at the high school level. A geophysics major program, sponsored jointly by the Geology and Physics Departments, is also available, enabling students to prepare for a career in an important area of applied physics. Any student contemplating majoring in physics should contact the Physics Department as early as possible. This is especially true for the transfer students from community colleges in regard to transfer credit and course of study. Students will want to contact the undergraduate adviser in the department regarding 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 preparing 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 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 chairman 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:

210 Mechanics and Heat 4
211 Electricity and Light 4
330 Thermodynamics and Kinetic Theory 3
342 Electronics 4
520 Analytical Mechanics 3
540 Electricity and Magnetism I 3
560 Quantum Mechanics 3
562 Atomic and Molecular Physics 3
563 Solid State Physics 3
564 Nuclear and Particle Physics 3
566 Advanced Laboratory 3

The courses required for the SED Physics major are:

210 Mechanics and Heat 4
211 Electricity and Light 4
330 Thermodynamics and Kinetic Theory 3
342 Electronics 4
520 Analytical Mechanics 3
540 Electricity and Magnetism I 3
560 Quantum Mechanics 3
562 Atomic and Molecular Physics 3
563 Solid State Physics 3
564 Nuclear and Particle Physics 3
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
- CHEM 101 or 102 4
- General Education 3-4
- Physical Education 1
- Elective 4

**Second Semester (16-17 hours)**
- MATH 123 4
- PHYS 210 4
- PHYS 105 4
- CHEM 120 4
- General Education 3-4
- Physical Education 1

**Third Semester (16-17 hours)**
- PHYS 344 Microprocessor Electronics 4
- General Education 3-4
- Physical Education 1

**Fourth Semester (15-16 hours)**
- PHYS 211 4
- General Education 3-4
- Elective 4

**Fifth Semester (15-16 hours)**
- PHYS 212 4
- General Education 4
- ED 250 4

**Sixth Semester (15-16 hours)**
- MATH 272 4
- PHYS 210 4
- Elective 3-4

**Seventh Semester (15 hours)**
- MATH 274 or 374 3
- PHYS 342 4
- General Education 4
- Elective 3

**Eighth Semester (14 hours)**
- CS 306 2
- Elective 3
- ED 450 Directed 4
d - ED 470 Teaching 4

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### Geophysics Major

The required courses for a geophysics major are:
- PHYS 210 4
- PHYS 211 4
- PHYS 212 4
- PHYS 342 or 344 4

**One of the following three:**
- PHYS 330 3
- PHYS 352 4
- PHYS 540 4

**Plus the following:**
- GEOL 130 4
- GEOL 131 4
- GEOL 301 3
- GEOL 430 4
- GEOL 560 3
- MATH 101 or 102 4
- MATH 122 4
- MATH 123 4
- MATH 272 4
- MATH 374 3
- CS 306 2
- MATH/CS 506 3

In addition, a student is required to take three electives from upper-level geology, physics, and engineering courses to be chosen with the consent of the adviser. A field course in geology (6-8 hrs.) is strongly recommended.

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### ASC Physics Minor

The courses required for the ASC physics minor are:
- PHYS 210 Mechanics and Heat 4
- PHYS 211 Electricity and Light 4
- PHYS 212 Introductory Modern Physics 4

In addition, three physics courses numbered above 300 are required.

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### Secondary Education Physics Minor

The courses required for the SED physics minor are:
- PHYS 210 Mechanics and Heat 4
- PHYS 211 Electricity and Light 4
- PHYS 212 Introductory Modern Physics 4
- PHYS 342 or 344 4

With consent of the department, PHYS 110 and 111 may be substituted for 210 and 211 in the ASC and SED 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.

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### Course Descriptions

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

**101 Principles of Photography**

2 hrs. This course is designed for students who want a basic course that explains the principles of photography, demonstrates techniques for amateurs, and familiarizes the student with available cameras and camera equipment. Topics covered include the nature of light, optics, color, cameras, film and paper exposure, the latent image, development, lighting, and composition. Demonstrations in class include developing film, black and white enlarging, toning, printing color negatives and slides, and basic portraiture. No darkroom facilities are available for students registering for the course. This course may not be applied toward either a major or minor in physics.

**102 Physics and the Environment**

3 hrs. Fall, Winter. The objective of this course is to provide the student with an understanding of some of the physical principles which underlie selected environmental problems. Topics covered include the physical aspects of air pollution, the energy problem, and radioactivity. The course consists of three lectures per week. No previous training in physics is required. This course may not be applied toward either a major or minor in physics.

**104 Introductory Astronomy**

3 hrs. Fall, Winter. The aim of the course is to present the development of knowledge about the solar system, the stars, the galaxies, and the origin and evolution of the universe. Emphasis will be placed on the methods and tools of the astronomer, on the major principles and their applications, and on the challenging problems of the space age. Mathematics will be restricted to 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
majors in the physical sciences or mathematics are advised to take PHYS 105.

105 General Astronomy 4 hrs. Fall
The aim of the course is to present the development of knowledge about the solar system, the stars, the galaxies and the origin and evolution of the universe. Emphasis will be placed on the methods and tools of the astronomer, on the major principles and their applications and on the challenging problems of the space age. Algebra and trigonometry are required to do the laboratory experiments. Three lecture-recitations and two hours of evening observation and laboratory per week are required. While PHYS 105 and PHYS 104 have common lecture sections, the students in PHYS 105 may expect additional assignments. Recommended for majors and minors in mathematics and/or a physical science. A student may not receive credit for both 104 and 105.

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.

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 credit for PHYS 110-111 for transfer credit.

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.

130 Social Issues and Physical Science (see General Studies)

210 Mechanics and Heat 4 hrs. Fall, Winter, and Spring
This first course of a sequence in general college physics employing calculus deals with mechanics and heat. It is required of physics majors, engineering students, and future physics teachers, and strongly recommended for majors in other sciences. 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 110 and 210.

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 211 and 212.

212 Introductory Modern Physics 4 hrs. Fall, Winter
This course, with 210 and 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. Students may not receive credit for both 120 and 212.

214 Mechanics and Heat Problems 1 hr. Winter
This course is intended for those who have had 110 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 and the mathematical rigor required in PHYS 210. This course plus PHYS 110 is equivalent to PHYS 210. Prerequisites: 110 General Physics I or equivalent, MATH 123 concurrently, or consent of instructor.

215 Electricity and Light Problems 1 hr. Winter
This course is intended for those who have had 111 General Physics II, or its equivalent at another school, and who need to show credit in 211 Electricity and Light. The emphasis is on problem solving using calculus and the mathematical rigor required in PHYS 211. This course plus PHYS 111 is equivalent to PHYS 211. Prerequisites: 111 General Physics II or equivalent, MATH 123 concurrently, or consent of instructor.

308 Teaching of Physical Science 3 hrs. Winter
This course deals with problems of teaching high school chemistry, physics and physical science. The main emphasis is on effective methods of instruction. Practical methods of selection, maintenance, and construction of apparatus are also considered. Prerequisites: One year of college chemistry and one year of college physics. Does not carry credit towards physics major or minor but is a required course for those in secondary education.

312 Recent Developments in Physics 3 hrs.
This course is designed to acquaint the student with the new and exciting developments in selected areas of physics and Astrophysics. The course content will change from year to year to include the latest advances in High Energy Physics, Nuclear Physics, Astrophysics, Solid State Physics and Optics. The treatment is largely descriptive with minimal mathematics. Prerequisite: PHYS 212 or the consent of instructor.

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 derived. 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.

331 Quantum Mechanics I 3 hrs. Fall
This course is a continuation of 330 and is required for those who have had 111 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 and the mathematical rigor required in PHYS 211. This course plus PHYS 111 is equivalent to PHYS 211. Prerequisites: 111 General Physics II or equivalent, MATH 123 concurrently, or consent of instructor.

332 Quantum Mechanics II 3 hrs. Winter
This course is a continuation of 330 and is required for those who have had 111 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 and the mathematical rigor required in PHYS 211. This course plus PHYS 111 is equivalent to PHYS 211. Prerequisites: 111 General Physics II or equivalent, MATH 123 concurrently, or consent of instructor.

340 Biomedical Instrumentation 3 hrs. Winter
This course is an applied physics course designed for students majoring in biomedical sciences, especially medical technology. The major emphasis is placed on electronics and its applications in the biomedical sciences. Two lectures and a two-hour lab per week. Prerequisite: PHYS 106 or equivalent.

341 Nuclear Physics 3 hrs.
This course deals with the more important transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one three-hour laboratory per week. Prerequisite: PHYS 211.

342 Atomic and Molecular Physics 3 hrs. Winter
This course continues the study of the applications of quantum mechanics. Topics include the helium atom, multi-electron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the atomic molecule, and molecular physics. Prerequisite: PHYS 560 or consent of the instructor.
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 or consent of the instructor.

564 Nuclear and Particle Physics
3 hrs. Winter
This course covers such topics as properties and classification techniques used in particle nuclear models, fundamental interactions, physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Prerequisite: PHYS 560 or consent of the instructor.

566 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. (560 may be elected concurrently with 566.)

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).

599 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 (PSCI)

Political Science

Ernest E. Rossi, Chair
John T. Bernhard
Ralph C. Chandler
Samuel I. Clark
Kenneth A. Dahlberg
I. Atilla Dicle
Richard A. Enslen
Susan B. Hannah
David G. Houghton
Alan C. Isaac
David L. Jickling
Robert W. Kaufman
C. I. Eugene Kim
Peter Kobrak
Richard L. McNamara
James E. Nadorly
Roy Otton
Claude S. Phillips, Jr.
Jack C. Piano
Peter G. Renstrom
William A. Ritchie
Heileman 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 civics; (3) become a governmental employee or officer; (4) understand the part government plays in everyday business or other activities; (5) develop sound methods of investigation and reflection as well as the ability to evaluate political information critically; (6) understand the role that individuals and organized groups can play in the political process; and (7) appreciate the relationship of the study of government and public affairs to other social sciences. Students who wish to major 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 an American political institutions and public policy concentration; (4) a minor in political science with an American political institutions and public policy concentration; and (5) a major and minor in public administration.

Major and Minor in Political Science

The major consists of a minimum of 30 semester hours of work in the department. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A minor shall take a minimum of one course in two of the following fields:
- American Political System
- International Relations
- Foreign and Comparative Political Systems
- Political Theory and Methodology

Requirements may be waived with the written permission of the chairperson of the department.

Students planning to use this major to meet teacher certification requirements are required to take SSCI 330 Teaching of Social Study in the Secondary Schools (For questions see Prof. Wm. Fox, 1420 Sangren Hall or 2005 Friedmann Hall).

American Political Institutions and 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 American Political Institutions and Public Policy is aimed at preparing students for careers in government service at national, state, and local levels, in politics, and in teaching in the American government field. A public policy focus is found in each of the courses required for the Major and Minor in this field.

Students interested in a Major or Minor in Political Science with a Concentration in American Political Institutions and Public Policy should see one of the Department's advisers.

To complete the Major or the Minor, a student must complete the following:

**Major (31 hrs.)**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>PSCI 200</td>
<td>National Government</td>
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<tr>
<td>PSCI 210</td>
<td>Citizen Politics</td>
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<td>PSCI 250</td>
<td>International Relations</td>
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<td>PSCI 314</td>
<td>The Presidency</td>
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<td>PSCI 315</td>
<td>The Politics of Congress</td>
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<td>PSCI 320</td>
<td>The American Judicial Process</td>
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<tr>
<td>PSCI 34-</td>
<td>One Course in Foreign and Comparative Systems (340, 341, 342, 343, or 344)</td>
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<tr>
<td>PSCI 506</td>
<td>Problems of American Government: National Public Policy</td>
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**Minor (20 hrs.)**

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<tr>
<td>PSCI 506</td>
<td>Problems of American Government: National Public Policy</td>
</tr>
</tbody>
</table>

*This course, PSCI 506, will serve as the capstone for both the Major and Minor programs. Each student is expected to prepare a research paper, present the paper to the class, and engage in critiques of other student papers.*
Public Law Concentration

This concentration is available within the Political Science Major for students with particular career and/or advanced degree interests in this field. The concentration allows students completing the program to receive designation of this specialization on their Permanent Record Card.

Public Law is concerned with judicial and quasi-judicial institutions at the international, national, state, and local levels. The concentration is primarily, though not exclusively, designed for students with career interests in the field of law. Students interested in the concentration should see the Public Law Adviser of the Political Science Department, Dr. Peter Renstrom—3029 Friedmann Hall (383-0483).

To complete the concentration within political science, a student must:

A. Complete the required core for the Major (14 hrs.):
   - PSCI 200 National Government
   - PSCI 250 International Relations
   - PSCI 34 Comparative Politics (to be chosen from 340, 341, 342, 343, or 344)
   - PSCI 555 International Law

B. Complete PSCI 320 American Judicial Process (4 hrs.)

C. Complete THREE of the following courses (9 hrs.) from the remaining courses in Political Science Department to produce a minimum of 30 hours of political science courses. The chosen courses may include one of the courses selected in C above.

D. Complete at least one additional course (minimum of 3 hrs.) from the remaining courses in Political Science Department to produce a minimum of 30 hours of political science courses. The chosen courses may include one of the courses selected in C above.

E. Complete THREE of the following courses (9-10 hrs.):
   - PSCI 325 Criminal Justice Policy
   - PSCI 326 Constitutional Law
   - PSCI 522 Civil Liberties and Civil Rights
   - PSCI 526 Administrative Law and Public Regulation

D. Complete at least one additional course (minimum of 3 hrs.) from the remaining courses in Political Science Department to produce a minimum of 30 hours of political science courses. The chosen courses may include one of the courses selected in C above.

E. Complete THREE of the following courses (9-10 hrs.):
   - PSCI 325 Criminal Justice Policy
   - PSCI 326 Constitutional Law
   - PSCI 522 Civil Liberties and Civil Rights
   - PSCI 526 Administrative Law and Public Regulation

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 530 Problems in Pub. Admin.
   - PSCI 531 Admin. in Local and Regional Govts.
   - PSCI 533 Admin. in Local and Regional Govts.
   - PSCI 534 Administrative Theory
   - PSCI 536 Comparative Pub. Admin.
   - PSCI 540 Admin. in Develop. Countries

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, including all courses listed in section 1. and one course (3 hrs.) drawn from section 3. Many political science majors choose to minor in public administration.

The Department of Political Science also cooperates with the College of Business in offering a curriculum in public administration (PAB) designed for students planning careers in the private sector involving contact with governmental agencies and activities. The student takes a Bachelor of Business Administration with a business administration major plus the political science minor in public administration as described above. For further details, see Business Administration Related majors. For counseling see the general business adviser and the public administration coordinator.

Honors Program

The honors program in political science provides an opportunity for students to earn the bachelor's degree with honors in political science. To be eligible, a student must have sophomore standing, a better than “B” average, and a willingness to do original and independent work. Students interested in the program should consult the departmental honors adviser, Dr. Alan C. Isak.

Institute of Government and Politics

The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is multidimensional. It is organized to serve the professional staff of the Department of Political Science in their varied fields of interest and specialization. It will assist in meeting the needs of the department's student body by expanding their educational experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.

For further information, see Dr. Lawrence Ziring, Director, Institute of Government and Politics, Friedmann Hall (383-0491).

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
- 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.
- 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
Course Descriptions

(Course descriptions in italics are approved for General Education.)

100 Introduction to Political Science
3 hrs.
An introduction to those concepts useful for an understanding of politics. These concepts and their interrelationships will be examined in the context of contemporary political systems.

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.

202 State and Local Government
4 hrs.
A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and local government to the total framework of government in the United States.

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.

250 International Relations
4 hrs.
A study of the nature of the international community and the forces which produce cooperation and conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.

270 Political Topics
1 hr.
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. Not approved for major or minor credit.

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.

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.

310 Political Parties and Elections
3 hrs.
A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.

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.

315 The Politics of Congress
3 hrs.
Examines the internal arrangements and the outside forces that impact upon the operations of the U.S. Congress. Emphasis is placed on explaining why Congress behaves as it does.

320 The American Judicial Process
4 hrs.
An introduction to the politics of the American judicial process. The course will examine the judicial function generally with particular attention on the decisional processes, process participants, state and federal court structures, recruitment and selection of judges, bases of judicial behavior, policy making, and impact of judicial decisions.

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.

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.

340 West European Political Systems
4 hrs.
Considers the organization, political behavior and decision-making process of the major countries of West Europe, including Britain, France and Germany. Political trends and forces challenging and reshaping democratic institutions are examined.

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.

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.

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.

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.

350 American Foreign Policy
4 hrs.
An analysis of the institutions and processes by which the American people and their government determine and seek to achieve the national interest of the United States in the international community.

360 Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes
3 hrs.
A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Reformation and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the richly diverse sociocultural conditions of these periods. No prerequisite.

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 modern period: conservatism, liberalism and socialism. No prerequisite.

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 which have emerged in our own times. No prerequisites.

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. Emphasis is on the study of the contemporary United States and its interaction with the rest of the world. Special emphasis is placed upon the role of political institutions and processes in the political behavior of individuals and groups. Prerequisite: PSCI 200 or a course in Economics.

532 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.

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 review. Prerequisite: PSCI 200 or a course in Economics.

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.

531 Administration in Local and Regional Governments 3 hrs.
The administrative organization, structure, procedure and forms of local units of government are analyzed.

532 The Bureaucracy 3 hrs.
An analysis of the role of public bureaucracies in the decision process of government.

533 Public Personnel Administration 3 hrs.
This course emphasizes the development of public personnel patronage and merit systems, their structure, staffing effectiveness and current problems related to the staffing of public agencies.

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.

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.

536 Comparative Public Administration 3 hrs.
This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. Various theoretical models of administration and bureaucracy are compared with current practice in Western Europe, North America, the Soviet Union, and in contemporary Asian and African systems.

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.

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 to the role of the bureaucracy in the political system and the nature of, and obstacles to, administrative modernity.

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.

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. May be repeated.

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.

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.

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. May be repeated.

562 Modern Democratic Theory 3 hrs.
The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern elitists such as Mosca, Michels, Pareto and Ostrogorski. Second, an analysis of the attempts by contemporary politicians, political scientists, and social scientists to meet these criticisms by revising democratic theory.

563 Theories of Revolution 4 hrs.
Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.
564 Introduction to Political Analysis
3 hrs.
A consideration of the approaches and methods used by contemporary political scientists with an emphasis on the application of scientific method to the study of politics. Included are applications of leading models of politics and the formulation of concepts, generalizations and theories.

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.

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.

591 Statistics for Political Scientists
3 hrs.
An introduction to statistical reasoning with particular reference to research on political institutions and behavior. This course will emphasize bivariate statistics, but will include a brief introduction to multivariate analysis. No mathematical prerequisite is required.

598 Studies in Political Science
1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Approved application required.

Psychology (PSY)

David O. Lyon, Chair
Galyn J. Alessi
Eston J. Asher
Dale M. Brethower
Howard E. Farris
R. Wayne Fuqua
Frederick P. Gault
Bradley E. Hultema
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The Department of Psychology offers a variety of courses and programs in both the experimental and applied analysis of behavior. The programs are designed for the student who plans to pursue graduate study and for the student who plans to terminate his/her education with the baccalaureate degree.

The sequencing of courses within the various programs is extremely important. Consequently, students should consult with a Psychology Department adviser as early as possible in their course work.

Psychology credit transferred from community colleges and other accredited institutions will count toward the partial fulfillment of the requirements for a major or minor in psychology. Transfer students must consult with a Department adviser before enrolling in psychology courses, so that they might begin their studies at a point within the course sequence that is most appropriate to their previous training. Psychology students unable to sequence properly the required courses in their schedule option, should obtain permission from a department adviser to enroll concurrently in two or more of the courses.

Office 255 Wood Hall
Phone 383-1830

Major Options

A student majoring in psychology has three options: (a) the experimental analysis of behavior option, (b) the human services option, and (c) the secondary school teaching option. The requirements for each of these options are summarized below.

Human Services Option

36 hrs.

PSY 151 Introduction to Behavior Analysis 3
PSY 160 Child Psychology 3
PSY 250 Abnormal and Social Psychology 3
PSY 300 Statistics for the Behavioral Sciences 3
PSY 330 Methodology of Applied Behavior Analysis 3
PSY 460 Survey of Applied Behavior Analysis Research 3
Select from one of the following combinations:

PSY 267 Supervised Practicum in Child Psychology 3

Experimental Analysis of Behavior Option

35 hrs.

PSY 151 Introduction to Behavior Analysis 3
PSY 155 Introduction to Behavior Analysis 3
PSY 160 Child Psychology 3
PSY 250 Abnormal and Social Psychology 3
PSY 255 Experimental Analysis of Behavior I 3
PSY 258 Laboratory in Experimental Analysis of Behavior I 2
PSY 262 Experimental Analysis of Behavior II 3
PSY 268 Laboratory in Experimental Analysis of Behavior II 2
PSY 327 Physiological Psychology 3
PSY 378 Laboratory in Physiological Psychology 2
PSY 380 Statistics for the Behavioral Sciences 3
PSY 464 Systems and Theories in Psychology 3
or
PSY 595 History of Psychology 3

Approved electives 344, 350, 357, 374, 384, 387, 464, 595

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, sociology, social work and, others approved by department adviser.

Secondary School Teaching Option

Students who plan to obtain a secondary school teaching certificate may elect to complete the required courses in either the experimental analysis of behavior option or the human services option. They must also complete PSY 517. These students are urged to complete teachable minors in one of the sciences or mathematics although other teachable minors may be approved by department adviser.

Minor Options

A student who elects to minor in psychology has three options: (a) the experimental
analysis of behavior option, (b) the general psychology option and (c) the secondary school teaching option. The requirements for each of these options are summarized in the tables below.

### General Psychology Option

<table>
<thead>
<tr>
<th>Hours</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 hrs.</td>
<td>PSY 151</td>
<td>Introduction to Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>PSY 150</td>
<td>Introduction to Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSY 160</td>
<td>Child Psychology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSY 250</td>
<td>Abnormal and Social Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Approved electives 344, 350, 367, 372, 374, 384, 387, 464, 596

### Experimental Analysis of Behavior Option

<table>
<thead>
<tr>
<th>20 hrs.</th>
<th>PSY 151</th>
<th>Introduction to Behavior Analysis</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PSY 158</td>
<td>Introductory Laboratory I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSY 252</td>
<td>Experimental Analysis of Behavior I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSY 258</td>
<td>Laboratory in Experimental Analysis of Behavior I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSY 362</td>
<td>Experimental Analysis of Behavior II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>PSY 368</td>
<td>Laboratory in Experimental Analysis of Behavior II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSY 372</td>
<td>Physiological Psychology</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>PSY 378</td>
<td>Laboratory in Physiological Psychology</td>
<td>2</td>
</tr>
</tbody>
</table>

### Secondary School Teaching Option

Students who plan to obtain a secondary school teaching certificate with psychology as a teachable minor may elect to complete either the experimental analysis of behavior minor option or the general psychology minor option. They must also complete 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).

### Course Descriptions

(Course described in italics is approved for General Education.)

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PSY 150</td>
<td>Introduction to Human Behavior</td>
</tr>
<tr>
<td></td>
<td>An introduction to general psychology from the point of view of humanistic behaviors. 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.</td>
</tr>
<tr>
<td>PSY 151</td>
<td>Introduction to Applied Behavior Analysis</td>
</tr>
<tr>
<td></td>
<td>An introduction to the principles of behavior illustrated by examples of solutions to human problems. Applications are made to such areas as education, business, marriage, child rearing, and mental health.</td>
</tr>
<tr>
<td>PSY 158</td>
<td>Introductory Laboratory I</td>
</tr>
<tr>
<td></td>
<td>A companion laboratory to PSY 151, emphasizing the variations in the principles of behavior analysis and description, as well as professional writing. Prerequisite: PSY 150 or permission of instructor. Prior or concurrent enrollment in ENGL 305 is required. Concurrent enrollment in PSY 252 is encouraged.</td>
</tr>
<tr>
<td>PSY 250</td>
<td>Abnormal and Social Psychology</td>
</tr>
<tr>
<td></td>
<td>Emphasis is placed on theoretical and applied problems. Emphasis is placed on theoretical and applied problems. Applications are made to such areas as education, business, marriage, child rearing, and mental health.</td>
</tr>
<tr>
<td>PSY 258</td>
<td>Laboratory in Experimental Analysis of Behavior I</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>PSY 259</td>
<td>Laboratory in Experimental Analysis of Behavior II</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>PSY 267</td>
<td>General Psychology</td>
</tr>
<tr>
<td></td>
<td>An eclectic approach to a social and behavioral survey of major topics in psychology including learning, motivation, emotion, intelligence, personality, mental illness and social relations. Does not count for a major or minor in psychology. Approved for General Education.</td>
</tr>
<tr>
<td>PSY 270</td>
<td>Abnormal and Social Psychology</td>
</tr>
<tr>
<td></td>
<td>An introduction to the description, classification and interpretation of human behavior labeled by society as &quot;abnormal&quot; with an emphasis upon the social variables and environmental conditions related to the acquisition and persistence of such behavior.</td>
</tr>
<tr>
<td>PSY 280</td>
<td>Experimental Analysis of Behavior I</td>
</tr>
<tr>
<td></td>
<td>An intermediate level coverage of the basic areas of respondent and operant behavior. Emphasis is placed on theoretical interpretation of data, experimental methodology and response measurement. Prerequisite: PSY 151 or permission of instructor. Prior or concurrent enrollment in ENGL 305 is required. Concurrent enrollment in PSY 258 is encouraged.</td>
</tr>
<tr>
<td>PSY 281</td>
<td>Teaching Apprenticeship in Abnormal and Social Psychology</td>
</tr>
<tr>
<td></td>
<td>A laboratory course in the instructional methods of teaching abnormal psychology. May be repeated for credit, but does not fulfill major/minor requirements.</td>
</tr>
<tr>
<td>PSY 282</td>
<td>Laboratory in Experimental Analysis of Behavior I</td>
</tr>
<tr>
<td></td>
<td>An intermediate laboratory and companion to PSY 252 emphasizing the variations in response measurement and experimental methodology in various research areas within operant conditioning. Research design, data analysis and description, as well as professional writing are stressed. Prerequisite: PSY 151 and 158 or permission of instructor. Prior or concurrent enrollment in ENGL 305 is required. Concurrent enrollment in PSY 252 is encouraged.</td>
</tr>
<tr>
<td>PSY 283</td>
<td>Practicum in Child Psychology</td>
</tr>
<tr>
<td></td>
<td>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 150 or 151.</td>
</tr>
<tr>
<td>PSY 284</td>
<td>Research Practicum in Child Psychology</td>
</tr>
<tr>
<td></td>
<td>Supervised research experience at the Child Development Center which offers day care and an accelerated educational program. The course involves a variety of problems in early childhood learning, nutrition, health and safety which can be studied with pre-school children. The research topics are carefully selected to be beneficial to the children and to provide appropriate experience for the student. Data collection and report writing are stressed. Prerequisite: PSY 267. Prior or concurrent enrollment in ENGL 305 is required.</td>
</tr>
<tr>
<td>PSY 285</td>
<td>Statistics for the Behavioral Sciences</td>
</tr>
<tr>
<td></td>
<td>Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include: measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial hypothesis testing, the t-test, chi square and correlation.</td>
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<tr>
<td>PSY 286</td>
<td>Abnormal and Social Psychology</td>
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<tr>
<td></td>
<td>An introduction to the description, classification and interpretation of human behavior labeled by society as &quot;abnormal&quot; with an emphasis upon the social variables and environmental conditions related to the acquisition and persistence of such behavior.</td>
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</table>

### General Education

2. A University grade point average of 3.5, departmental honors program include:

### Experimental Analysis of Behavior Option

<table>
<thead>
<tr>
<th>20 hrs.</th>
<th>PSY 151</th>
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### Secondary School Teaching Option

Students who plan to obtain a secondary school teaching certificate with psychology as a teachable minor may elect to complete either the experimental analysis of behavior minor option or the general psychology minor option. They must also complete 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).
330 The Methodology of Applied 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.

344 Organizational Psychology 3 hrs. Fall
A survey of organizational, business and industrial psychology, including such topics as behavior within the organization, organizational climates and structures, personnel selection and placement, performance appraisal and training, social context of human work and psychological aspects of consumer behavior.

350 Behavior Modification and Radical Behaviorism 3 hrs.
An introduction to the principles of behavior modification as applied to a variety of societal and personal problem areas, with an emphasis upon the interpretation of psychological events with behavioral as well as mental references in terms of the philosophical position identified as radical behaviorism. Prerequisite: 9 hours of psychology.

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 multiply handicapped. Students serve as tutors in behavior change and training programs. Prerequisite: PSY 250.

359 Research Practicum with Special Populations 3 hrs. Fall, Winter
Supervised experience at the Croyden Avenue School which offers an educational program for the developmentally disabled and multiply handicapped. 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 357. Prior or concurrent enrollment in ENGL 305 is required.

362 Experimental Analysis of Behavior II 3 hrs. Fall
An advanced level coverage of respondent and operant behavior. This course is a continuation of PSY 252 with a research design emphasis upon the theoretical interpretation of data, experimental methodology and the techniques of response measurement. Prerequisite: PSY 252 or permission of instructor. Concurrent enrollment in PSY 366 is encouraged.

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.

368 Laboratory in Experimental Analysis II 2 hrs. Fall
An advanced laboratory and continuation of PSY 258 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 366 is encouraged. Prerequisites: PSY 252 and 258, or permission of instructor.

372 Physiological Psychology 3 hrs. Winter
An introduction to physiology and its relationship to behavior, including brain behavior interactions, behaviorally induced chemical changes and behavioral changes induced by chemical alterations. Lecture only. Prerequisite: PSY 252.

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.

378 Laboratory in Physiological Psychology 2 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 encouraged. Prerequisite: PSY 258, BIOL 101 or consent of instructor.

384 Behavior Analysis of Education 3 hrs. Fall
A lecture and laboratory course in behavioral assessment, classroom contingency management, behavioral objectives and other topics in educational psychology. Prerequisite: 6 hours of psychology.

385 Behavior Analysis in Education 2-4 hrs.
A practicum apprenticeship in direct instructional methods for remedial teaching in education. May be repeated for credit, but will not be counted toward major requirements.

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. This is a companion course to PSY 384. Prerequisite: 9 hours of psychology including PSY 384.

397 Seminar and Practicum in Psychology 1-5 hrs. Fall, Winter
Survey and discussion of selected topics in contemporary psychology. Associated practicum activities may include teaching and/or research apprenticeships as announced in the schedule of classes. May be repeated for credit up to 12 hours. Courses may include: Behavior Contracting Seminar in Self Control Seminar in Behavior Modification Prerequisite: Permission of instructor.

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.

480 Survey of Applied 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: 9 hours of psychology.

484 Systems and Theories in Psychology 3 hrs. Fall
A critical examination of the assumptions, methods and problems of the major schools of psychology: Structuralism, Functionism, Associationism, Behaviorism, Gestalt Psychology and Psychoanalysis. Prerequisite: 9 hours of psychology.

499 Honors Projects in Psychology 1-5 hrs.
Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program. Prerequisite: Permission of instructor.

Open to Advanced Undergraduate and Graduate Students

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. Recommended prerequisite: One course in psychology.

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.

513 Research in Animal Behavior I 3 hrs.
Research in various areas of animal behavior. An individual research project is required with emphasis on laboratory research of animal learning processes. Research design, data collection, analysis and reporting are included.

516 Conditioning and Learning 3 hrs.
A study of the various approaches to response measurement, experimental methodology and theoretical interpretations of data in the area of conditioning and learning. Lecture and laboratory.

517 Psychology of Learning for Teachers 3 hrs. Fall, Winter
Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas include the use of behavior principles in the development of...
objectives, selection and preparation of instructional material, classroom management and incentive motivation, behavior change, performance contracting and program evaluation. Practical application is stressed.

518 Research in Stimulus Control
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.

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.

523 Advanced Abnormal Psychology
3 hrs.
A comparative study of pathological behavior patterns in terms of the theoretical interpretation of the cause of these behaviors and the recommended treatment techniques. Designed for students in disciplines other than psychology.

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.

525 Behavior Analysis and Women
3 hrs.
This seminar considers the methods of inquiry and analysis representative of the common contemporary approaches to the study of sex differences. The class and written assignments emphasize a behavior analysis of the issues which feminists address as distinct from promoting feminism and consciousness raising.

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.

528 Generalization, Discrimination and Concept Formation in Humans
3 hrs.
Basic theoretical interpretations, methodological issues and data analysis in the stimulus control of behavior are reviewed and analyzed with an emphasis on the potential and actual applications to human behavior.

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.

535 Instrumentation in Psychology
3 hrs. Fall, Winter
A survey of problems of response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

540 Industrial Psychology
3 hrs. Winter
Application of psychological principles to industry and other organizations. An examination of employee selection, job satisfaction, training, evaluation of performance, supervision and working conditions.

542 Human Factors Engineering
3 hrs.
A survey of research of the adaptation of equipment, products and environment to human capacities. Prerequisite: Permission of instructor. Cross listed with IEGM 542.

560 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on in-patient treatment. Sample topics include bio-feedback, pain control, compliance with medical regimen and issues of work in a medical setting.

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 to health maintenance.

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.

572 Applied Behavior Analysis: A Systems Approach
3 hrs. Fall
The application of systems analysis concepts to the design of systems which yield behavioral measures of complex social situations.

574 Experimental Social Psychology
3 hrs.
Methodology of research with groups of animals and humans with emphasis upon design, application and ethical implications. Prerequisite: Permission of the instructor.

595 History of Psychology
3 hrs. Fall
The historical and philosophical foundations of contemporary American psychology.

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

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.

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.
Religion (REL)

E. Thomas Lawson, Chair
Guntram Bischoff
H. Byron Earhart
David Eide
Nancy Falk
Otto Grunder
Maynard Kaufman
Cornelius Loew
Rudolf Siebert

Religion courses are designed to give students (1) an understanding of the nature and role of religion in human societies, both past and present, both non-Western and Western, (2) a grasp of the various methods used by scholars to describe and explain religion, to assess achievements of these methods, and to develop new methods for increasing their knowledge of religious thought and practice, and (3) an opportunity for raising questions about the present and future significance of religious thought and practice.

Many courses in the department are approved for General Education, and students can extend their general education to include knowledge of religious thought and practice and to relate their knowledge of religion to their knowledge derived from other disciplines in the University.

The departmental major and 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 28 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 (Morphological Studies, Constructive Studies, Comparative Studies). Two of these courses should be at the 300 level.

A minor in religion consists of a minimum of 16 hours and includes REL 200 (Introduction to Religion). One course is recommended in the field of Historical Studies. The two remaining courses should be taken in two of the three remaining fields.

Teaching Minor in the Academic Study of Religions

A teaching minor leading to state certification in the Academic Study of Religions consists of a minimum of six courses, totaling 22 semester hours, and composed as follows:

1. REL 200 Introduction to Religion;
2. REL 304 African Religions;
3. One course in the Christian, Jewish or Islamic religions, within the category of Historical Studies;
4. One course in Comparative Studies;
5. One course in any religion other than those specified above under (2) and (3), within the category of Historical Studies, or one course in Methodological Studies;
6. REL 521 The Teaching of Religion in the Public School

NOTE: In exceptional cases REL 498, Independent Studies in Religion, or REL 598, Readings in Religion, may be substituted

within the stipulated category for any of the courses specified above except REL 200. Introduction to Religion.

Students wishing to obtain the teaching minor are urged to consult with the program adviser before composing their course program.

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
312 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
334 Religion in Modern Society
498 Independent Study
530 Comparative Studies in Religion
598 Readings in Religion

Course Descriptions

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

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 concieve of gods and world order, founders and saviors, religious experience and practice, and religious communities. The course will pay attention to the contemporary status and significance of these themes. Does not apply toward major or minor in Religion.

107 Writing About Religion
3 hrs.
This 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.

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.

302 Religion in the Indian Tradition
4 hrs.
This course draws its materials primarily from the great religious traditions native to India—i.e., Brahmanism, Buddhism, Jainism, and Hinduism. Particular attention is paid to the continuities of idol and practice that allow one to speak of “Indian Religion” as a unified phenomenon with a single history. Consideration is also given to such problems as the relationship between Indian religions and Indian culture and the relationship between Indian religious forms and the religious forms of other cultures.

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.

304 African Religions
4 hrs.
This course is designed to introduce the student to the complexity and variety 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, agriculturalists, nomadic herders. Finally an attempt is made to see what changes Westernization has made in the African appropriation of their traditional religious symbols.

305 The Christian Tradition
4 hrs.
An introduction to some of the salient features of the Christian experience as expressed in thought, practice and institutional structures. An effort to elucidate the all-pervasive influence Christianity has had on Western Culture, the course focuses on the 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.

306 The Jewish Tradition
4 hrs.
This course traces the history and development of Judaism from its roots in the Ancient Near East to the present, and its role
323 Religion and Revolution 4 hrs.
In this course, religion will be looked upon as a driving force of social and cultural evolution. The historical and contemporary record shows religion capable of exhibiting profound revolutionary tendencies as, for instance, in the Peasant War in 16th century Germany or in the present South American situation. The course will be concerned with religion’s capability to promote fundamental change. It will explore the following main issues: The religious and prophetic elements in Eastern, Mid-Eastern, and Western religious traditions; comparison of contemporary religious and secular political hopes and aspirations; the correlation of political exodus utopias and religious eschatologies; the mutual reproduction of religious theory and social and political practice.

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 does it longing it evokes for a sublime father figure?

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 ethics relate themselves to fundamental changes in contemporary marriage and family life as well as in the economic, political, and cultural sphere.

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.

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.

498 Independent Study 1-6 hrs.
Research on some selected problem under supervision of a member of the Religion faculty. Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

500 Historical Studies in Religion 2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism, Buddhism, Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology to 1500; Christian Science; and Mystical Dimensions of Islam.

510 Morphological and Phenomenological Studies in Religion 2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yoga; the Occult Tradition.

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; Critical Theory, Myth and Symbol in Religion and Literature.

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 an occasion for students to the regular religion major/minor program.)

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: Religion and the Images of Man, Christian Humanism; the Structure of Religion; the Future of Religion; Religion, Language and Structuralism.
Sociology (SOC)

David Chaplin, Chair
Lloyd Brathwaite
Milton J. Brawer
Susan Carrangia-MacDonald
Tristan Cothran
Paul C. Friday
Ronald C. Kramer
David M. Lewis
Richard R. MacDonald
Gerald Markle
Ellen Page-Robin
James C. Petersen
Stanley S. Robin
Martin H. Ross
Herbert L. Smith
Subhash R. Sonnad
Thomas L. Van Valey
Morton O. Wagenfield
Robert Wait
Lewis Walker
Paul Wienert

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 with an average of at least 3.25 in major courses, and satisfactory completion of an honors paper (including an oral exam on the paper). University recognition of graduation with honors appears on the diploma and transcript.

2. Membership in Alpha Kappa Delta, the national sociology honorary society. AKD is open to all students who have completed at least ten hours in sociology with a grade point average of 3.0 or better, and whose overall average is at least 3.0.

3. Leonard C. Kercher Fund Awards are made each year for outstanding student achievement. Dr. Kercher was head of the department from 1940 to 1972.

4. Membership in Alpha Phi Sigma, the national criminal justice honor society. Alpha Phi Sigma is open to all criminal justice students who have completed at least one third of the credit hours required for graduation with an overall grade point average of 3.0 or better, and whose criminal justice average is at least 3.2.

Further information and application forms may be obtained at the Sociology Undergraduate Office, 2407 Sangren Hall.

Advising
Department Adviser
2407 Sangren Hall, 383-1733. Students must consult the department adviser for major/minor slips in Sociology, Criminal Justice, and the Social Psychology Concentration and for the evaluation of transfer credits, or for any other questions involving majors or minors.

Undergraduate Assistantships

Students interested in becoming more involved in the department's activities and projects may wish to apply for undergraduate assistantships which are available fall and winter semesters. Department 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, and 382 are required. Two (6 hours) of the following are required, except for students in the social psychology concentration: SOC 210, 250, 314, 352, 353, 354, 362, 373, 375, 390, and 495. Nine hours of advanced (400-500 level) courses, including SOC 556 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 SOC 300 (Teaching of Social Studies in Secondary Schools) to meet the state certification requirement for a teaching methods course. This course may not be included in the hours required for a sociology major or minor. A major slip is required.

Sociology Minor

A minor in sociology consists of 18 hours for students in curricula other than education. Students qualifying for teacher certification are required to complete a minimum of 20 hours. SOC 200 and 210 are required in either case. The balance of the hours required may be selected by the student, with the following limitations: (1) A maximum
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, and 382 are required. Three (8 hours) of the following electives are required: SOC 512, 520, 521, 522, 524, 528, and 579. Students must take SOC 556 and 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, 210, 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.

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

100 American Society
3 hrs.
An analysis of contemporary American society, including continuity and change in value systems, major institutions and their interrelationships, and other aspects of social life.

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.)

171 Social Impacts of Science and Technology
3 hrs.
An analysis of social consequences of major scientific and technological changes, including the actual and potential impact of advances in the physical and natural sciences.

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, SOR/STAN, plus introducing students to microcomputers. This course meets the University's computer literacy requirement. Not for sociology or criminal justice major or minor credit.

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.

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.

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.

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.

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.

264 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 on the discretionary authority of officials who are engaged in the decision making roles required to process suspects from arrest to release.

300 Sociological Theory
3 hrs.
A study of major theoretical viewpoints in contemporary sociology. This course is oriented toward the understanding, application, and extension of these major perspectives. Required for sociology majors. Prerequisite: SOC 200.

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.

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.

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.
SOCIOLOGY 125

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 upon Japanese population, family life, village organization, urban community, class structure, and personality.

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 religions and the religious, social, political, and economic tensions that have ensued in intergroup relations.

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.

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.

354 Population and Society
3 hrs.
A sociological investigation into the dynamics and consequences of the world-population explosion, and U.S. population problems such as family planning, the baby boom, zero population growth, and ecological issues. Prerequisite: SOC 200 or consent of department.

362 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 210.

373 Sociology of Health and Illness
3 hrs.
Introduction to the concepts of health and illness in our society, ways of measuring disease, the impact of social class, race, region, and ethnicity on the perception and distribution of disease. Attention will also be paid to the social structure of the health care delivery system and of alternative systems of medical care. Prerequisite: SOC 200 or consent of department.

375 Sociology of Industrial Relations
3 hrs.
An introduction to the problems arising from industrial 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.

382 Methods of Sociological Inquiry
5 hrs.
An introduction to quantitative and qualitative methods of empirical research in sociology and the description of findings. Theory and techniques of research design are considered, including formulation of hypotheses, sampling, and the collection, analysis, and interpretation of data. Laboratory sessions provide special assistance. Required for sociology majors, who are urged to take this course following SOC 200 to develop ability to evaluate research findings in subsequent content courses. Prerequisite: SOC 200 and SOC 182 or Computer Literacy requirement.

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.

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 or consent of department.

462 Criminal Justice Process
3 hrs.
An analysis of substantive and procedural criminal law as it relates to each stage of the criminal justice process. The focus will be on the sociological and legal implications of discretion and court decisions from arrest to conviction and sentencing. Prerequisite: SOC 362 or consent of department.

464 Sociology of Law Enforcement
3 hrs.
A sociological analysis of the process of law enforcement as it involves local, state, and federal agencies. Includes analysis of the police “working personality,” social role, isolation from other social groups, vulnerability to corruption through politics and/or organized crime, and abuses of authority. The development and comparison of the police role will be traced from its roots in England to the present American position. Prerequisite: SOC 362.

465 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 presented with an emphasis on a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: Consent of department.

467 The Police and Community Dynamics
3 hrs.
Study of the role of the police in the community by looking at the public’s perceptions, knowledge, and expectations, and the police’s responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrol, politics of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

468 The Police and Crime Prevention
3 hrs.
This course provides an intensive examination of the important issue of crime prevention. Crime prevention is viewed within the larger political process and is related to the etiology of criminal behavior. The utility of general and specific prevention is discussed, looking at techniques and programs of both the police and community including target hardening and methods of decreasing the opportunity for victimization. The security business and various security techniques will also be analyzed.

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.

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.

497 Juvenile Court Intervention Internship
3 hrs.
Supervised field experience in the juvenile court. Students attend seminars at the court and on campus, and engage in interventions as determined by the court, including interviews with clients, law enforcement personnel, and school authorities. Students make home visits and correlative calls, prepare reports, and attend court. Prerequisite: SOC 564 or SWRK 569 or consent of department. Approved application required.

498 Field Experience
2-8 hrs.
Structured as part of a specific departmental program and identified as such in the printed schedule when offered. Opportunity is provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies. Prerequisite: Written permission of department/supervisor.

499 Honors Seminar
2-6 hrs.
Investigation of selected topics in seminar sessions by advanced undergraduate students. May be repeated for credit with a different topic.

501 Social Systems Theory and Analysis
3 hrs.
An investigation and critique of social systems theory, general systems analysis, and specific systems analysis techniques.
which have been used in social organizations. Each student will be required to conduct a systems analysis during the course. Prerequisite: SOC 200 or consent of department.

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 international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210, or consent of department.

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.

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 or consent of department.

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.

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 or consent of department.

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 alignments, 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 or consent of department.

523 Contemporary Social Movements
3 hrs.
A study of the origins, growth, and effects of contemporary movements in society. Selected social movements including communism, fascism, the radical left, the radical right, women’s liberation, etc., will be analyzed. Prerequisite: SOC 200 or equivalent.

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 or consent of department.

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 or equivalent.

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.

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 or graduate standing.

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 aging, the meaning of work and retirement, and the status roles of the aged. Prerequisite: 6 hours of sociology including SOC 200 or consent of department.

556 Social Stratification
3 hrs.
An analysis of the nature, causes, and consequences of class and status differences within societies. Stress is placed upon such concepts as mobility, class status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200 or consent of department.

564 Juvenile Delinquency and the Community
3 hrs.
A study of juvenile delinquency as a social problem. Explanations of 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.

566 Advanced Criminology
3 hrs.
Advanced Criminology 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 362.

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 forms of crime. Prerequisite: SOC 362.

570 Studies in Social Institutions: Variable Topics
1-4 hrs.
An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics could include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology of crime, and social institutions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or equivalent.

573 Sociology of Political Behavior
3 hrs.
Systematic sociological theory and research are applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: SOC 200 or consent of department.

574 Sociology of Religious Institutions
3 hrs.
A study of the social role of religious institutions and beliefs, with particular reference to the 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.

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.

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 or consent of department.

578 Sociology of Law
3 hrs.
An examination of legal organization, the legal profession, and legal norms in the United States and other western societies.
Emphasis will be placed upon the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or equivalent.

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 CAS 579.)

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.

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.

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.

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 or consent of department.

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, or consent of department.

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.
Chapter Title

The function of the professional College of Business is to prepare capable men and women for responsible positions in business, industry, and public service. Three major areas of education are involved in the development process. They are:

1. A foundation of liberal arts and sciences in full recognition that as a future leader in the business and industrial world, the student will need a solid understanding of his/her relationships to social, economic, political, and cultural trends.

2. The presentation of a core curriculum that contemplates a thorough grounding in the fundamentals through which our free enterprise economic system operates. These fundamentals are met through business core subjects such as accounting, statistics, law, finance, marketing, management, and communications.

3. An opportunity for specialization in various aspects of business activity.

Continuing opportunities are made available to resident students to participate in campus meetings with business, industrial, and public service leaders, as well as outstanding professionals from various disciplines. In addition, business firm visitations, as well as business internships, give ample opportunity for the student to relate to his/her future role. Western's Placement Office is visited by the major firms that are engaged in recruiting activities.

The four main programs in the College of Business are:

1. Business Administration—Bachelor of Business Administration Degree

2. Master of Business Administration for graduate students with Liberal Arts, Engineering, Business or other undergraduate preparation.

3. Master of Science in Accountancy for students desiring intensive preparation for professional accounting career.

4. Master of Science in Business for students desiring intensive preparation for professional careers in Business.

Business Research and Service Institute

The Business Research and Service Institute (BRSI), which is housed in the John E. Fetzer Business Development Center, provides a communicative link between the College of Business and a "community" comprised of business, government and non-profit agencies. Utilizing the expertise of highly qualified faculty in seven major disciplines (accounting, business communication, computer information systems, finance, law, management and marketing), the institute designs and conducts management development programs, workshops, and specialized seminars. In addition, BRSI assists the "community" in improving administrative competency through research and diagnostic activities.

Working in cooperation with the Small Business Administration, the BRSI offers a Small Business Institute (SBI) program to stimulate development of advanced business students through applied research and challenging projects of service to the small business community. In the SBI program, teams of students work in a consulting capacity to offer solutions to problems that are unique to an entrepreneur of a small business.

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 hours
   B. One of the following: GSSC 121, Dimensions of Human Behavior; PSY 194, General Psychology; PSY 344, Psychology in Business and Industry; SOC 200, Principles of Sociology
   C. MATH 116, 122 or 200 3 hours
   D. ECON 201 and 202, Principles of Economics 6 hours
   E. ACTY 210 and 211, Principles of Accounting 6 hours
   F. BIS 242, Business Communications 3 hours
   G. MGMT 200, Business Statistics 3 hours

4. Additional hours will be taken in the following areas during the 60 semester hours:

   A. General Education:
      • Distribution Program: Area I Humanities and Fine Arts, 6 hours; Area II Natural Science, 3 hrs.
      or
      • Related General Integrated Program for business (information available through College of Business Advising Office).
   B. Physical Education, 2 hours
   C. Non-business elective, 19 hours
After completion of not less than 45 semester hours of work, application for admission to the professional business administration curriculum must be made by native students. Actual admission will not be approved until the completion of a minimum of 60 semester hours of work. Upper level transfer students will apply for admission to the professional business administration curriculum prior to their first semester of enrollment. Admission of transfer students from accredited two- and four-year institutions will be made on a similar basis. The same criteria for admission listed above will apply. Equivalent transfer work must be credited to the areas listed above. Work completed at WMU with less than a "C" may not be completed by transfer work from another institution.

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 by approval of the department head and the Dean of the College of Business. CLEP examinations may not be used to fulfill the final 30-hour requirement.
3. Students at two-year community colleges who plan to continue at WMU are urged to take courses equivalent to the ones listed in the pre-business curriculum, as this will facilitate entry into the upper level program of the college. Students following non-business curricula and the Dean of the College of Business. Community college students should also be aware of coursework acceptable by transfer on the basis of the university's MACRAO agreement and acceptable validation procedures.
4. Regarding the Mathematics 116 requirement, a 3-credit college algebra course based on a prerequisite of three years of college preparatory mathematics is acceptable as a transfer course.
5. With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from two-year community colleges) may be included in the major and minor requirements. However, a minimum of 12 semester hours for a major and 9 for a minor must be taken at WMU.

Areas of Concentration in Business Administration

To graduate with any major from the College of Business, it is necessary to be enrolled in the Bachelor of Business Administration curriculum.

Accountancy (ACTY)

Major Requirements:

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<th>Course</th>
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<td>ACTY 210</td>
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<td>ACTY 211</td>
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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:

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<td>FCL 320</td>
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<td>FCL 370</td>
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Business Information Systems (BIS)

The Department of Business Information Systems offers four undergraduate major areas of concentration as shown below. The courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

1. Administrative Systems (ADS) 27 hours

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>BIS 102</td>
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<td>BIS 260</td>
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<td>BIS 366</td>
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<td>BIS 388</td>
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<td>BIS 390</td>
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<td>BIS 556</td>
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2. Business Communication (BCM) 27 hours

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3. Management Information Systems (MIS) 27 hours

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<td>BIS 400</td>
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<td>BIS 406</td>
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4. Information Systems (IS) 27 hours

<table>
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<th>Course</th>
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</table>
3. Computer Information Systems (CIS)  
30 hrs  

- CS 111 Computer Programming I 3
- CS 260 Business Systems and Procedures I 3
- CS 261 CS/COBOL 3
- CS 360 Business Systems and Procedures II 3
- CS 362 Advanced CS/COBOL 3
- CS 482 Applied CIS Development Project 3
- CS 542 Data Base Management Systems 3
- CS 523 Computer Organization 3
- CS 410 Internship in CIS 3
- CS 464 Management Information Decision Support Systems 3
- CS 466 Distributed Data Processing 3
- CS 564 Information Resource Management 3

A concentration in Consumer Relations, using courses from several areas in the College of Business, is also available. See BIS Department Chair.

Major, consisting of 21 hours, may be chosen from any of the majors listed above.

Finance and Commercial Law (FCL)  
The Finance and Commercial Law Department offers majors in general business, 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 21 hours of finance course study. Six of the 21 hours shall consist of Introduction to Financial Markets 325 and Investment Analysis 326. The remaining fifteen hours shall be selected in consultation with an adviser from the finance faculty. Proper sequencing of advanced courses allows a student in finance to study corporate financial management, securities and investment management, financial markets and institutions, insurance and real estate.

Option 2: 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, all real estate majors must complete 24 hours of study consisting of the following:
- FCL 330 Real Estate Fundamentals 3
- FCL 331 Real Estate Finance 3
- FCL 332 Real Estate Investment 3
- FCL 333 Real Estate Appraisal 3
- FCL 429 Mortgage Banking 3
- FCL 434 Real Estate Land Development 3
- FCL 437 Real Estate Management 3
- FCL 532 Real Estate Law 3

Upon written consent of the adviser, up to 6 hours of approved alternative courses may be substituted for 6 hours of the required courses.

Option 3: 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 MGMT 300 and 499, FCL 320 and 340, and MKTG 370, a student may elect a logical sequence of seven advanced business courses at or above the 300 level. At least three of the seven courses must be from the Finance and Commercial Law Department and no more than three may be from any one area of study. A student majoring in general business may not minor in general business option 5.

2. Finance and Commercial Law Minors  

Option 1: Finance Minor (FIN)  
Advisers: Finance Area Faculty  
Students wishing to minor in finance are required to take 21 hours. Fifteen of these hours are in finance and 6 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
- MGMT 200 Business Statistics 3
- Six (6) additional hours from 6 available finance courses (other than Personal Finance 305) selected with the student's professional objectives in mind.

Option 2: Law Minor (LAW)  
Advisers: 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 selected from the following courses:
- ACTY 210 Principles of Accounting 3
- MGMT 300 Fundamentals of Management 3
- MGMT 451 Administrative Behavior 3
- MKTG 370 Marketing 3

Option 3: Real Estate Minor (REA)  
Adviser: 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 College of Business. The Real Estate minor consists of the following requirements:
- Six (6) hours in required FCL courses:
  - FCL 320 Business Finance 3
  - FCL 330 Real Estate Fundamentals 3
- Six (6) hours in required College of Business courses from the following list:
  - ACTY 210 Principles of Accounting 3
  - MGMT 200 Business Statistics 3
  - MKTG 270 Salesmanship 3
  - MKTG 370 Marketing 3

Nine (9) hours in elective Real Estate courses in the Finance and Commercial Law Department.

Option 4: Insurance Minor (INS)  
Advisers: Report to department office, 260 North Hall for assignment to an adviser. Students wishing to minor in insurance are required to take 21 hours. Fifteen of these are in insurance courses and 6 are from other disciplines within the College of Business. The insurance minor consists of the following courses:
- FCL 329 Financial Markets 3
- FCL 321 Risk and Insurance 3
- FCL 322 Life and Health Insurance 3
- FCL 323 Property and Liability Insurance 3
- One (1) of the following courses:
  - FCL 526 Group Insurance and Pensions 3
  - FCL 527 Risk Management and Insurance 3
  - FCL 528 Insurance Company Management 3
  - FCL 320 Business Finance 3

Option 5: Business Minor (BUS)  
Advisers: Report to department office, 260 North Hall for assignment to an adviser. Students wishing to minor in business are required to take 21 hours. Fifteen of these hours are in business courses and 6 are from other disciplines within the College of Business. The minor consists of the following courses:
- BIS 242 Business Communications 3
- FCL 320 Business Finance 3
- FCL 340 Legal Environment 3
- MGMT 300 Fundamentals of Management 3
- MKTG 370 Marketing 3

Management (MGMT)  
Advisers: 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 five courses listed below plus nine hours of additional work. Such courses may be drawn from all Department of Management offerings above 394, except 499. A student who wishes to build a special program that may include courses from other departments is required to do so in consultation with a departmental adviser.

- MGMT 300 Fundamentals of Management 3
- MGMT 301 Management Analysis and Behavior I 3
- MGMT 302 Management Analysis and Behavior II 3
- MGMT 303 Management Analysis and Organizational Design I 3
- MGMT 304 Management Analysis and Organizational Design II 3

Nine additional hours of Management courses at the 300 level or above (excluding 499)
Minor in Management (21 hours) A minor in management consists of 300, 301, 302, 303, 304 plus two courses from the four listed below. A student who wishes to build a special program that may include courses from other departments is required to do so in consultation with a departmental adviser.

ACTY 210 Principles of Accounting (req. for Non-BBA minors) 3
FCL 320 Business Finance 3
FCL 340 Legal Environment 3
MKTG 370 Marketing 3

Marketing (MKTG)
The Marketing Department offers four major areas of concentration as shown below. The courses are to be taken in the sequence indicated, following the prerequisites as listed after the course descriptions.

1. Advertising (ADV) 24 hours Adviser: Cannon
MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 377 Retail Promotion 3
MKTG 474 Advertising Copy and Layout 3
MKTG 477 Consumer Behavior 3
MKTG 572 Advertising Media and Campaigns 3
MKTG 577 Advertising Theory and Ethics 3

2. Retailing (RET) 24 hours Adviser: Otteson
MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 375 Principles of Retailing 3
MKTG 377 Retail Promotion 3
MKTG 476 Retail Merchandising 3
MKTG 479 Marketing Internship 3-6
MKTG 570 Problems in Retailing 3

3. Industrial Marketing (IDM) 24 hours Adviser: Otteson
MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 372 Purchasing Management 3
MKTG 374 Advertising 3
MKTG 375 Principles of Retailing 3
MKTG 376 Sales Administration 3
MKTG 476 Industrial Marketing 3
MKTG 574 Marketing Logistics 3
MKTG 576 Marketing Strategy 3

Optional minor for Industrial Marketing Majors: Manufacturing Technology (15 hours) The Manufacturing Technology minor consists of Engineering Technology 142, 150, and 256, and any two of the following courses: Electrical Engineering 100, 101, 250; Industrial Engineering 326, 328; Paper Science and Engineering 354; Engineering Technology 152, 154, 352.

4. General Marketing (MKT) 24 hours Adviser: Report to Department of Marketing. 224 North Hall for assignment to an adviser.
MKTG 370 Marketing 3
MKTG 371 Marketing Research 3
MKTG 374 Advertising 3
MKTG 376 Sales Administration 3
MKTG 470 Industrial Marketing 3
MKTG 575 International Marketing 3
MKTG 576 Marketing Strategy 3
Elective from Marketing department 3

5. Marketing Minor (MKT)
A marketing minor requires 21 credit hours consisting of the following courses:
MKTG 370 Marketing 3
MKTG 374 Advertising 3
MKTG 376 Sales Administration 3
Electives from Department of Marketing approved by Department Adviser 6
Two (2) Elective courses from the following:
ACTY 210 Principles of Accounting 3
ACTY 211 Principles of Accounting 3
MGMT 200 Business Statistics 3
FCL 320 Business Finance 3
Anvany assignments from course requirements must have written approval of the departmental adviser 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. Public Administration (PAB)
Adviser: McCarty
Major Requirements: 24 hours In addition to the curriculum requirements for all students pursuing the Bachelor of Business Degree, complete 24 hours from the following courses:
Required Course—Select one of the following courses:
FCL 340 Legal Environment 3
FCL 320 Business Finance 3
Elective Courses—Select seven (7) courses (21 hours) from the following list of courses:
ACTY 322 Managerial Accounting 3
ACTY 324 Income Tax Accounting 3
ACTY 514 Institutional Accounting 3
BIS 343 Report Writing 3
BIS 368 Records Management 3
BIS 556 Office Management 3
FCL 330 Real Estate Fundamentals 3
FCL 331 Real Estate Finance 3
FCL 450 Management and Labor Relations Law 3
FCL 532 Real Estate Law 3
FCL 554 Government Regulation of Business 3
MGMT 352 Personnel Management 3
MGMT 451 Administrative Behavior 3
MGMT 372 Purchasing Management 3
MGMT 571 Services and Non-Profit Marketing 3

Minor Requirements: 22 hours
PSCI 200 National Government 3
PSCI 202 State and Local Government 3
PSCI 330 Introduction to Public Administration 3
PSCI 526 Administrative Law and Public Relations 3
PSCI 533 Public Personnel Administration 3
PSCI 535 The Politics of Governmental Budget and Finance 3
Plus one of the following: 3
PSCI 504 Making of Public Policy in U.S. 3
PSCI 531 Administration in Local and National Governments 3
PSCI 534 Administrative Theory 3
PSCI 591 Statistics for Political Science 3

3. Statistics (STB)
40-41 hours 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 2
MATH 122 Calculus I 4
MATH 123 Calculus II 4
MATH 230 Elementary Linear Algebra 4
MATH 272 Vector and Multivariate Calculus 4
MATH 364 Statistical Methods 4
MATH 362 Probability 3
MATH 460 Intro. to Mathematical Statistics 3
MATH 506 Scientific Programming 3
Two of MATH:
MATH 563 Sample Survey Methods 3
MATH 566 Nonparametric Statistical Methods 3
MATH 567 Statistical Design and Analysis of Experiments 4
MATH 568 Regression Analysis 4
Elective (one upper-level business course emphasizing statistical applications) 3

4. Business Administration (ABB)
24 hours Adviser: Benne
The Agri-Business major requires the completion of the B.B.A. requirements and a 24-hour major in the Department of Consumer Resources and Technology. An example follows:
CRT 161 Animal Industry 4
CRT 261 Agronomy (Crop Production) 4
CRT 262 Principles of Horticulture 4
CRT 361 Introduction to Soils 4
CRT 366 Agriculture Marketing and Finance 4
CRT 365 Farm Organizations and Management 4

Related Minor
1. International Business Minor (INT) 21 hours
Two courses from the following list: 6
MGT 320 Business Finance (Prereq. MGMT 200 and ACTY 210)
FCL 340 Legal Environment 3
BIS 242 Business Communications (Prereq. BIS 142)
MGMT 300 Fundamentals of Management 3
MKTG 370 Marketing (Prereq. ECON 201)
Four courses from the following list: 12-13
FCL 521 International Finance (Prereq. FCL 320)
FCL 522 International Business Law (Prereq. FCL 340)
MGMT 510 Multinational Management 3
MKTG 575 International Marketing (Prereq. MKTG 370)
ECON 480 International Economics (Prereq. ECON 201-202)
One course from one of the following areas chosen in consultation with minor adviser: Foreign Language 3
Cultural and Regional Area Study 3
Skill Specialization 3
AREAS OF CONCENTRATION 131
Course Descriptions
(Courses described in italics are approved for General Education.)

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.

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 a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar.

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

Accountancy (ACTY)
William R. Welke, Chair
John T. Burke
Hans J. Dykhooorn
J. Patrick Forrest
Charles E. Hines, Jr.
Jerry G. Kreuze
Max A. Lauteman
William C. Morris
Robert D. Neubig
Gale E. Newell
David Rozelle
F W. Schaeferle
John D. Sheppard
Kathleen E. Sinning

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.

Course Descriptions

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.

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.

211 Principles of Accounting
3 hrs.
A continuation of course 210 with emphasis on managerial/cost accounting concepts. Prerequisite: 210.

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.

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.

322 Managerial Accounting—Concepts and Practices
3 hrs.
A study of the accounting methodology and concepts that have been developed to serve managers in decision-making for planning and control. Includes budgeting, standard costing, variance analysis, incremental analysis, cost and profit analysis, relevant costing, and product costing concepts and practices. Prerequisite: 211.

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.

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.

411 Financial Accounting III
3 hrs.
The study of entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, fund accounting, accounting by agencies and branches, business combinations, reporting by parent-subsidiary consolidated entities (including foreign subsidiaries). Prerequisite: 311 and senior standing.

Open to Upperclass and Graduate Students

513 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. Prerequisite: BIS 102, ACTY 310, and ACTY 322, or their equivalent.

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, universitities, and hospitals are given brief coverage to illustrate the similarity in accounting for all not-for-profit entities. Prerequisite: 211 or written consent of instructor.

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. Prerequisite: ACTY 311 or equivalent.

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.

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

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 a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar.

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

242 Business Communication
3 hrs.
Business communication is a general introduction to the uses of communication in modern organizations. Organization theory, behavior, and communication channels form the basis for special emphasis on written communication to solve typical business problems. Prerequisite: BIS 142 or its equivalent.

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.

260 Business EDP Systems and Procedures I
3 hrs.
Introduction to business EDP systems analysis and procedures. Students complete an elementary business data flow systems design from preliminary investigation to implementation. Prerequisite: BIS 102, CS 111.

261 COBOL Programming
3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in timesharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 260.

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.

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.

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.

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.

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

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)

102 Introduction to Information Processing
3 hrs.
The study of business problem analysis, design of computer algorithms, definition of data structures, and the BASIC programming language. The topics hardware/software, input/output devices, and computer services will be emphasized. Computer applications will cover those related to data processing (DP), electronic data processing (EDP), management information systems (MIS), distributed data base management (DDBM), word processing (WP), networking, and telecommunications. The student will access stored computer programs and write original programs utilizing remote terminals in a time sharing environment.

142 Informational Writing
3 hrs.
Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course fulfills the University college-level writing requirement.

182 Keyboarding
2 hrs.
To provide basic touch keyboarding skill to input to typewriters and computers efficiently. To develop speed and accuracy on the alphanumeric, numeric, and symbol keys.

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.

Business Information Systems (BIS)
Margaret M. Sanders Chair
Kunako Aihara
Joel P. Bowman
Bernadine P. Branchaw
Caryl P. Freeman
Earl E. Halviss
Darrell G. Jones
Marcia Mascolini
L. Michael Moskovis
Pamela S. Rooney
Charles A. Shull
Jean O. Smith
Robert Supnick
Dan H. Swenson
Andrew S. Targowski

The Department of Business Information Systems offers four undergraduate programs of study: (1) Administrative Systems (ADS), (2) Business Communication (BCM), (3) Computer Information Systems (CIS), and (4) Consumer Relations (CRL).

260 Business EDP Systems and Procedures I
3 hrs.
Introduction to business EDP systems analysis and procedures. Students complete an elementary business data flow systems design from preliminary investigation to implementation. Prerequisite: BIS 102, CS 111.

261 COBOL Programming
3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in timesharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 260.

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.

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.

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.

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.

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: BIS 324 or equivalent. ACTY 324 or its equivalent.

598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

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: BIS 324 or equivalent. ACTY 324 or its equivalent.

598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

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: BIS 324 or equivalent. ACTY 324 or its equivalent.

598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

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.
The study of business problem analysis, design of computer algorithms, definition of data structures, and the BASIC programming language. The topics hardware/software, input/output devices, and computer services will be emphasized. Computer applications will cover those related to data processing (DP), electronic data processing (EDP), management information systems (MIS), distributed data base management (DDBM), word processing (WP), networking, and telecommunications. The student will access stored computer programs and write original programs utilizing remote terminals in a time sharing environment.

BIS 142 Informational Writing
3 hrs.
Development of the basic composition skills required of the competent writer in business and professions. Through continuing directed practice in writing, students develop competence in the organization and presentation of facts and information in writing. This course fulfills the University college-level writing requirement.

BIS 182 Keyboarding
2 hrs.
To provide basic touch keyboarding skill to input to typewriters and computers efficiently. To develop speed and accuracy on the alphanumeric, 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 200 Business EDP Systems and Procedures I
3 hrs.
Introduction to business EDP systems analysis and procedures. Students complete an elementary business data flow systems design from preliminary investigation to implementation. 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 timesharing 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 360 Business EDP Systems and Procedures II
3 hrs.
Introduction to business EDP systems analysis and procedures. Students complete an elementary business data flow systems design from preliminary investigation to implementation. Prerequisite: BIS 102, CS 111.

BIS 361 COBOL Programming
3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in timesharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 260.

BIS 364 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 392 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.
360 Business EDP Systems and Procedures II
3 hrs.
A continuation of BIS 260 with emphasis on project management, scheduling and control, and evaluation of business data systems and procedures. Prerequisite: BIS 260.

362 Advanced COBOL
3 hrs.
Continuation of BIS 261, including advanced treatment of sequential access, plus index sequential and random access, report writer, library routines, precompilers, documentation, efficiency, and data-base management systems. Prerequisite: BIS 261.

386 Office Organization and Technology
3 hrs.
Designed for students preparing for professional office administration. Includes office functions and environment, office technology and systems, and the principles of office organization.

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.

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.

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.

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.

464 Management Information and Decision Support System
3 hrs.
An analysis of the highest level of information support systems which serves 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.

466 Distributed Data Processing
3 hrs.
The features of centralized, decentralized, and distributed systems will be examined. The impact of distributed systems on the business enterprise will be exposed via the medium of case studies. Technology implications of computer hardware, software, and communications are discussed as they relate to the design, development, and implementation of distributed data processing systems. Prerequisite: CS 542.

484 Micrographics and Reprographics
3 hrs.
Fundamentals of micrographics and reprographics, including basic components of technology, legal implications, systems applications and trends, feasibility, and industry standards. Prerequisite: BIS 388 or permission.

486 Corporate Records Centers
3 hrs.
An examination of commercial and corporate records centers. Includes services, equipment, systems, and technology addresses functions of planning, staffing, operating, and managing records centers. Prerequisite: BIS 388 or permission.

544 Micrographics and Reprographics
3 hrs.
Fundamentals of micrographics and reprographics, including basic components of technology, legal implications, systems applications and trends, feasibility, and industry standards. Prerequisite: BIS 388 or permission.
Finance and Commercial Law (FCL)

Majors may be obtained in general business, finance, and real estate. Minors are available in general business, finance, law, insurance, and real estate. The general business major and minor require students to select a logical sequence of courses from the several departments within the College of Business. All majors and minors (except the general business minor) in this department must be approved by the assigned adviser.

Course Descriptions

Finance Area—Finance, Insurance and Real Estate Courses

Adrian Edwards
A.D. Issa
Robert Jones
C. R. Krishna-Swamy
Leonard Martien
Jamshid Mehran
Tim F. Scheu

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 in 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.)

320 Business Finance
3 hrs.
Provides 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 institutions and institutions for capital raising. Prerequisite: MGMT 200 and ACTY 210.

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.

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.

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 property and liability company operations. Prerequisite: FCL 321.

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.

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.

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 minoring in insurance. No more than 3 hrs. can be used as credit toward a minor.

328 Internship in Real Estate
1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with industrial, commercial, and financial enterprises (commercial banks, insurance companies, etc.) and 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 finance. No more than 3 hrs. can be used as credit toward a major or minor.

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.

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.

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.

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.

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.

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.

425 Theory of Financial Management
3 hrs.
An in-depth study of the concepts and theories underlying the investment and financing decisions of business enterprises. The course emphasizes the various aspects relating to the effective management of the firm’s working capital, fixed assets and financial structure. Prerequisite: FCL 320.

426 Applications in Financial Management
3 hrs.
An analytical approach to problems facing the financial executive. Cases selected cover financial decision-making processes with particular emphasis on valuation, working capital, capital budgeting, capital structure and dividend policies. In addition, the course will utilize the computer in solving a variety of financial problems. Prerequisite: FCL 320.

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.

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.

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.

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.

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.
Law Courses

Nicholas C. Batch
James R. Bliss
Thomas Gossman
William McCarty
Leo Stevenson

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.

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.

350 Business Law
3 hrs.
The study of law as it impacts on the business firm. Examines the formation and performance of business contracts, employer-employee rights and duties and business liability in commercial transactions. Students cannot receive credit for both 350 and 352. Prerequisite: FCL 340.

352 Commercial Law
3 hrs.
The study of law applicable to the organization and operation of most business firms. Examines contract formation, agency law, and employer liability for employee actions. Reviews commercial transaction laws related to sales agreements and negotiable instruments. Students cannot receive credit for both 350 and 352. Prerequisite: FCL 340.

440 Tort Law and Liability
3 hrs.
The study of individual and business rights and liabilities with respect to negligence, intentional wrongs, libel, misrepresentation, and insurance aspects thereof. Prerequisite: FCL 340.

450 Management and Labor Relations Law
3 hrs.
A survey of laws affecting management-labor relations. The course examines general employer-employee relationships, emphasizing the hiring and firing of employees, employee benefit programs, workman’s compensation laws, and civil rights rules and regulations. Prerequisite: FCL 340.

532 Real Estate Law
3 hrs.
The study of land ownership, sales agreements, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: FCL 340.

550 Law of Business Organizations
3 hrs.
A study of the laws affecting the organization and operation of business enterprises. The course examines the different forms of business organization, principally corporations and partnerships, and analyzes how they structure affects the operation of various activities. Prerequisite: FCL 340.

552 International Business Law
3 hrs.
A study of national, regional and international laws which affect the conduct of international business. An examination of the legal regulations which promote or restrain trade or investment by international business firms. Prerequisite: FCL 340.

554 Governmental Regulations of Business
3 hrs.
Examines the laws, rules and regulations at the federal, state and local level which affect most business enterprises. Substantive laws affecting the firm’s obligation to employees, stockholders and the general public are examined as are procedural laws affecting the regulation of the firm by public institutions. Prerequisite: FCL 340.

556 Marketing and Sales Law
3 hrs.
The course examines the law as it applies to the sale of goods, warranties affecting such sales and the methods of financing those sales. Legal obligations imposed upon and risks assumed by the seller are emphasized. Prerequisite: FCL 340.

560 Seminar in Criminal Law and Procedure
3 hrs.
This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pre-trial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics. Prerequisite: SOC 462 or PSCI 525 or FCL 340 or consent of instructor.

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.
Course Descriptions

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

200 Business Statistics
3 hrs.
An applications-oriented study of statistical concepts and techniques. The course focuses on the student as a user of statistics who needs a minimal understanding of mathematical theory and formula derivation. Major topics of study are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, regression and time series. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. Prerequisite: MATH 116, 102.

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.

300 Fundamentals of Management
3 hrs.
An introduction to the concepts, theories, modes, 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.

301 Management Analysis and Behavior (I)
3 hrs.
Management analysis and behavior will be presented and practiced by the student 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 200, 300, co-requisite: MGMT 302.

302 Management Analysis and Behavior (II)
3 hrs.
An extension of MGMT 301; must be taken with 301.

303 Management Analysis and Organizational Design (I)
3 hrs.
The students develop and experiment with their own model of an organization by assuming different roles and exercising influence in a large task oriented group working on a real problem. The course is designed to give students practice in integrating relevant variables, analyses, and data into an operating system. Prerequisites: MGMT 301:2, co-requisite MGMT 304.

304 Management Analysis and Organizational Design (II)
3 hrs.
An extension of MGMT 303; must be taken with MGMT 303.

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.

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.

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: MGMT 200.

400 Topics in Management
3 hrs.
An examination of advanced topical problems in management. (Repeatable)

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.

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.

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.

463 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 equivalents.

490 Honors Seminar
1-3 hrs.
A discussion of selected topics in contemporary management. Prerequisite: Consent of departmental honors committee and instructor. (Repeatable)

491 Independent Honors Studies in Management
1-3 hrs.
Opportunity for independent reading and/or research under the direction of a faculty member. Prerequisites: Consent of departmental honors committee and instructor. (Repeatable)

495 Independent Study
1-4 hrs.
Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)

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.

500 Management Literature
1-4 hrs.
A study in specialized areas of the management literature. The students will prepare an original paper on an assigned topic. Prerequisite: Permission of the instructor.

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.

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.

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 320, MKTG 370 or department consent.
Marketing (MKTG)

Lowell E. Crow, Chair
JoAnn Asquith
Joseph J. Belonax
Andrew A. Brogowicz
Zane Cannon
Raymond A. Dannenberg
Linda M. Deierle
Richard E. Emerton
Jay Lindquist
Brian G. Long
MustaQ Luqmani
Edward J. Mayo
Conner P. Oettesen
Zahir A. Quraeshi
Robert B. Trader

Course Descriptions

270 Salesmanship
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.

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 (573) for students who qualify and elect additional courses.)

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.

371 Marketing Research
3 hrs. Fall, Winter, Spring, Summer
An introduction to the research process as it acts 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.

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.

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.

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.

376 Sales Administration
3 hrs. Fall, Winter, Spring
Topics include the role of personal selling in the firm; determination of market and sales potential, recruiting, training, sales communication; territories and quotas; motivation, measuring selling effectiveness. Prerequisite: MKTG 370.

377 Retail Promotion
3 hrs. 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.

470 Industrial Marketing
3 hrs. Fall, Winter
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.

471 Quantitative Marketing Applications
3 hrs.
Provides marketing student with a basic understanding of fundamental quantitative techniques and shows how these techniques will assist the decision maker in solving marketing problems. A term project applying the research process, concepts, and quantitative methods is required. Prerequisites: MKTG 370, 371.

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. Prerequisite: MKTG 370; permission of instructor.

474 Advertising Copy and Layout
3 hrs. Fall, Winter
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; permission of instructor.

476 Retail Merchandising
3 hrs. Fall, Winter
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.

477 Consumer Behavior
3 hrs. Fall, Winter
Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both the theoretical and practical implications. Prerequisite: MKTG 370.

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.

570 Problems in Retailing
3 hrs. Fall
Designed to analyze current retailing problems, market segmentation, inventory planning and control, vendor evaluation, store services, traffic patterns, and warehousing. Report required. Prerequisite: Permission of the instructor and senior level.

571 Services and Non-Profit Marketing
3 hrs.
An analysis of problems and issues relating to the marketing of services and the use of marketing in non-profit organizations. Emphasis in these two divergent areas will be on application of marketing concepts, methods, policies, and strategies, special emphasis on environmental interactions. Prerequisites: MKTG 370 or permission of instructor.

572 Advertising Media and Campaigns
3 hrs. Fall, Winter
Examines theory and practice of media research, use of Audit Bureau of Circulation data, broadcasting ratings, copy testing, development of media plans and scheduling as required for advertising campaigns. Prerequisites: MKTG 374 and MKTG 474; Advertising Majors only.

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.

575 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.

576 Marketing Strategy
3 hrs. Fall, Winter, Spring, Summer
Identification of marketing problem situations and cause diagnosis with development of appropriate marketing strategies. Stress placed on application of marketing fundamentals to factual case situations and on decisions in a simulated dynamic environment. Communications of findings and strategies emphasized. Cases and computer games used. Senior level, MKTG 371 (573), plus 6 additional MKTG hrs.

577 Advertising Theory and Ethics
3 hrs. Fall
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.

578 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.

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.
The program for prospective teachers consists of three parts: (1) general education, designed to develop those understandings and competencies which make for effective living and good citizenship, and to provide a foundation for professional study; (2) advanced specialized study, with major and minor interest in the fields of the student’s choice, offered in the various colleges of the university; and (3) professional education courses offered in the College of Education. Prospective teachers choose to work for the Michigan Elementary Provisional Certificate valid for teaching all subjects in grades kindergarten through eighth grade and major/minor subjects in grade nine, OR the Michigan Secondary Provisional Certificate, valid for teaching all subjects in grades seven and eight and major and minor subjects in grades nine through twelve. Note: The State certification code is currently being revised. The Provisional Elementary certificate will be in all probability be divided into two parts; one valid for grades K-5 and a second valid for grades 6-8. Information regarding changes may be obtained in the College of Education, Office of Admissions, Advisement, and Field Placement.

Students majoring in Art, Music, Physical Education, Special Education, Speech Pathology and Audiology, Health Education, Industrial Arts, or Home Economics may be certified to teach in their specialized area in grades K-12 by completing the requirements of the curriculum and the requirements for certification.

The following curricula are offered in the College of Education: Elementary Education, Elementary Music Education, Elementary Physical Education, Elementary Physical Education, Special Education, Middle and Junior High School Education, Secondary Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions, Advisement, and Field Placement, 2504 Sangren Hall.

Students seeking admission to Speech Pathology and Audiology must apply to the school system; those seeking admission to Industrial Arts or Home Economics must apply to the College of Engineering and Applied Sciences.

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 (and in the case of Speech Pathology and Audiology, students with a master’s degree).

Curricula for Teachers

The University Certification Officer located in the Office of Admissions, Advisement, and Field Placement processes all recommendations for certification and advises post-baccalaureate students seeking teacher certification.

FIELD PLACEMENT

The office coordinates the placement and supervision of education students in field experiences.
STUDENT TEACHING
The following criteria must be met prior to student teaching:
1. Completion of a minimum of 88 semester hours, not including repeated hours.
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. Satisfactory completion of the Elementary Education Minor for those seeking placement in an early childhood or elementary school setting.
5. Satisfactory 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 at least two semesters prior to the semester in which they plan to complete their student teaching requirements.

APPEALS
A student aggrieved by an action taken by the Office of Admissions, Advisement, and Field Placement relative to admission to student teaching or recommendation for certification has the right to appeal such action to the Appeals Committee of the Office of Admissions, Advisement, and Field Placement by filing an appeal form in the Office of Admission, Advisement, and Field Placement within fourteen (14) days of the aggrieved action.

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 a general education classroom in grades K-5. Students whose career plans focus on grades 5-8 should choose the Teaching in the Middle and Junior High School Curriculum listed later in this section. Additional information may be obtained from the Office of Admissions, Advisement and Field Placement, 2504 Sangren Hall.

Minimum hours required for this curriculum: 130 hours

Program Requirements:
- General Education Distribution: 40 hours
- General Education Requirement: 35 hours
- Program Specific: 100 hours

Students majoring in SPPA and SPED are required to complete three minors, the Elementary education Minor plus the Science and Mathematics Teaching Minor and one additional minor selected from those listed in "Acceptable Minors" (item 3). Exception to this requirement is provided for those students seeking K-12 certification in the areas listed below. Students seeking K-12 certification in one of the acceptable majors must also complete the Elementary Education Minor.

Acceptable Majors
- Art (ARE): 61 hours
- Music (MUS): 63 hours
- Physical Education (PEP): 24 hours

General Education Requirements:
- Professional Practicum: 12 hrs.
- Professional Practicum: 5/70 hrs.
- Professional Practicum: 5/70 hrs.

Minor(s) Major(s) Approved for Elementary Education

Students in the elementary education curriculum are required to complete three minors, the Elementary education Minor plus the Science and Mathematics Teaching Minor and one additional minor selected from those listed in "Acceptable Minors" (item 3). Exception to this provision is provided for those students seeking K-12 certification in the areas listed below. Students seeking K-12 certification in one of the acceptable majors must also complete the Elementary Education Minor.

Acceptable Minors

1. Elementary Education Minor (EED): 28 hours
   - Requirements and approval for this required minor are available in the Admissions, Advisement and Field Placement Office, 2504 Sangren Hall. All students must have a minor slip signed by an approved elementary education advisor (see Elementary Education Minor for details).

2. Science and Mathematics Teaching Minor (SMT): 27 hours
   - Requirements and approval for this required minor are available in B-302 Ellsworth Hall. All students must have a minor slip signed by the Science and Mathematics Teaching Minor advisor (see Science and Mathematics Teaching Minor for details).

3. A third minor selected from: 20-24 hours
   - Creative Arts (CRA): 24 hours
   - English Elementary Education (ENG): 20 hours
   - Group Social Science (GSS): 24 hours
   - Integrated Language Arts (ILAM): 24 hours
   - Language (LANG): 20 hours
   - Music (MUS): 24 hours
   - Physical Education (PEP): 21 hours

Professional Education

General Education Foundations: 7-8 hours
- CAS 170 Interpersonal Communications 3 hrs.

OR
- GHUM 315 Human Communications 4 hrs.
- SPMA majors may substitute *LING 105, The Nature of Language 4 hrs.
- GHUM 409 Women Past, Present and Future 4 hrs.

OR
- GSSC 444 Female and Male Psychological Perspective 4 hrs.

*Approved for General Education credit

Professional Education Program: 29 hours

- Pre-Professional Foundations: 3 hrs.
- ED 250 Human Development 3 hrs.

Professional Education: 14 hrs.
- ED 370 Educational Psychology Elementary 3 hrs.
- Prerequisites 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 307
- 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.

** Students majoring in SPPA and SPED are required to enroll for one six-hour experience.

Student Teaching

Office of Admissions, Advisement, and Field Placement, 2504 Sangren Hall

This 28 hour interdepartmental program is designed to prepare students to assume teaching responsibilities in a general education classroom in grades K-5. Prior to entering the minor, students must complete (a) 12-16 hours of specified General Education coursework in addition to the hours required as part of the Professional Education sequence and (b) 7-10 hours of prerequisites to required courses in the minor.

General Education Foundations: 12-16 hours

One course from the following list:
- ANTH 120 Peoples of the World 3 hrs.
- ANTH 220 Cultural Anthropology 3 hrs.
- GENL 304 Introduction to Non-Western World 4 hrs.

Two courses from the following list (SPPA majors and Group Social Science Minors see NOTE below):
- ANTH 240 Principles of Cultural Anthropology 3 hrs.
- BAS 300 Black Experience 3 hrs.
- CON 100 Contemporary Economic Problems 3 hrs.
- GEOG 102 World Geography Through Media and Maps 3 hrs.
- GEOG 311 Geography of Michigan 3 hrs.
- GSP 116 Mass Media, Messages and Manipulations 4 hrs.
- GSSC 123 Human Society 4 hrs.
- *HIST 210 U.S. History to 1877 3 hrs.
- *HIST 211 U.S. History since 1877 3 hrs.
- **PSCI 200 National Government 3 hrs.
- **SOC 200 Principles of Sociology 3 hrs.

NOTE: Students electing the Group Social Science Minor (GSS) may substitute either PSY 287 or PSY 282 in this section.

Elementary Education Minor

Office of Admissions, Advisement, and Field Placement, 2504 Sangren Hall

This 28 hour interdepartmental program is designed to prepare students to assume teaching responsibilities in a general education classroom in grades K-5.

Prior to entering the minor, students must complete (a) 12-16 hours of specified General Education coursework in addition to the hours required as part of the Professional Education sequence and (b) 7-10 hours of prerequisites to required courses in the minor.

General Education Foundations: 12-16 hours

One course from the following list:
- ANTH 120 Peoples of the World 3 hrs.
- ANTH 220 Cultural Anthropology 3 hrs.
- GENL 304 Introduction to Non-Western World 4 hrs.

Two courses from the following list (SPPA majors and Group Social Science Minors see NOTE below):
- ANTH 240 Principles of Cultural Anthropology 3 hrs.
- BAS 300 Black Experience 3 hrs.
- CON 100 Contemporary Economic Problems 3 hrs.
- GEOG 102 World Geography Through Media and Maps 3 hrs.
- GEOG 311 Geography of Michigan 3 hrs.
- *GSP 116 Mass Media, Messages and Manipulations 4 hrs.
- GSSC 123 Human Society 4 hrs.
- *HIST 210 U.S. History to 1877 3 hrs.
- *HIST 211 U.S. History since 1877 3 hrs.
- **PSCI 200 National Government 3 hrs.
- **SOC 200 Principles of Sociology 3 hrs.

NOTE: Students electing the Group Social Science Minor (GSS) may substitute either PSY 287 or PSY 282 in this section.
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194 as one of two required electives in this area.

One course from the following list:
*IS 142 Information Writing 3 hrs. (Meets University Writing Requirement.)
*ENGL 105 Thought and Writing 4 hrs.
*SPPA 200 Communication Disorders (Early Childhood/Primary-Level Emphasis) 3 hrs.

Approved for General Education credit.

Prerequisites: 710 hours
* to MATH 150:
MATH 110 Algebra I 3 hrs.
Pass Proficiency Examination
* to ED 307:
ED 351, ED 352, ENGL 282 Children's Literature 4 hrs.
Minor Requirements: 28 hours
Reading/Language Arts: 17 hrs.
ED 312 Foundations of Reading Instruction 3 hrs.
**ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs.
Prerequisites ENGL 282 and ED 312.
**ED 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs.
Prerequisites ENGL 282, ED 312, and ED 351.
ENGL 369 Writing for the Elementary Teacher 4 hrs.
or
ENGL 373 Reading and Writing as Psychological Processes 4 hrs.
CAS 365 Oral Communication and the Early Elementary Child 4 hrs.
or

** Students majoring in SPPA are required to complete ED 351 or ED 352.

Mathematics: 4 hrs.
MATH 110 Structure of Arithmetic 4 hrs.
Science: 4 hrs.

Students must select one of the following, not used in Science and Mathematics Teaching Minor:
*BIO 107 Biological Science 4 hrs.
*BIO 234 Outdoor Science 4 hrs.
*GEOG 105 Our Physical Environment 4 hrs.
*GSCI 131 Physical Science 4 hrs.

Approved for General Education credit.

NOTE: If any of these courses are taken as part of the Science/Math Teaching Minor, no science course is required. Students majoring in Speech Pathology and Audiology meet this requirement by taking BMED 112/BIOL 101 plus PHYS 106.

Social Studies: 3 hrs.
ED 307 Teaching Elementary Social Studies, and workshop 3 hrs.
Prerequisites GEOG 102 or HIST 211 or PSCI 200

Elementary Education Minor Program

Exceptions
1. Students who have a K-12 major or who are enrolled in the Creative Arts Minor will complete the Elementary Education Minor as prescribed.

2. Students enrolled in ILAM will, with approval of their adviser, substitute two courses from ART 200, MUS 140 or CAS 564 in place of ENGL 369/373.

3. Students enrolled in the English Education Minor will, with approval of their adviser, substitute two courses from ART 200, MUS 140 or CAS 564 in place of ENGL 282 and ENGL 369/373.

4. Students enrolled in the Group Social Science Minor, or in a language minor, will, with approval of their adviser, select two courses from ART 200, MUS 140 or CAS 564.

Emphasis in Early Childhood Education
Adviser: Mary A. Cain (Students must see an Early Childhood adviser to enroll in the program.)

The Early Childhood Emphasis offers a special professional sequence for kindergarten through grade eight certification with an endorsement signifying special preparation in teaching young children. Prerequisite: ENGL 250, Human Development. Students will have a split directed teaching assignment, which will be done in the Kalamazoo area, where early childhood faculty are available. (Rare exceptions to Kalamazoo assignments may be made upon approval of an Early Childhood adviser.) Students with an Early Childhood Emphasis should complete the Elementary Education Curriculum requirements satisfactorily, with the following additional courses or substitutions:

ED 350 Young Children, Their Families, and Their Society 3 hrs.
ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs.
Prerequisites ENGL 282 and ED 312.
ED 370 Developmental Psychology: Young Children/Elementary 3 hrs.
ED 371 Classroom Organization and Management: Young Children/Elementary 3 hrs.
ED 410 Seminar in Early Childhood Education 1 hr.
ED 470 Directed Teaching (Early Childhood)* 5 hrs.

NOTE: CAS 365, 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 student teaching and seminar for elementary certification.

Creative Arts Minor
Adviser: Alfred Balkin

This 24-hour interdepartmental program is offered to preservice elementary school teachers, special education teachers, and others. The program strives integration of all the arts as a primary motivating agent in the teaching of all subject areas. It also emphasizes the stimulation and development of creative problem-solving behaviors. A minor slip is required. Students must see an adviser before they have completed eight hours in the minor.

*GUM 102 Direct Encounter with the Arts 4 hrs.
ED 230 The Nature of Creativity*** 3 hrs.
DANC 290 Teaching of Dance in the Elementary School 3 hrs.
or
HPER 540 Movement Education 2 hrs.
MUS 140 Music for the Classroom Teacher 3 hrs.
ART 200 The Creative Process through Art 3 hrs.
CAS 564 Creative Dramatics for Children 4 hrs.
ED 430 Creativity in the Elementary School 4 hrs.
Electives** 1-4 hrs.

* Approved for General Education credit.
** Electives to accommodate student needs and balance will be determined by the department.
*** ED 230 is geared to personal creative development and is not restricted to integrated creative arts minors. Students enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group.

Integrated Language Arts Minor (ILAM)

June Cottrell, Adviser
332 Sproat Tower
(616) 383-4080

An interdisciplinary program of:
COLLEGE OF ARTS AND SCIENCES
Communication Arts and Sciences
Languages and Linguistics
COLLEGE OF EDUCATION
Department of 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 learning. This program satisfies the guidelines of the Michigan Department of Education for competency based programs and provides opportunities for a wide variety of interests and alternative learning styles.

The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions, and workshops together with opportunities for student-initiated learning.

Students can enter the program in their sophomore year. In general, ED 250, Human Development and Learning (or its equivalent), is a prerequisite for admission to the program. Program bulletin and application form are available in the Advising Offices of the College of Arts and Sciences or the Department of Education and
Science and Mathematics Teaching Minor
Adviser: Phillip T. Larsen

The minor is open only to students enrolled in the elementary education curriculum. Advising is provided by the Science and Mathematics Education, SAME, Center. It is strongly recommended that majors and minors be chosen from related disciplines. See adviser for acceptable combinations.

Level I Select one course from the following list:

- BIOL 107 Biological Science 4
- GSCI 131 Physical Science in Elementary Education 4

Level II A. Select two courses from the following list:

- Only one course from any one department may be chosen.
- BIOL 220 Applied Botany 4
- BIOL 234 Outdoor Science 4
- GEOG 237 Environmental Earth Science 4
- CHEM 140 Environmental Chemistry 4
- GSCI 231 Concepts in Physical Science 4

B. Required

- MATH 151 Geometry for Elementary Teachers 3 (MATH 150 prerequisite)
- MATH 265 Probability and Statistics for Elementary Teachers 4

Level III C. Required

- EDUC 401 Teaching Elementary School Science 3
- MATH 552 Teaching of Elementary Mathematics 3

Level IV D. Required

- EDUC 402 Seminar in Elementary Science and Mathematics 2

Middle School and Junior High School Curriculum

Bachelor of Arts or Bachelor of Science Degree

State Elementary or State Secondary Provisional Certificate

A program of undergraduate studies to prepare students to teach in the middle and junior high school which focuses on teaching-learning processes and content areas which are effective for working with the older child and the young adolescent in grades 5-9. (Student has option of earning elementary (grades K-9) or secondary (grades 7-12) certification. Elementary certification is recommended.)

The program includes a two-semester sequence of planned and supervised experiences specifically designed for teaching in the middle or junior high school. Program requirements must be planned and approved by advisor.

Minimum hours required for this curriculum 122 hrs.

- General Education Requirement 35 hrs.
- Major/Minor Requirements Elementary Education 57 hrs.
- General Education Requirement 35 hrs.
- Required 17 hrs.

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Creating Music in the Classroom 373 4
General Music Methods 240 2
Fundamentals of Guitar 126 1
Instruments of the Band and Orchestra 279 2
Elementary Education 24 hrs.
An adviser sets up an "individualized" plan for each student. Report to the College of Education, Office of Admissions, Advisement and Field Placement, 2504 Sangren Hall.

Professional Education 21 hrs.
ED 250 Human Development 3
ED 371 Classroom Organization and Management 3
Directed Teaching, Seminar in Education, School and Society 471 or 472, 410, 395 14

Physical Education 2 hrs.
(PREP 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 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.

Elementary Education Minor 24 hrs.
Requirements and approval for this required minor are available in the College of Education Office of Admissions, Advisement and Field Placement, 2504 Sangren Hall. Students must have a minor slip signed by an approved elementary education advisor.

Professional Education Sequence 16-21 hrs.
Human Development 3
Classroom Organization and Management 3
Directed Teaching 471 or 472 10
Seminar in Education 410 2
School and Society 395 3
Rural Education courses 13-15 hrs.
Rural Sociology 220 3
Rural Economics 230 3
Rural Life (Seminar) 525 2
Curr. Organization in Small Schools 201 3
Problems of Comm. Schools in Rural Areas 411 12
Supervision in Rural Area School (Sem.) 408 1-2

Physical Education (General) 2 hrs.
(PREP 340 will satisfy on hour of this requirement.)

Either a group major in rural life, including, rural sociology, rural economics, rural life seminar, Introduction to the Non-Western World, and 22 additional hours selected from courses offered in liberal arts, or two academic minors in subject fields taught in the elementary school, chosen with the guidance of the Director of Rural Life and Education. In addition to the major or two minors, the elementary education minor is required.

The candidate must satisfy the requirements for the B.A. or B.S. 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 for this curriculum 122 hrs.

Course Requirements

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.

Professional Education 21 hrs.
Human Development 250 3
Teaching and Learning in Jr. or Sr. H.S. 301 3
Directed Teaching 475-9 hrs., Seminar in Education 410-3 hrs., School and Society 395-3 hrs. (usually taken concurrently in one semester) 14

Physical Education 2-8 hrs.
NOTE: 322 Teaching of Reading. Secondary (3 hrs.), is required for all students in this curriculum.

The candidate for the State Secondary Provisional Certificate must present a teaching methods course in a major or minor field.

One major of 30 hours or a group major of 36 hours, and one minor of 20 hours or group minor of 24 hours or on second major in subjects or subject fields taught in the junior or senior high school. Certain courses in some departments may not count toward majors or minors (see course descriptions).

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 gives K-12 certification in that subject.

Agriculture (AGR)
American Studies (AMS)
Anthropology (ANT)
Art Education (includes Drawing and Design minor) (ATE)
Biology (BIO)
Chemistry (CHM)
Communication Arts and Sciences (CAS)

Distributive Education (DED)
Earth Science (EAR)
Economics (ECO)
English (ENG)
Geography (GEG)
Health Education (HED)
History (HIS)

*Music Education (includes vocal or instrumental minor) (MUS)

Physical Education Majors:
Physical Education—Coaching (PEA)
Physical Education—Elementary (PEE)
Physical Education—Secondary (PES)

Physics (PHX)
Political Science (POL)
Psychology (PSY)
Science (need departmental approval) (SCI)
Social Science (SSS)
Sociology (SOC)

Theatre Education (THN)

Vocational Technical Education Majors

(see Industrial Education Majors)

Minors

Agriculture (AGR)
Anthropology (ANT)
Biology (BIO)
Black American Studies (BAS)
Chemistry (CHM)
Communication Arts and Sciences (CAS)
Dance Education (DAN)

Distributive Education (DED)
Earth Science (EAR)
Economics (ECO)
English (ENG)

Environmental Studies (EVS)
Family Life Education (FLE)
Food Services (OCE)

General Business (BED)
Geography (GEG)
Health Education (HED)

History (HIS)
Industrial Arts (same minor areas as listed under major)

International and Area Studies Minors

Asian Studies (AFS)
African Studies (African Studies (AFS)

Cross Cultural Studies (CCS)
Latin American Studies (LAS)

Slavic Studies (SVS)

Language Department Minors (Same as listed under major)

Library Science (LIB)
Linguistics (LING)

Mathematics (MAT)

Physical Education Minors:
Physical Education—Secondary (PES)

Philosophy (PHX)

Political Science (POL)

Psychology (PSY)

Religions: Academic Study of (ASR)

Science (need departmental approval) (SCI)

Social Science (SSS)

Sociology (SOC)

Theatre Education (THN)

Vocational Technical Education

(Same Minor Areas as Listed Under VTE Majors)
CURRICULA 145

Special Education

Mentally Impaired

Bachelor of Science Degree State
Elementary Provisional Certificate

(If B.A. degree is desired see "Degrees and
Curricula" for these requirements)

Curriculum

Emotionally Impaired

Minimum hours for this curriculum 130 hrs.

"C" must be earned in each course listed in
the major. Those marked with ** are

Course Requirements
(Listings marked with * indicate that a

General Education Requirement

minimum of "C" must be earned in each

General Education Requirement

Minimum hours for this curriculum

130

hours

(If B.A. degree is desired, see Degrees for

these requirements)

Course Requirements
(Listings marked with 'indicate that a

minimum of "C" must be earned in each

35 hrs.

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. (See
"Degree Requirements" under Degrees and
Curricula listed earlier in this Bulletin.)
Communication Arts and Sciences and

course listed in the major. Those marked with
"are approved for General Education.)

English

General Education Requirement

Public Speaking I 130 or "Interpersonal

35 hrs.

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. (See
"Degree Requirements" under Degree and
Curricula listed earlier in this Bulletin.)
English

4 hrs.
4

Mathematics and Psychology

7 hrs.

Structure of Arithmetic 150

4

"General Psychology 194
Professional Education

Human Development 250
Teaching of Reading 312

3
13 hrs.

3
3

Reading and Related Communication Skills
For Middle and Upper Grades 352
3
Directed Teaching 471 or 472 (Regular
Class)
4
7 hrs.

Practical Arts

4
3

13 hrs.

3
3

Reading and Related Communication Skills
for Middle and Upper Grades 352
3
Directed Teaching 471 or 472 (Regular
Class)
4

Art Education Workhop 150

Music in Special Education 384
Art Education Workshop 150

4

3

or

or

Music for the Classroom Teacher 140 or

7 hrs.

Reading and Related Communication Skills
for Early Childhood 351
3

Fine Arts (Art and Music)

Reading and Related Communication Skills
for Early Childhood 351
3

Fine Arts (Art and Music)

7 hrs.

and

and

7 hrs.

Music for the Classroom Teacher 140 or

Music in Special Education 384

Practical Arts

4

3
3 hrs.

Childhood/Adulthood Crafts and Adapted
Techniques 190

3

Mentally Impaired—Major *
39 hrs.
Education of Exceptional Persons 530
3
Practicum in Special Education 531
2
"Communication Disorders 200

3

3 hrs.

532

4

3

588

3

Childhood/Adulthood Crafts and Adapted
Techniques 190

Emotionally Impaired—Major*
39 hrs.
Education of Exceptional Persons 530
3
Practicum in Special Education 531
2
"Communication Disorders 200

3

Programs and Intervention Stategies with the

Socially and Emotionally Maladjusted 589 .. 4
Behavior Disorders in School-Aged Learners
588

Educational Provisions for Handicapped
Adolescents and Young Adults 560
Special Education 533

Diagnostic and Prescriptive Techniques in

3

Electives (Approved by curriculum adviser)
The candidate must satisfy the requirements
for the B.S. degree or the B.A. degree.

13 hrs.

Human Development 250
Teaching of Reading 312

3
3

and

Reading and Related Communication Skills
for Early Childhood 351
3
or

Reading and Related Communication Skills
for Middle and Upper Grades 352
3
Directed Teaching 471 or 472 (Regular
Class)
4
Fine Arts (Art and Music)

7 hrs.

Music for the Classroom Teacher 140 or

Music in Special Education 384
Art Education Workshop 150
Practical Arts

4
3

3 hrs.

Childhood/Adulthood Crafts and Adapted

Techniques 190

3

Physically or Otherwise Health Impaired
Major*
39 hrs.
Education of Exceptional Persons 530
3
Practicum in Special Education 531
2
Behavior Disorders in School-Aged Learners

588

3

Educational Provisions for Handicapped
Adolescents and Young Adults 560
Orthopedic Conditions: Therapeutic
Education Implications 543

4

"Communication Disorders 200

3

3

Diagnostic and Prescriptive Techniques in
Special Education 533
4
Curricular and Instructional Provisions for

Exceptional Children 534
Directed Teaching (Special Educ.) 474

Seminar in Education 410

School and Society 395

4
8

2

3

Physical Education
2 hrs.
Physical Education for the Elementary

Seminar in Education 410

2

4

Teacher 340

2

One academic minor in a subject or subject
field taught in the elementary school. .20 hrs.
Electives (Approved by curriculum adviser)

2

Electives (Approved by curriculum adviser)
The candidate must satisfy the requirements
for the B.S. degree or the B.A. degree.

Visually Impaired
Minimum hours for this curriculum 130 hrs.

The candidate must satisfy the requirements
for the B.S. degree or the B.A. degree.

(If a B.A. degree is desired, see "Degrees"
for these requirements.)

Physically or Otherwise
Health Imparled

course listed in the major. Those marked with
** are approved for General Education.)

2

One academic minor in a subject or subject
field taught in the elementary school. .20 hrs.

3

Professional Education

Teacher 340

2

3

4

One academic minor in a subject or subject
field taught in the elementary school. .20 hrs.

Exceptional Children 534
4
Directed Teaching (Special Education) 474.8

Physical Education
Physical Education for the Elementary

2

4

7 hrs.

Curricular and Instructional Provisions for

3

Physical Education
2 hrs.
Physical Education for the Elementary
Teacher 340

Educational Provisions for Handicapped
Adolescents and Young Adults 560
3
Diagnostic and Prescriptive Techniques in
Special Education 533
4

3

Exceptional Children and Youth 534
4
Directed Teaching (Special Education) 474.8

School and Society 395

Behavior Disorders in School-Aged Learners

School and Society 395

Curricular and Instructional Provisions for

Seminar in Education 410

Nature and Needs of the Mentally Retarded

4 hrs.

"General Psychology 194

"General Psychology 194

"Children's Literature 282

"Degree Requirements" under Degrees and
Curricula listed earlier in this Bulletin.)

Structure of Arthmetic 150

3

Human Development 250
Teaching of Reading 312

and/or the College of General Studies are
required for Michigan certification. (See

Mathematics and Psychology

Communication 170

Professional Education

courses drawn from the College of Arts and

Sciences (nonprofessional courses only)

"Children's Literature 282

4

Structure of Arithmetic 150

35 hrs.

English

"Children's Literature 282

Mathematics and Psychology

approved for General Education.)

An additional 5 hrs. in General Education

course listed in the major. Those marked with
** are approved for General Education.)

(For the preparation of teachers of the
emotionally impaired.)

Course Requirements
(Listings marked * indicate that a minimum of

Minimum hours for this curriculum130 hrs.

(If a B.A. degree is desired, see "Degrees"
for these requirements)

Course Requirements
(Listings marked with * indicate that a
minimum of "C" must be earned in each

General Education Requirement

35 hrs.

An additional 5 hrs. in General Education

courses drawn from the College of Arts and

Sciences (nonprofessional courses only)


See Education and Professional Development course listings for reading courses offered.

**All College Course**

**399 Field Experience (Community Participation)**

2-8 hrs.
A program of independent study combining academic work in education with social environmental, civic or political field work. Prerequisites: A written outline of the student’s project, approved by a faculty supervisor, and approval from the office of the dean.

**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.

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**Counseling and Personnel (CP)**

Alan J. Hovestadt, Chair
Beverly Belson
Robert L. Betz
Kenneth Bullmer
William A. Carlson
John S. Geisler
Gilbert E. Mazer
Joseph R. Morris
Robert Oswald
Edward L. Trembley
Thelma Urbick

The Department of Counseling and Personnel offers professional education in the fields of counseling and personnel. Most of the courses are open to graduate students only, but the following courses are open to qualified undergraduates.

**Course Descriptions**

**580 Principles and Philosophy of Guidance**

2 hrs.
An introductory course for elementary and secondary teachers, and others interested in guidance. A thorough investigation of the philosophical concepts underlying guidance services, a survey of the history and principles of guidance, and an overview of guidance services.

**583 Guidance Workshop**

1-4 hrs.
Designed for teachers and counselors who wish to study particular guidance problems and procedures in relation to their local guidance program. (C-Card required.)
Course will stress author's purpose, summarizing, and outlining for academic efficiency.

104 Effective Reading for College Students
2 hrs.
Designed to show the student how to make more effective use of text and reference books in academic subjects. Attention is given to chapter reading, vocabulary building, problem solving, concentration, and critical reading. Group and individual conferences are provided. Credit for this course will not apply to the number of credits needed for graduation. Course graded on credit/no credit basis.

105 Advanced Reading
1 hr.
Designed to increase reading rates and comprehension skills. Provides the well-adjusted academic student with an opportunity to develop more sophisticated skills. Course graded on credit/no credit basis.

106 Effective College Reading for International Students
2 hrs.
This course focuses on vocabulary development and comprehension, including an emphasis on correct pronunciation, word analysis, factual and inferential thinking, and synthesis of ideas. Course is graded on a credit/no credit basis. Prerequisite: Results of TOEFL or MTEL.

230 The Nature of Creativity
3 hrs.
This course literally explores the nature of creativity—its process, its product, 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.

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, intellectual, and moral development. Attention is also given to the development of the self-concept for the child, birth through 12 years. Special attention is given to creative 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 ILA/SPFA 260.

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 ILA/SPFA 260.

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, the selection and organization of learning experiences, instructional methods and materials, patterns of curriculum organization, classroom management, and instructional duties of the teacher in the classroom and community. Requires a one half day per week field experience in the classroom from 7:30 a.m. to 11:00 a.m. or from 11:00 a.m. to 2:30 p.m. Offered only during the Fall and Winter Semesters. Prerequisite: ED 250.

307 Teaching Elementary Social Studies
3 hrs.
This course is designed to help undergraduates 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.

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.

312 The Foundations of Reading Instruction
3 hrs.
This course will provide students with the foundations of reading instruction in the United States. Summaries of the results of current research in reading will be presented and the underlying theories and concepts examined. Also, current methods of teaching reading—especially the teaching approaches exemplified in basal programs—will be critically analyzed. Language as a system for conveying ideas, information, and feelings will be introduced. Additionally, specific topics of importance to a foundational study, such as classroom diagnosis, will also be presented.

322 The Teaching of Reading (Secondary)
3 hrs.
This course deals with methods and materials for improving reading in the junior and senior high school. Both developmental and remedial procedures are stressed.

347 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.

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 material for interactive and independent modes of learning. To be taken in conjunction with ED 371.
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. 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.

351 Reading and Related Communication Skills for Early Childhood
3 hrs.
A study of the young child’s verbal and nonverbal language and how he/she records and interprets language. An awareness of the relationship of experience to language development and of the many approaches to reading. Emphasis will be placed on the implications of current research as it effects reading programs and reading instruction for young children, as well as on experiences in selecting books, storytelling, writing for and with children, and the production of a wide variety of audiovisual materials to be used with children. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312.

352 Reading and Related Communication Skills for Middle and Upper Grades
3 hrs.
A study of the multi-ethnic language of this age group and of how these youngsters record and interpret language. Emphasis will be placed on the implications of current research as it effects reading programs and reading instruction. Grouping for learning skills for reading in the content fields, testing, and remedial techniques will be stressed. Emphasis will be placed on book selection, storytelling, creative writing, and the production of a wide variety of audiovisual materials to be used in selected curricular areas. 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.

370 Educational Psychology: Young Children/Elementary
3 hrs.
This course will develop understandings of children’s learning from birth through fourth/fifth grade. Emphasis will be placed on major learning theories, on the growth of 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 classroom 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 infer the roles of the teacher as they relate to students’ 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.

371 Classroom Organization and Management: Young Children/Elementary
3 hrs.
Students will examine and apply recent research on effective classroom management, concentrating on such variables as time on task, appropriate choice of group structure, instruction, the management of time, space, and materials; and the analysis of classroom interactions. Students will design, implement, and evaluate interactive curricula and will learn management principles designed to prevent “disipline 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 370 and SPED 527. SPPA majors may substitute SPED 530 for SPED 527. Physical Education Majors may substitute PEPR 320 or PEPR 520 for SPED 527.

395 School and Society
3 hrs.
This course is concerned with the utilization of change in society as a source 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 will be given to the individual’s role in the change process in education. An interdisciplinary approach is used.

398 Special Studies in Education
1-6 hrs.
With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concerns, find it desirable to pursue in greater depth topics or problems related to children’s educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairman, 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.

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.

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.

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 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.

430 Creativity in the Elementary School
4 hrs.
A synthesis of the principles developed in the integrated Creative Arts Minor as applied to teaching and learning at the elementary school level. Emphasis is placed on the integration of creative processes in elementary school curriculum and instruction, on the teacher as problem solver, and on the creation of structures which accommodate individualization of instruction and creative problem solving in children.

460 Integrated Language Arts Seminar
4 hrs.
This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language arts processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience through which students will demonstrate identified program competencies. Student and faculty-led seminars will be scheduled periodically throughout the course. (This course is required in the Integrated Language Arts Minor.)

470 Directed Teaching: Early Childhood
1-10 hrs.
Only for seniors who have completed all their professional studies courses. This is the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: ED 347, 348, 370, 371, 395, and SPED 527.

471 Directed Teaching: Primary Grades
1-10 hrs.
Only for seniors who have completed all their professional studies courses. This is the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: ED 347, 348, 370, 371, 395, and SPED 527.
472 Directed Teaching: Upper Elementary/Middle School 1-10 hrs.
Only for seniors who have 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 it to the understanding, 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.

474 Directed Teaching 4-8 hrs.
Only for students specializing in Special Education. Candidates must be approved by the Chair of the Special Education Department. The student shall present documented evidence of successful field experience with children or young people prior to beginning a Directed Teaching assignment.

475 Directed Teaching: Secondary 1-9 hrs.
Students devote a minimum of four and one-half days per week for one semester to Directed Teaching. They are expected to have experience in both the curricular and extra-curricular programs of the school in which they teach. Prerequisite: Successful completion of ED 250, 301, and 322 or their equivalents prior to beginning Directed Teaching; an academic average of 2.5 in all education courses and in overall average, and 2.0 in minors and minors used for certification.

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 towards a Master's degree.

504 Adult Development 3 hrs.
This course will provide an in-depth look at each age stage and life in the cycle. It will explore such problems as: the changing role of parents and singles, the changing societal pressures on teachers, new adult life-styles, mid-life career changes, the changing role of males and females, and unique health status. Emphasis will be placed on the identification of patterns of lifelong learning leading to a more fruitful and fulfilling life.

505 The Adult Learner 3 hrs.
This course will provide an in-depth look at the learning adult from age 22 to death with emphasis on human variability, unique learning style, and characteristics of the adult learner. Theories of adult learning, studies of intelligence and memory, learning capabilities, abilities, approach to, and speed of learning will be considered. Motivation as prerequisite for high-level wellbeing and problem solving will be studied. Limited to 20 students.

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 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.

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 study professionals in the schools, and problems identified by members of the seminar. Members of the seminar will report on the current literature available in libraries and community resources and work toward potential solutions of problems.

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 must know to help their children learn. 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.

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 made. The course will focus on the actual use of materials with pupils to provide practical experiences in teaching on an individual and school-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 methods that may be effective for special-needs students. Limited to 20 students.

516 Professional Symposium in Reading 1-10 hrs.
Explores the nature of the reading process and the psychology of 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.

521 Piaget and Young Children 3 hrs.
Examines significant contributions of Piaget to our understanding of 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.

546 Audiovisual Media I 3 hrs.
An introduction to audiovisual media as effective means for achieving educational objectives in presentational, 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 textbooks, each student should plan to spend $15 or more for supplies and have the use of a simple camera. Limited to 20 students.

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 level 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.

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.

597 Reading and Related Language Experiences 3 hrs.
This course involves a study of the current research and aspects of language which are involved in the process of effective reading. It is intended to provide students with a thorough understanding of the research in language and its application to the reading
process. It also is intended to help students understand more fully the place of reading in a total language arts program and to give students an opportunity to make application to practical classroom situations.

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 (EDLD)**

Edgar A. Kelley, Chair  
Robert O. Brinkerhoff  
Mary Anne Bunda  
David J. Cowden  
Kenneth E. Dickie  
James R. Sanders  
Lawrence B. Schlack  
Carol F. Sheffer  
Uldis Smidchens  
Daniel L. Stufflebeam  
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, or Doctor of Education. While most of the department's courses, seminars, and studies, are intended for graduate students, programs of studies may be outlined and pursued by advanced undergraduate students whose career goals include positions as leaders in the many and varied educational agencies that are operative in society today. Interested students should see The Graduate College Catalog for more detail.

**Professional Health, Physical Education and Recreation**

Roger Zabik, Chair  
Donald Boven  
Bill Chambers  
Bilye Ann Cheatam  
Charles Comer  
Harriet Creed  
Robert Culp  
George Dales  
Ruth Davis  
Mary Dawson  
David Diget  
Frances Ebert  
Jean Friedel  
George Hobs  
Jack Jones  
Janet Kanzler  
Patricia Lemanski  
Ruth Ann Meyer  
John Miller  
Margie Jeanne Miner  
Robert Moss  
Fred Orlofsky  
Richard Raklovtz  
Harold L. Ray  
William Roweckamp  
Merle Schlosser  
William Schreiber  
Norma Stafford  
Barbara Stephenson  
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) many 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 Group Major  
   A. Coaching Emphasis  
   B. Elementary Emphasis  
   C. Secondary Emphasis
3. Recreation

**Minors**
1. Athletic Training
2. Coaching  
   A. Phys. Educ. major  
   B. Non-Phys. Educ. major
3. Elementary Physical Education
4. Health Education
5. Interdisciplinary Minor in Special Education
6. Recreation
7. Secondary Physical Education

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 12 semester hours for a major and 9 for a
minor must be taken at Western Michigan University. It is recommended that PEPR 344 (3) and PEPR 345 (3) be included in the hours taken at Western Michigan University.

**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 and/or the College of General Studies.

**Majors**

**Health Education Major**

36 credit hours

Bachelor of Science Degree

State Elementary or Secondary Provisional Certificate

The health education major is a program to prepare health educators who can influence the psychological, sociological, and biological development of individuals and groups to meet effectively the health needs of society.

The major is designed so graduates may enter first level positions in both school's 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 should consult a department adviser promptly after choosing this major, usually not later than the sophomore year.

Health education majors are expected to have a valid First Aid Certificate at the time of graduation.

**Course Requirements**

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>36</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
</tr>
</tbody>
</table>

**Recommended**

Students who wish to substitute other courses should consult the adviser in advance.

**Required Cognates**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 194</td>
<td>3</td>
</tr>
<tr>
<td>PSY 150</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200</td>
<td>3</td>
</tr>
<tr>
<td>BIO 107</td>
<td>4</td>
</tr>
<tr>
<td>BIO 101</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 100</td>
<td>4</td>
</tr>
<tr>
<td>PEPR 211</td>
<td>3</td>
</tr>
</tbody>
</table>

**Group Major in Physical Education**

45 credit hours

Bachelor of Science Degree

State Elementary and/or Secondary Provisional Certificate

The group major in physical education offers the student the opportunity to concentrate on coaching, elementary physical education, or secondary physical education. The student completing either the elementary or secondary area will receive certification in K-12; the coaching emphasis student will receive certification in 7-12; however, K-12 certification may be obtained by completing PEPR 344 and Prerequisites.

The course of study in the elementary emphasis concentrates upon developmental tasks of the elementary school child with unique activities which provide for the child's optimum growth.

The course of study in the secondary emphasis offers a wide variety of activities needed to prepare the junior and senior high physical educator plus an activity area of concentration for specialization in teaching or coaching.

In addition to certification in physical education, the course of study in the coaching emphasis offers the selection of in-depth studies for the coaching of three sports.

Majors are to complete the education sequence as required by the Department of Education and Professional Development including the directed teaching experience. The student will also act as a teaching assistant for one semester in a general physical education course and complete a minimum of 15 clock hours of observation and participation on both the elementary and secondary levels. These experiences are scheduled for the student.

**Hours Required**

130

Indicates courses applicable to General Education requirement.

**Required Cognates**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMED 112</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended for General Studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 104</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 105</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 305</td>
<td>4</td>
</tr>
<tr>
<td>PSY 194</td>
<td>3</td>
</tr>
</tbody>
</table>

**Professional Core**

18-21

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 101</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 110</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 150</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 181</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 295</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 344</td>
<td>3</td>
</tr>
</tbody>
</table>

**Recommended Professional Core**

27

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 235</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 236</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 300</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 380</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 400</td>
<td>2</td>
</tr>
</tbody>
</table>

**Coaching Techniques**

9

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 100</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 337</td>
<td>6</td>
</tr>
</tbody>
</table>

**Required Activity Courses**

5

Any PEPR or PEGN Activity Courses approved by adviser.

**Elective Courses**

6

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 236</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 250</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 344</td>
<td>2</td>
</tr>
</tbody>
</table>

**ELEMENTARY EMPHASIS**

24

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 102</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 104</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 132</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 139</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 165</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 102</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 104</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 132</td>
<td>1</td>
</tr>
<tr>
<td>PEPR 139</td>
<td>1</td>
</tr>
</tbody>
</table>
DANC 290 Teach, Dan. Elem Sch .......................... 3
PEGN 276 Outdoor Education ................................ 2
PEPR 320 PE—Exceptional Child .......................... 3
Minimum of 1 additional PEPR team sport .............. 1
Minimum of 1 additional individual sport .............. 1
PEGN swimming course at own level ..................... 1

Suggested Elective Courses ................................. 8
Selection of any PEPR or PEGN activity course as approved by department academic adviser, according to the needs of the individual student.

<table>
<thead>
<tr>
<th>Group I:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGN 102 Badminton</td>
<td></td>
</tr>
<tr>
<td>PEGN 103 Gymnastics</td>
<td></td>
</tr>
<tr>
<td>PEGN 105 Bowing</td>
<td></td>
</tr>
<tr>
<td>PEGN 106 Basketball</td>
<td></td>
</tr>
<tr>
<td>PEGN 107 Softball</td>
<td></td>
</tr>
<tr>
<td>PEGN 109 Volleyball</td>
<td></td>
</tr>
<tr>
<td>PEGN 131 Tennis</td>
<td></td>
</tr>
<tr>
<td>PEGN 143 X-Country Skiing</td>
<td></td>
</tr>
<tr>
<td>PEPR 174 Recreational Leadership—Arts and Crafts</td>
<td>2</td>
</tr>
<tr>
<td>PEPR 236 Officiating Series</td>
<td></td>
</tr>
<tr>
<td>PEPR 250 Cultural Bases</td>
<td></td>
</tr>
<tr>
<td>PEGN Swimming</td>
<td></td>
</tr>
</tbody>
</table>

SECONDARY EMPHASIS ........................................... 24
(Proficiency examination procedure may be obtained from department adviser. See ** below.)

<table>
<thead>
<tr>
<th>Group I:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming— 2 courses at own swimming level .................. 2</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Group II: Required—DANC 106 Recreational Dance .... 1  
(See also Group IV)

<table>
<thead>
<tr>
<th>Group III: Team Sports—Course or proficiency ** in all courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 104 Soccer, Spbl., Fl. Fotl.</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>PEPR 105 Field Hockey</td>
</tr>
<tr>
<td>PEPR 106 Basketball</td>
</tr>
<tr>
<td>PEPR 107 Softball</td>
</tr>
<tr>
<td>PEPR 109 Volleyball</td>
</tr>
<tr>
<td>PEGN 122 /322</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>PEPR 131 Or</td>
</tr>
<tr>
<td>PEGN 260 /360 Tennis</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>PEGN 132 Track and Field</td>
</tr>
<tr>
<td>PEGN 134 Paddleball</td>
</tr>
<tr>
<td>PEGN 137 Racketball</td>
</tr>
<tr>
<td>LIST 2 Select 1 course</td>
</tr>
<tr>
<td>DANC 101 Beginning Ballet I</td>
</tr>
<tr>
<td>DANC 102 Beginning Jazz</td>
</tr>
<tr>
<td>DANC 103 Beginning Modern I</td>
</tr>
</tbody>
</table>
| PEPR 130 Wrestling                                     | 1

<table>
<thead>
<tr>
<th>Group V: Lifetime Sports/Activities—Select a minimum of 2 courses .......................... 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGN 105 Bowling.</td>
</tr>
<tr>
<td>PEGN 108</td>
</tr>
<tr>
<td>OR</td>
</tr>
<tr>
<td>208 Backpacking.</td>
</tr>
<tr>
<td>PEGN 109 Cycling</td>
</tr>
<tr>
<td>PEGN 120 Fencing</td>
</tr>
<tr>
<td>PEGN 130 Judo</td>
</tr>
<tr>
<td>2 OR</td>
</tr>
<tr>
<td>PEGN 131 Karate</td>
</tr>
<tr>
<td>PEGN 139 Relaxation</td>
</tr>
<tr>
<td>PEGN 165 Yoga</td>
</tr>
<tr>
<td>PEGN 140 Rifley</td>
</tr>
<tr>
<td>PEGN 143 X-Country Skiing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group VI: Concentration Areas—Select 1, 2, or 3 for 3 credit hours minimum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEGN 120 Beginning Jazz Dance II</td>
</tr>
<tr>
<td>PEGN 121 Ballet Studio I</td>
</tr>
<tr>
<td>PEGN 122 Beginning Modern Dance II</td>
</tr>
<tr>
<td>PEGN 130 Modern Studio I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group VII: Additional Electives—4 credit hours minimum.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 235 Theory of Coaching</td>
</tr>
<tr>
<td>PEPR 236 Officiating Series</td>
</tr>
<tr>
<td>PEPR 250 Cultural Bases</td>
</tr>
<tr>
<td>PEPR 300 Seminar</td>
</tr>
<tr>
<td>PEPR 315 Health—Sec. School</td>
</tr>
<tr>
<td>PEPR 320 PE—Exceptional Child</td>
</tr>
<tr>
<td>PEPR 337 Coaching/Adv. Tech. Series</td>
</tr>
<tr>
<td>PEPR 368 Org. and Adm. of IM</td>
</tr>
<tr>
<td>PEPR 380 Sports Injuries</td>
</tr>
<tr>
<td>PEPR 400 Field Exp.—Coach</td>
</tr>
</tbody>
</table>

Recreation

45 credit hours Bachelor of Arts Degree
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 |

| General Education Courses .................................. 35 |

Required Professional Courses ................................ 29
(Proceed with course descriptions when courses are offered and the suggested sequence of course work.)

| PEPR 170 Introduction to Recreation                  |
| PEPR 178 Play around Administration                    |
| PEPR 181 First Aid                                     |
| PEPR 270 Recreation Leadership (Prerequisite 170)     |
| PEPR 372 Recreation Practicum (Prerequisite 270)     |
| PEPR 370 Recreation Practicum (Prerequisite 272)     |

| PEPR 375 Organization and Administration of Recreation |
| PEPR 470 Recreational Facilities and Areas            |
| PEPR 400 Internship in Recreation                      |

Elective Courses ............................................. 16

Group I: Program Skills

1. Aquatics Area (Not more than 4 courses)
   PEGN 250 Senior Life Saving .................................. 2
   PEGN 255 Water Safety Instructors .......................... 2
   PEGN 107 Canoeing                                     |
   PEGN 141 Sailing                                     |
   PEGN 255 Synchronized Swimming                       |
   PEGN 253 Speed Swimming                              |
   PEGN 254 Springboard Diving                          |

2. Sports Area (Not more than 8 courses)
   PEGN/PEPR Team Sports (Not more than 4—no repeats)  
   PEGN/PEPR Ind. and Dual Sports (Not more than 4—no repeats)  
   PEPR 236 Sports Officiating (Not more than 4)  
   PEPR 337 Adv. Techniques and Coaching (Not more than 2)  

3. Arts and Crafts Area (Not more than 4 courses)
   PEPR 174 Rec. Leadership of Arts and Crafts .......... 2
   ITE 190 Adult/Child Crafts                           |
   ITE 198 OT Woodworking                              |
   ART 239 Metal Smithing                              |
   ART 101 (104) Drawing                               |
   ART 238 Jewellery                                   |
   ART 240 Painting                                   |
   ITE 170 Ind. Crafts Techniques                      |

4. Music and Drama Area (Not more than 4 courses)
   MUS 140 Music for the Classroom Teacher             |
   CAS 564 Creative Drama for Children                  |
   THEA 100 Intro. to Theatre                           |
   THEA 120 Play Production                            |
   LIB 546 Story Telling                               |

5. Outdoor Skills Area (Not more than 4 courses)
   PEPR 172 Camp Leadership                            |
   PEPR 276 Outdoor Education                          |
   PEGN 106 Campcraft                                  |
   PEGN 133 Orienteering                               |
   PEGN 108 Backpacking                                |
   PEGN 143 Cross Country Skiing                       |
   BIOL 234 Outdoor Science                           |
   BIOL 105 Envr. Biology                              |
   BIOL 530 Envr. Educ                                 |

Group II: Administrative Skills
Not more than four courses

| PEPR 369 Organization and Administration of Intramurals |
| CAS 130 Public Speaking                                |
| MGM 250 Small Business Management.                    |
| BIS 288 Records Management                            |
| BIS 556 Office Management                             |
| BIS 242 Business Communications                       |
| BIS 102 intro. to Information Processing              |
| ACCT 201 Accounting                                   |
| GEOL 312 Geology of National Parks and Monuments      |
| GEOL 544 Environmental Geology                        |
| ECON 319 Environmental Economics                      |
| CRT 363 Landscape Design                             |

Group III: Community Organization Skills
Not more than four courses.

| PEGR 516 Issues in Health Education                  |
| SWRK 572 Community Agency Resources                  |
| SWRK 562 Community Organizations in Urban Areas      |
| SOC 210 Modern Social Problems                       |
PROFESSIONAL HEALTH, PHYSICAL EDUCATION AND RECREATION 153

ATHLETIC TRAINING MINOR (NON-TEACHING)

16-21 credit hours

**Required Cognates:**
- BMED 112 Anatomy 4
- BIOL 512 Health Problems 3
- CRT 210 Intro. Human Sexuality 3
- CHEM 101 or 102 General Chemistry 4
- ED 230 4*
- ED 340 Safety Education 3
- ED 555 Alcohol Education 2
- ED 350 Young Child, Fam. and Soc. 3
- BMED 111 Anatomy 4
- CRT 210 Intro. Human Sexuality 3
- CHEM 101 or 102 General Chemistry 4
- ED 230 4*
- ED 340 Safety Education 3
- ED 555 Alcohol Education 2
- Additional Requirements:
  - 1. Current lifesaving certificate or satisfactory completion of PEPR 250 Lifesaving or PEPR 350 W.S.I. required
  - 2. Six hours (600) clock hours of clinical experience.

**Coaching Minor—Physical Education Major**

**23 credit hours**

Designed to qualify the physical education major to coach interscholastic and intercollegiate athletic teams. The coaching minor will provide instruction in the sports that are currently emphasized by the Michigan Interscholastic Sports Programs: basketball, field hockey, track and field, swimming, diving, tennis, volleyball, softball, gymnastics, and golf. (Not for teacher certification.)

**Required Courses:**
- PEPR 235 Theory of Coaching 2
- PEPR 390 Physiological Motor Act. 2
- PEPR 353 Principles, Problems Coaching 2
- PEPR 358 Foundations of Sports Injuries (Prereq: 181) 2
- PEPR 400 Field Experience (Prereq: Coaching and Advanced Techniques Course) 2
- PEGN 400 Varsity Athletic Series 1
- **TEAM**
  - Basketball 2
  - Field Hockey 2
  - Baseball or Softball 2
  - Volleyball 2
  - Football 2
  - Soccer 2
- PEGN 380 Team Manager Participation 1
- **INDIVIDUAL**
  - Gymnastics 2
  - Tennis 2
  - Track and Field 2
- PEPR 236 Officiating—Select two of the following officiating courses to complete the 14 hrs. of Professional Electives 2
  - Football 2
  - Basketball 2
  - Field Hockey 2
  - Gymnastics 2
  - Baseball 2
  - Volleyball 2
  - Softball 2
  - Ice Hockey 2

**Physical Education Minor/Elementary Emphasis**

(Must be taken as part of Elementary Group Minor)

**Cognates**
- BMED 112 3
- BIOL 107 4*
- ED 230 4*
- BMED 211 4*
- ED 340 Safety Education 3
- ED 555 Alcohol Education 2

**Required Professional Courses**

**Academic**
- PEPR 276 Outdoor Education 2
- PEPR 295 Biomech. Analysis of Activity 2
- PEPR 320 Physical Education for the Exceptional Child 3
- PEPR 344 Teaching P.E. in the Elementary School Preq. PEPR 101; 102/103; 125; DANC 106 3
- DANC 106 4*
- PEPR 102 Sport, Tumbling, Trampoline OR
- PEPR 103 Beginning Gymnastics (Perm. of Instructor) 1
- PEPR 132 Track and Field 1
- DANC 208 Recreational Dance 1
- DANC 204 Teaching Dance in the Elementary School 3
- PEPR 101 Intro. to Games and Sports 1

**Electives**
- Elect from the following courses and/or other Cognates 2

**Activity**
- PEPR 102 Sport, Tumbling, Trampoline OR
- PEPR 103 Beginning Gymnastics (Perm. of Instructor) 1
- PEPR 132 Track and Field 1
- DANC 208 Recreational Dance 1
- DANC 204 Teaching Dance in the Elementary School 3
- PEPR 101 Intro. to Games and Sports 1
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 elementary 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 group consists of 24 hours. The program is designed to offer courses in multidisciplinary areas and to meet state certification standards.

**Required Courses**
- PEPR 100 Health for Better Living 3
- PEPR 314 Elementary School Health and Safety Ed 3
- OR
- PEPR 315 Secondary School Health and Safety Ed 3
- PEPR 211 Community Health 3
- OR
- PEGN 514 Health Education Materials and Methods 2
- PEGN 516 Issues in Health Education 2

**Elective Courses**

**Basic Sciences**
- BMED 211 Mammalian Anatomy 4
- BMED 240 Human Physiology 4
- GSCI 133 Issues in Social Biology 4

**Behavioral Sciences**
- PSY 194 General Psychology 3
- SOC 100 /200 Principles of Sociology 3
- CAS 170 Interpersonal Communication 3
- SWRK 210 Social Work Services and Prof Roles 3
- ED 350 The Young Child, His Family and His Society 3

**Health Education Aspects of Man and His Environment**
- CRT 266 Food for Man 3
- CRT 210 Sex Education: Introduction to Human Sexuality 3
- PEPR 181 /380 First Aid/Foundations of Sports Injuries 1-2
- PEGN 516 Issues in Health Education 1-3
- SOC 122 Death and Dying 3

Recreation Minor
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**
- PEGR 370 Recreation Practicum (Prereq. 170, 270, 372) 3
- PEGR 372 Recreational Programming (Prereq. 270) 3
- PEGR 370 Recreation Practicum (Prereq. 170, 270, 372) 3
- PEGR 376 Organization and Administration of Recreation (Prereq. 170, 270, 372, 370) 3

**Elective Courses**
- From not more than two groups: 3-6
  - Group I: Program Skills
    - Aquatics Area (Not more than 4 courses)
    - PEGR 250 Senior Life Saving 2
    - PEGR 350 Water Safety Instructors 2
    - PEGR 107 Canoeing 1
    - PEGR 141 Sailing 1
    - PEGR 253 Speed Swimming 1
    - PEGR 254 Springboard Diving 1
  - Sports Area (Not more than 8 courses)
    - PEGN/PEPR Team Sports (Not more than 4—no repeats)
    - OR
    - PEGN/PEPR Individual and Dual Sports (Not more than 4—no repeats)
    - OR
    - PEGN 337 Adv. Techniques and Coaching (Not more than 4)
  - Group II: Administrative Skills
    - PEGR 370 Recreation Practicum (Prereq. 170, 270, 372) 3
    - PEGR 372 Recreational Programming (Prereq. 270) 3
    - PEGR 370 Recreation Practicum (Prereq. 170, 270, 372) 3

Secondary Physical Education Minor
23 credit hours

(*Applicable to total General Education requirement*)

**Cognates**
- 12

**Required Courses**
- BMED 112 3
- BMED 240 4*
- BMED 211 4*
- BMED 105 Envir. Biology 3
- BMED 106 Envir. Biology 3
- BMED 108 20B Backpacking 1
- BMED 133 Orienteering 1
- BMED 143 Cross Country Skiing 1
- BMED 234 Outdoor Science 4
- BMED 242 Business Communication 3
- BMED 105 Envir. Biology 3
- BMED 300 Environ. Ed. 3
Required Professional Courses: Academic. 13

PEPR 150 Foundations of Health, Physical Education and Recreation, 2

PEPR 110 Physical Fitness, 1

PEPR 265 Biomech. Analysis of Activity, 2

PEPR 390 Physiol. of Motor Activity, 2

PEPR 292 Measurement and Evaluation in Physical Education, 3

PEPR 345 Teaching of Physical Education in Secondary School (Recommended to be taken Senior year), 3

Activity Required: 10

PEPR 101 Intro. Gms. and Spts., 1

PEPR 236 Elect one officiating course, 1

DANC 106 Recreational Dance, 1

Individual Sports: Elect 2 courses from:

PEGN 101 Archery

PEGN 102 Badminton

PEGN 122 Golf

PEPR 131 Tumbling

PEPR 102 St. Tumb Tramp.

PEPR 103 Gymnastics

PEGN 134 Paddleball

OR

PEGN 137 Racketball

PEGN 250 Life Saving

PEGN 350 W.S.I.

Team Sports:

Elect 2 semester hours

PEPR 104 Soccer, Speedball, Flag Football

PEPR 105 Field Hockey

PEPR 109 Volleyball

PEPR 106 Basketball

PEPR 107 Softball

Lifetime Sports/Activities: Elect 1 semester hour

PEGN 105 Bowling

PEGN 106 Camp Craft

PEGN 108/208 Backpacking

PEGN 109 Cycling

PEGN 120 Fencing

PEGN 130 Judo

OR

PEGN 131 Karate

PEGN 139 Relaxation

OR

PEGN 165 Yoga

PEGN 140 Riflery

PEGN 143 Cross-Country Skiing

5. Only a student with a severe physical disability will receive a medical waiver from the requirement. A student with a temporary or permanent physical disability may receive counseling concerning selection of courses suited to his/her limitation. A physical examination by a Health Center physician is the first step in the counseling procedure. The procedure does not have to be followed if the student feels he/she can select two courses without medical advice. The physical examination must be given during the first semester of residence if a student wishes to follow the Medical Recommendation procedure. A copy of the procedure may be obtained from the Health Center, Office #1 Oakland Gymnasium or the Main Office, Gary Physical Education Center.

6. A varsity team member may receive up to 2 credits in general physical education by enrolling in the appropriate course in the PEGN 400 series (List follows 300 level courses.)

7. Only one dance course may be used to fulfill the general physical education graduation requirement.

8. ROTC Cadets are to enroll in PEGN 175 Military Fitness I and PEGN 175 Military Fitness II to fulfill the general physical education requirement. Permission required from ROTC.

Restrictions:

1. Up to 8 hours of general physical education will be accepted as credits toward graduation.

2. A freshman or sophomore student may not enroll in more than 1 hour of general physical education in any one semester.

3. A course cannot be repeated for credit without written authorization from the Coordinator of the General Physical Education Program to the Academic Records Office. PEGN 175 Special Activities may be repeated under different course titles, i.e. 175 Military Fitness, 175 Ice Dance, etc.

Special Academic Courses (PEPR)

(Non-Majors)

241 Physical Education for the Elementary Teachers

340 Physical Education for the Elementary Classroom Teacher

Professional Activity Courses (PEPR)

101 Intro. Games and Sports

102 Stunts, Tumbling, Trampoline

Courses By Topic

Courses in General Physical Education (PEGN)

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. 100 Adapted P.E. Med. Rec

101 Archery

102 Badminton

104 Basketball

105 Bowling

107 Canoeing

106 Backpacking

109 Cycling

120 Fencing

121 Field Hockey

122 Golf I

123 Gymnastics—Apparatus

124 Gymnastics—Tumbling

129 Ice Hockey

130 Judo

131 Karate

136 Physical Fitness

137 Racketball

139 Relaxation

140 Riflery

141 Sailing

142 Skating—Ice

143 Skiing—Cross Country

144 Skiing—Alpine

146 Soccer

147 Softball

149 Swimming—Unable to swim in deep water

160 Tennis I

161 Track and field

163 Volleyball

164 Wrestling

165 Yoga

175 Special Activities, e.g., Military Fitness, Aerobic Dance, outdoor challenge, jogging

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)

200 Physical Education Learning Lab Activities

205 Bowling

208 Intermediate Backpacking

220 Fencing

222 Golf II

229 Ice Hockey

231 Karate

237 Racketball

241 Sailing

242 Skating—Ice Figure

249 Swimming—Intermediate

250 Swimming—Life Saving

253 Swimming—Speed

254 Swimming—Springboard—Diving

260 Tennis II

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.

350 W.S.I.—Current Life Saving Certificate required

360 Tennis—Intermediate 1 hr.

A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

400 Baseball

401 Basketball

403 Cross Country

404 Field Hockey

405 Football

406 Golf

407 Gymnastics

408 Ice Hockey

409 Soccer

410 Softball

411 Swimming

413 Tennis

414 Track/Field

415 Volleyball

416 Wrestling

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

113 Beginning Modern II

Special Academic Courses (PEPR)

241 Physical Education and Recreation for Teachers

340 Physical Education for the Elementary Classroom Teacher

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 or 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.
Health Education Academic Courses (PEGR)

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
411 Health Education: Public Health II
510 Modern Health for Teachers and Health Professionals
512 Principles, Practices, and Methods in Health Education
514 Methods and Materials in Health Education
516 Issues in Health Education

Physical Education Academic Courses (PEPR)

150 Foundations of Health, Physical Education and Recreation
181 First Aid
235 Theory of Coaching
236 Officializing Series
250 Cultural Bases of Physical Education
295 Biomechanical Analysis of Activity
300 Seminar Series
315 Physical Education for the Exceptional Child
321 Therapeutic Needs and Programs for the Exceptional Child
325 Swimming for the Exceptional Child
335Team Manager Participation
337 Coaching and Advanced Technique
344 Teaching Physical Education in the Elementary School
345 Teaching Physical Education in the Secondary School
366 Administration and Organization of Intramural Sports
380 Foundations of Sports Injuries
390 Physiology of Motor Activity
392 Measurement and Evaluation in Physical Education
400 Field Experience/Internship in HPER
420 Testing and Developmental Programs for the Exceptional Child
440 Nature and Bases of Motor Skills

Professional Recreation Courses (PEPR)

170 Introduction to Recreation
172 Camp Leadership
178 Playground 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 of 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

Course Descriptions

(Courses described in italics are approved for General Education. Course descriptions preceded by a * are open to all students.)

General Physical Education (PEGN)

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 desiring additional experience in an activity and who have completed the 200-level course or permission of instructor to enroll. A varsity athlete may receive PEGN credit by enrollment and completion of these courses (1 credit hour each.) Enrolment by permission of instructor.

100 Adapted P.E. Med. Rec 1 hr.
101 Archery 1 hr.
102 Badminton 1 hr.
104 Basketball 1 hr.
105 Bowling 1 hr.
107 Canoeing 1 hr.
108 Backpacking 1 hr.
109 Cycling 1 hr.
120 Fencing 1 hr.
121 Field Hockey 1 hr.
122 Golf I 1 hr.
123 Gymnastics—Apparatus 1 hr.
124 Gymnastics—Tumbling 1 hr.
129 Ice Hockey 1 hr.
130 Judo 1 hr.
131 Karate 2 hrs.
136 Physical Fitness 1 hr.
137 Racketball 1 hr.
139 Relaxation 1 hr.
140 Riffery 1 hr.
141 Sailing 1 hr.
142 Skating—Ice 1 hr.
143 Sking—Cross Country 1 hr.
144 Skiing—Alpine 1 hr.
146 Soccer 1 hr.
147 Softball 1 hr.
149 Swimming—Unable to swim in deep water 1 hr.
160 Tennis I 1 hr.
161 Track and field 1 hr.
163 Volleyball 1 hr.
164 Wrestling 1 hr.
165 Yoga 1 hr.
175 Special Activities, e.g., Military Fitness, Aerobic Dance, outdoor challenge, jogging 1 hr.
200 Physical Education Learning Lab Activities 1 hr.
1 hr. Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops will be available to aid the student learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 200 number, with different course titles. Prerequisite: GPA of 3.0 overall.

205 Bowling—Intermediate 1 hr.
206 Intermediate Backpacking 1 hr.
220 Fencing—Intermediate 1 hr.
222 Golf II 1 hr.
229 Ice Hockey 1 hr.
231 Karate 1 hr.
237 Racketball—Intermediate 1 hr.
241 Sailing—Intermediate 1 hr.
242 Skating—Ice-Figure 1 hr.
249 Swimming—Intermediate  
1 hr.  
**250 Swimming—Lifesaving  
2 hrs.  
**253 Swimming—Speed  
1 hr.  
**254 Swimming—Springboard—Diving  
1 hr.  
260 Tennis II  
1 hr.  
350 W.S.I.—Current Life Saving Certificate  
required  
2 hrs.  
360 Tennis—Intermediate 1 hr.  
400 Baseball  
1 hr.  
401 Basketball  
1 hr.  
403 Cross Country  
1 hr.  
404 Field Hockey  
1 hr.  
405 Football  
1 hr.  
406 Golf  
1 hr.  
407 Gymnastics  
1 hr.  
408 Ice Hockey  
1 hr.  
409 Soccer  
1 hr.  
410 Softball  
1 hr.  
411 Swimming  
1 hr.  
413 Tennis  
1 hr.  
414 Track/Field  
1 hr.  
415 Volleyball  
1 hr.  
416 Wrestling  
1 hr.  
105 Field Hockey  
1 hr. Fall odd years  
106 Basketball  
1 hr. Winter  
107 Softball  
1 hr. Fall  
108 Baseball  
1 hr. Fall even years  
109 Volleyball  
1 hr. Winter  
110 Physical Fitness  
1 hr. Fall, Winter  
131 Tennis  
1 hr. Fall  
132 Track and Field  
1 hr. Fall  
133 Football  
1 hr. Fall odd years  
150 Foundations of Health, Physical Education and Recreation  
2 hrs. Fall, Winter  
An introduction to the University, the profession, and an attempt to assist the student in making a realistic appraisal of his/her own aptitudes and capabilities relevant to the profession via actual testing of personal competencies. Taken in conjunction with PEPR 110.  
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.  
172 Camp Leadership  
3 hrs. Fall (even)  
The investigation of the responsibilities of the counselor in the camp. Exploration of the aims and values of the total camp program are emphasized.  
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.  
181 First Aid  
2 hrs. Fall, Winter, Spring  
†The standard course in first aid techniques leading to Red Cross certification. Open to all students.  
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 the student to the scope of public health programs. Prerequisite: 100.  
235 Theory of Coaching  
2 hrs. Fall, Winter  
Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relations with staff, faculty, students, parents, press, etc.  
236 Officializing Series  
1 hr. Fall, Winter, spring  
†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.  
Odd years: Field Hockey  
Winter Semester: Basketball  
Football  
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.  
250 Cultural Bases of Physical Education  
2 hrs. Winter  
The application of history, principles, sociology and philosophy of HPER to the current movements and trends in the profession. Prerequisite: PEPR 150.  
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.  
276 Outdoor Education  
2 hrs. Winter only  
†A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children of all ages.  
295 Biomechanical Analysis of Activity  
2 hrs. Fall only  
The analysis and measurement of human performance. Includes the examination and application of biomechanical principles to physical education and sport activities. Prerequisite: BMED 211.  
300 Seminar Series  
1-4 hrs. Fall, Winter  
Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest. Enrollment by written permission of the instructor.  
314 Elementary School Health and Safety Education  
3 hrs. Winter  
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.  
315 Secondary School Health and Safety Education  
3 hrs. Fall  
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 the secondary school program. Prerequisite: 100.  
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 learning disabilities. An emphasis will also be placed on activities for children with perceptual handicaps and on activities to augment academic learning. Prerequisite: PEPR 101.

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, and such conditions as multiple sclerosis, muscular dystrophy, rheumatoid arthritis, and cardiac disorders. Prerequisites: BMED 211, PEPR 320, SPED 530.

325 Swimming for the Exceptional Child 3 hrs. Fall Even Years
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.

335 Team Manager Participation 1 hr. Fall, Winter, Spring
Students will participate as a student assistant, i.e. attend all practices, scheduled events, score, chart, do other pertinent duties the coach directs. This requirement if waived for students who have been members of an intercollegiate team and a substitute elective is made for this requirement. Coaching minors or permission of instructor.

337 Coaching and Advanced Technique 2-3 hrs. Fall, Winter, Spring
Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events. Prerequisites: Must have had first level course(s) or proficiency. Fall: Track/Field, Tennis Even Years: Baseball, Softball, Soccer Odd Years: Field Hockey, Football Winter: Basketball, Gymnastics, Volleyball

340 Physical Education for the Elementary Classroom Teacher 2 hrs. Fall, Winter, Spring
This course is structured for the future elementary classroom teacher and/or special education teacher. It provides experience in the participation and teaching of appropriate elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course in not for physical education majors or minors.

344 Teaching Physical Education in the Elementary School 3 hrs. Fall
Concepts and practices that actuate the sequential development of an elementary physical education program are examined. Methods of instruction, program planning and evaluation are explored. Each student must reserve one half day each week for a participation experience in an elementary school. Prerequisites: PEPR 101, 102 or 103, 132, DANC 106 or 290.

345 Teaching Physical Education in the Secondary School 3 hrs. Fall, Winter
A study of the total secondary school program in physical education including curriculum, organization and public relations. Emphasis in the course is on current teaching methods. A minimum of 15 hours of practice with secondary school students is required for which the student should save at least two blocks of time each semester. Prerequisites: PEPR 150, 102 or 103, 1 dance, 2 individual and 2 team sports. Students should enroll in ED 301 same semester.

368 Administration and Organization of Intramural Sports 2 hrs. Fall only
The problems, policies, finances, eligibility, awards, officiating, publicity, and procedures related to the intramural program.

370 Recreation Practicum 3 hrs. Fall, Winter, Spring
The practical field experiences in recreation for the normal and handicapped. Enrollment by permission of instructor and acceptance of practicum proposal. Prerequisite: PEPR 372.

372 Recreational Programming 3 hrs. Winter only
A study of the goals development and evaluation of programs in recreational settings. Practical experience in ascertaining needs and scheduling activities to meet goals will be emphasized. Prerequisite: PEPR 270.

375 Organization and Administration of Recreation 3 hrs. Fall odd years
The study or methods of organization in recreation programs and agencies at local, state and federal levels with emphasis on administrative procedures concerning personnel, facilities, areas, legalities, financing, and supervision. Prerequisite: PEPR 370.

380 Foundations of Sports Injuries 2 hrs. Fall, Winter
Basic first aid and emergency concepts, sports injury prevention, recognition, initial and follow-up care and studied. Principles/techniques are presented in a lecture and laboratory instructional format. Prerequisite: BMED 211, PEPR 181.

390 Physiology of Motor Activity 2 hrs. Winter only
The effects on systems of the body under stress of motor activity—cardiopulmonary function, metabolism, neuromuscular system. Practical application of principles to strenuous physical exercise. Prerequisite: BMED 240.

392 Measurement and Evaluation in Physical Education 2-3 hrs. Winter only
Covers evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection and use of tests, interpretation of results through statistical procedures, analysis of tests available in the field and techniques for developing knowledge and skills tests.

400 Field Experience/Internship in HPER 2-8 hrs. Fall, Winter, Spring, Summer
This course will provide indepth field experience or internships for undergraduate majors or minors in recreation, health coaching or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by permission of curriculum advisers for major or minor. Prerequisite varies with area of emphasis and requires departmental approval.

411 Health Education: Public Health II 3 hrs. Winter (odd)
This course will analyze the relationships of public health programs, preventive medicine, and health education: techniques of group motivation and dynamics; the role of the health educator in group procedures and community organization, indigenous health problems, their pathology, treatment, and control; principles of epidemiology; and public health aspects of chronic and acute disease, and special health care programs. Prerequisite: PEPR 211.

420 Testing and Developmental Programs for the Exceptional Child 3 hrs. Winter
A study of the developmental programs of various leaders in the field and the adaptation of these theories to practical situations in the local community. The various methods of assessing the exceptional child will be discussed and practiced. Students will be involved with testing children, establishing programs for children and assessing the results of the program. Prerequisites: BMED 211, PEPR 320, SPED 430, 588.

440 Nature and Bases of Motor Skills 2 hrs. Winter only
Describe and analyze the characteristic motor development patterns and evaluate the potential of children's motor performance. Emphasis will be placed on the introduction and explanation of the psychomotor domain. Prerequisite: BMED 240 or permission of instructor.

470 Recreational Facilities and Areas 3 hrs. Fall (odd)
The study of the design, use, and maintenance of recreational areas in relation to community needs, program objectives and physical surroundings.

(PEGR)

Professional Courses Open To Upperclass and Gradate Students

500 Studies in Health, Physical Education and Recreation 1-2 hrs.
In depth study of selected topics in HPER. Formal 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: Hunter Safety, Lifetime Sports, Outdoor Education, Physical Education, Relaxation, Physical Fitness.

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.

This course surveys the history, philosophy, and methods of health education. The
philosophical basis and practices of health education are discussed in terms of needs and capabilities of people and factors that influence their development. Emphasis is placed upon the promotion of health and prevention of disease, disability, and premature death. Curriculum development and teaching methods focus on content and strategies considered most effective in teaching disease prevention and health promotion. The course is not open to health education majors or minors who have had 314 or 315. Prerequisite: 510 or equivalent.

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 various grades, and the integration of this teaching with that of other subjects in this curriculum. Prerequisite: PEPR 314/315 or consent of department.

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.

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.

521 Therapeutic Trends for Exceptional Children
3 hrs.
A study of past, present and future trends in habilitation and rehabilitation programs for handicapped people.

530 Practicum in Teaching and Coaching
1-2 hrs.
Demonstrations, participation and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program. Sports include: Archery, Badminton, Baseball, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Track and Field, Volleyball, Wrestling, Yoga.

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.

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.

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.

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.

572 Recreation of the Aging
1-2 hrs. Fall
An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities, evaluation personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

580 Studies in Athletic Training
1-2 hrs.
Listed with various topics. A lecture/demonstration course concerned with the prevention diagnosis, and treatment of sports type injuries. Prerequisites: BMED 211, 240, PEPR 380

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 athletes. Prerequisites: BMED 210, 240.

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.

595 Analysis of Movement in Sport
2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity. Prerequisite: BMED 210.

599 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.

SPECIAL EDUCATION 159

Special Education (SPED)
Joseph J. Eisenbach, Chair
Dona Gordon Iacone
Alonzo Hannaford
Elizabeth Lawrence-Patterson
Barbara L. Loss Harris
Abraham W. Nicolaou
Donald F. Sellin
Robert J. Westley

The Department of Special Education offers undergraduate and graduate programs for the preparation of teachers, administrators, and clinical service personnel in the areas of visually impaired, emotionally impaired, mentally impaired, and physically or otherwise health impaired. Students in undergraduate programs are awarded elementary provisional certificates with a major in one of the above fields, which also permits them to teach in their major throughout all grades of the school system.

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.

Course Descriptions
474 Directed Teaching in Special Education
4-8 hrs.
See Description under Education and Professional Development, the College of Education.

512 In-Service Professional Development
1-4 hrs.
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.

527 Exceptional Learners in Regular Elementary Programs
3 hrs.
This course is designed for prospective elementary teachers. Emphasis is placed on the types of exceptional learners found in elementary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisites: Junior standing, ED 250, and consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

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. Prerequisites: Junior standing, ED 250, and consent of department. Not open for
Secondary Education majors or for an Endorsement Program in Special Education.

530 Education of Exceptional Persons 3 hrs.
Deals with the problems and methods involved in the adjustment and training of exceptional persons in the schools—the mentally retarded, the gifted, the crippled, the deaf, the blind, the emotionally disturbed, the socially maladjusted, and the mentally handicapped. Prerequisites: Junior standing and consent of department.

531 Practicum in Special Education 2 hrs.
Students enrolled in this course are assigned to special classes in public or residential schools serving exceptional children and youth. Observation and participation are combined with weekly seminars. Undergraduate students majoring in special education are required to enroll in SPED 530 and 531 concurrently. Admission to this offering will be determined by the number of placement opportunities available. Graded on a credit-no credit basis. Prerequisites: ED 250 and consent of department.

532 Nature and Needs of the Mentally Retarded 4 hrs.
A course especially intended for teachers of mentally retarded individuals. Also recommended for school counselors, psychologists, social workers and other auxiliary personnel. Course objectives include an understanding of the causes, diagnoses, classification and interpretation of mental deficits. Prerequisites: SPED 530 and consent of department.

533 Diagnostic and Prescriptive Techniques in Special Education 4 hrs.
A thorough study of educational diagnostic instruments and techniques will precede the student's utilization of these measures in evaluating exceptional persons in his/her curricular area. Diagnostic findings are translated into individualized educational prescriptions. For majors enrolled in Special Education curricula and to be taken concurrently with SPED Education 534. Prerequisite: Consent of department.

534 Curricular and Instructional Provisions for Exceptional Children and Youth 4 hrs.
Critical issues in determining curricular expectations for atypical individuals will be analyzed. Essentials in ascertaining appropriate behavior for these pupils will be combined with identifying and evaluating a variety of educational methods and materials. Students enrolled in this course will be expected to delineate behavioral goals for those evaluated in SPED 533 and translate diagnostic data into meaningful educational programs. Prerequisites: Concurrent enrollment in SPED 533 and consent of department.

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.

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 are examined in light of biomedical, legal, sociological, and educational perspectives. Special emphasis within the perspective of education includes information regarding management, assessment, instruction, and organization. Prerequisite: Consent of department.

543 Orthopedic Conditions—Therapeutic and Educational Implications 4 hrs.
A course intended for teachers of physically handicapped and otherwise health impaired individuals. Course objectives include a knowledge of the medical conditions leading to orthopedic impairments and an understanding of the psycho-social implications of such impairments. Emphasis is also given to the educational and therapeutic needs of physically impaired children and youth. Prerequisites: SPED 530 and consent of the department.

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. A major component of this course is practical experience with severely impaired individuals. Prerequisite: Consent of department.

560 Educational Provisions for Handicapped Adolescents and Young Adults 3 hrs.
An introductory course to the special education of adolescents and young adults. It will provide the student with knowledge and awareness about the components of secondary and post-school special education programs. Focus is to be placed on the physical, intellectual, emotional, and social development of adolescents and young adults. Academic, social, career, and vocational needs and programs of handicapped adolescents and adults are discussed. Prerequisite: Consent of department.

566 Behavior Disorders in School-Aged Learners 3 hrs.
Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development concepts of diagnosis, and the incidence of maladjustment are reviewed. The characteristics, causes, diagnosis, and treatment of the effects of such conditions as psychoneurosis, mental subnormality, juvenile delinquency, psychosis, learning disability, and social dissonance in children are examined in terms of their educational implications. Therapeutic, environmental, and classroom interventions are presented and strategies for prevention analyzed. Prerequisites: SPED 530 and consent of department.

569 Programs and Intervention Strategies for the Socially and Emotionally Maladjusted 4 hrs.
This course, open to majors in Special Education curricula, emphasizes techniques and procedures applicable to socially-emotionally maladjusted individuals in various special or public school settings. Current theories, contemporary programs and trends in behavioral change and management are reviewed and discussed. Prerequisites: SPED 588 and consent of department.

581 Braille and Other Communication Methods 2 hrs.
Provides students with a basic knowledge of the braille literary code—reading and writing, and an overview of other communication methods available to the visually impaired. Prerequisite: Consent of department.

593 Methods and Techniques of Teaching Braille and Other Areas of Communication 3 hrs.
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.

598 Readings in Special Education 1-4 hrs.
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 is to create within the University a place where the application of the principles of the physical, natural, and social sciences can be brought together to encourage the use of these principles in a practical manner. In such an atmosphere, people are educated and assistance is provided to business, commerce, technical educators, and society in the application of these same principles to their activities. The mission of the college is principally directed toward areas of engineering, specialized management and marketing in technical fields, and professional-vocational education.

The needs of students are served by the college by providing many programs that develop an understanding of and a capability to perform jobs in education, business, and industry for which employment opportunities exist. Students are encouraged to develop an understanding of themselves in relation to society.

Undergraduate Programs
The College of Engineering and Applied Sciences offers undergraduate programs in several curricula and majors leading to careers in engineering, professional and technical management and marketing, and vocational and practical education.

CAREERS IN ENGINEERING
- Aircraft Engineering
- Automotive Engineering
- Computer Systems Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering
- Paper Engineering

CAREERS IN PROFESSIONAL AND TECHNICAL MANAGEMENT AND MARKETING
- Agricultural Distribution
- Aviation Technology and Operations*
- Automotive Management and Service*
- Construction Supervision and Management
- Dietetics
- Engineering Graphics*
- Engineering Metallurgy*
- Fashion Merchandising
- Food Distribution
- Food Service Administration
- Individual and Family Relationships
- Industrial Design*
- Interior Design
- Manufacturing Administration*
- Manufacturing Engineering Technology*
- Military Science
- Paper Science
- Petroleum Distribution
- Printing Management/Marketing
- Production Technology
- Textile and Apparel Technology

Graduate Programs
The College of Engineering and Applied Sciences offers the following graduate programs leading to the masters degree in the areas of professional and technical studies, science and research, and teaching of technical studies:
- Home Economics
- Manufacturing Administration
- Operations Research
- Paper Science
- Teaching of Vocational Education

Academic Advising
A central college advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and because it is essential to follow the program plans that appear in the curricula descriptions, students are to contact their academic adviser in the first semester of enrollment at Western Michigan University. Failure to meet with the adviser on a regular basis, or to participate in the college academic planning system, may result in difficulty receiving requested class schedules and/or delayed graduation.

Advisers are available to assist in individual program planning, to recommend electives appropriate to the student's educational objectives, to discuss employment opportunities, and to counsel on general academic problems. Transfer credit and all course substitutions must be recommended by the adviser and approved by the department curricula committee.

Related Academic Programs
Engineering Cooperative Education Program
Lawrence A. Williams, Coordinator

Students enrolled in the 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, Trime 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 IEGM 300. Co-op 
Internship. Co-ops are paid an appropriate 
salary by the company.
Cooperative 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 may 
vary by curriculum.

FOUNDRY PROGRAM
Any student enrolled in an engineering or 
related curriculum and interested in a career 
in the metal casting industry may be 
admitted into the Foundry Program by his or 
her adviser. 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 
Co-op employment. This opportunity for 
employment is made available through 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.

Degree Programs
Students living in the Grand Rapids and 
Muskegon areas may complete the degree 
requirements for Production Technology. 
Local colleges in Grand Rapids and 
Muskegon and Western Michigan University 
combine to offer this complete four-year 
degree program.
An engineering degree program is offered in 
Grand Rapids in conjunction with local 
community colleges.
The courses for these programs are 
offered primarily in the evening and are 
scheduled to be as convenient as possible 
for the part-time, working student.
Additional information on these programs 
can be obtained by calling the University 
Center in Grand Rapids (616) 458-6871.

Professional and Honorary 
Societies
Each department has student branches of 
professional and honorary societies whose 
purpose is to provide opportunities for 
students to become more directly involved 
with specific activities in their areas of 
interest. Students interested in enrolling their 
understanding of the professional field in 
which they intend to work are encouraged to 
join one of these societies. Students may 
obtain further information by contacting their 
academic counselor or department 
chairperson.

Institute of Technological 
Studies
John R. Lindbeck, Director
The Institute of Technological Studies has 
been established to permit the College of 
Engineering and Applied Sciences to better 
serve commerce and industry in 
Southwestern Michigan. Services include 
providing engineering consultation for 
specific problems; programming and 
delivery of short courses, symposia, and 
workshops; as well as the design and 
conducting of experimental tests. 
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; 
ergonomics 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.

Vocational Education
Jack T. Humber, Coordinator
Western Michigan University 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. See Vocational 
Education (VE) in the College of Engineering 
and Applied Sciences for more detailed 
information.

Scholarships
Many scholarships are available to both 
freshmen and upperclass students in the 
College of Engineering and Applied 
Sciences. The major of these scholarships 
available specificall: ‘fr students in the 
college are controlled by the individual 
departments of the college. A listing may be 
found in the “Financial Aid and Scholarships” 
section of this catalog.

Prerequisites
Prerequisites are designed to both increase 
the probabilities of successful completion of 
the course and to insure the proper conduct 
of the course. Therefore, prerequisites will be 
strictly enforced in all departmental courses. 
Exceptions must be 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 
two clock hours 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.

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.

Engineering Division 
Temporary (EDT)
A curriculum designed to allow College of 
Engineering and Applied Sciences students 
to enroll in courses until they can be 
admitted to an engineering program within 
the college.
Written permission of the academic 
adviser is required to enroll in this curriculum beyond 
the second year.

General College 
Curriculum (GCA)
Charon L. Sanford, Adviser
A curriculum designed to allow College of 
Engineering and Applied Sciences students 
to enroll in courses until they can be 
admitted to an engineering-related or 
Division of Applied Sciences program within 
the college.
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.
Production Technology
Bachelor of Science Degree

This manufacturing oriented program is designed for the mature individual with a two-year AAS degree in a technical field, who has industrial work experience, and who desires to pursue the Bachelor of Science degree. The degree requirement includes the 60-hour AAS degree, plus 60 hours of technically related work at Western Michigan University and 2 hours of physical education, for a program total of 122 hours.

There are two parts to this program.

1. Levels of Achievement
   • Graphics: The ability to make and read working drawings and an understanding of computer applications in drafting
   • Materials and Processing: A knowledge of two process areas and the properties of standard materials
   • Science and Mathematics: A knowledge of the principles of mathematics, physics, and chemistry, and a proficiency in a computer language.
   • Electricity-Electronics: A knowledge of the principles of circuits, electronics, and electrical machinery as applied to production systems.
   • Production Management: An understanding of the principles of manufacturing supervision, economics, accounting, human relations, and communications.

All students will enroll in AAS 397 Orientation upon admission to determine the student's competence in each of the above areas based upon AAS course work and work experience. The work of the 60-hour block of course work to be taken at Western Michigan University is indicated under Area Requirements, below.

2. Area Requirements
   The student and the adviser will jointly determine the selection of courses designed to meet the professional (vocational) needs of the student. This selection is in part based upon the student's prior experience in the areas of concentration shown below:
   • Mechanical Materials Processing
   • Electricity-Electronics
   • Supervision-Management
   • Other

The program of courses will be designed to develop in the student the facility for technical analysis appropriate to the Area Requirements, to include the elements and principles of mathematics, science, computer language, the applied science such as engineering mechanics, electricity/electronics, and advanced manufacturing theory.

AAS degree holders with no industrial experience may join the Production Technology program if they agree to enroll and successfully complete three semesters of cooperative education in order to gain this work experience. The cooperative education credits generated will not count as part of the 60-hour technical block.

Dr. John Lindbeck, Room 2049 Kohrman Hall, is available to assist in individual program planning, recommend electives applicable to a student's educational objectives, discuss employment opportunities, and help solve academic problems.

All College Courses (AAS)

397 Orientation
1 hr. Fall, Winter, Spring, Summer

Provides the Production Technology student with the opportunity to define and develop an educational program in order to achieve a vocational goal. Prerequisites: Production Technology major and permission of the Production Technology Program adviser, Room 2049, Kohrman Hall.

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 Engineering Related 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 mechanical aptitude and reasoning skills, which, third, is coupled with a strong interest in mathematics and the sciences.

A majority of the engineering students are involved in one or more of the twelve 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

Almost all WMU engineering graduates enter the job market with only a few going on for graduate work immediately after receiving their bachelor's degree. This is in keeping with the college's mission of preparing students for practice professional in industry. A survey of graduates, ten years after graduation, indicated WMU engineering alumni held positions of president, vice president, owner, chief engineer, senior design engineer, sales manager, and lawyer.

Three separate graduate programs provide an opportunity for graduate study. The Master of Science degree is offered in paper science, operations research, and manufacturing administration.

Professional Registration

Graduates of engineering programs are encouraged to seek professional registration. In Michigan, registration eligibility requirements are established by the Board of Registration for Professional Engineers. Admission to the professional engineers examination is currently limited to holders of a bachelor's degree in engineering. Students interested in professional registration should consult with their department adviser.

Admission to Engineering and Engineering Related Programs

Applicants must meet the general University requirements as shown in this catalog. Factors considered in the decision for admission to these programs offered include courses taken, grade point average, test scores, and class standing. These considerations are made to ensure that the applicant has the (1) aptitude for the profession, (2) intellectual capacity, and (3) necessary interest and motivation to pursue the degree selected.

In the event of enrollment restrictions, preference will be given to residents of the state of Michigan.

Admission of Secondary School Students

Each student's secondary school curriculum should include at least 15 units of acceptable entrance credit. A unit for admission is defined as a course covering a school year of at least 120 sixty minute hours of classroom work. Two or three hours of laboratory, drawing, or shop are counted as the equivalent to one hour of recitation.

The following subjects and units are required for admission:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of Units</th>
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<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Science</td>
<td>2</td>
</tr>
<tr>
<td>Academic Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

Subjects acceptable include history, economics, and biology. Two units of a foreign language are recommended. Normally, the minimum overall GPA expected for these 12 units is 2.5 on a 4.0 scale or an ACT composite score of 21. Students may be admitted with deficiencies in the above courses, but will be required to remove these deficiencies within the first year at Western. This may be accomplished by satisfactory completion of approved university courses or other means. Courses taken to remove deficiencies will not be counted toward satisfaction of requirements for these degrees. Students applying to an engineering curriculum and admitted with deficiencies will be admitted to the Engineering Division Temporary (EDT)
Admission of Transfer Students

The admission of transfer students from community colleges is recognized as desirable. However, in order that these students have adequate preparation, they are expected to meet the criteria set forth below. Because of the need to balance enrollments with available resources, it may be necessary to invoke a priority system. In such instances, notification and details of such system will be forwarded to the applicant by the Undergraduate Admissions Office.

To WMU Engineering or Paper Science Programs

Engineering Transfer Programs. An engineering transfer program to be taken at a community college acceptable to each of the engineering colleges in Michigan has been prepared by the Engineering College-Community College Liaison Committee. A brochure describing this transfer program is available from any community college or from the office of the dean of any of the engineering colleges.

Other Transfers. Students who did not complete the engineering transfer program and all other students will be admitted to the Engineering Division Temporary (EDT) program on a space available basis. Completion of the following subjects with a 2.2 minimum grade point average and no grade less than a "C" will be considered as the threshold for admission without deficiency to an engineering program.

Total semester hours: 20-22 hours
Calculus-based mathematics 8 hrs.
Chemistry and calculus-based physics-all courses to have laboratory experiences 8 hrs.
English composition or acceptable technical writing course 3 hrs.
Computer programming (Basic or FORTRAN) 1-3 hrs.

To WMU Engineering-Related Programs

Engineering-Related Programs. Admission to engineering-related programs will be made on a space available basis by each department. Completion of the following subjects with a 2.2 minimum grade point average and no grade less than a "C" will be considered as the threshold for admission without deficiency. Students admitted will be placed in the General College Curriculum (GCA) of the College of Engineering and Applied Sciences unless the student has adequate preparation, they will be considered as the threshold for admission without deficiency to an engineering program.

Total semester hours: 32 hours
Mathematics or statistics 6 hrs.
Chemistry or physics—all courses submitted to have laboratory experiences 3 hrs.
English composition 3 hrs.
Technical drafting 3 hrs.
Materials processing (e.g., machining metals, welding, metal casting, etc.) 3 hrs.
Electricity/electronics fundamentals 6 hrs.
Economics 3 hrs.

Transfer from Other WMU Programs

To an Engineering Program

Students currently enrolled in the Engineering Division Temporary (EDT) program or other programs at Western Michigan University who wish to transfer into an engineering program must have completed 31 hours applicable to an engineering program at Western with a 2.2 minimum grade point average and no grade less than a "C." Courses must include:
1. MATH 122 and 123
2. General Chemistry
3. PHYS 210, 211
4. Computer Science (course appropriate to engineering curriculum)
5. General Education—one course each from Area I, Area II, and College Writing. Enrollment will not be allowed in more than one 300 level engineering course unless the student has been admitted to an engineering program.

To an Engineering-Related Program

Students currently enrolled in a program at Western Michigan University, including the College of Engineering and Applied Sciences, who wish to transfer to an engineering-related program must have completed 31 hours applicable to an engineering-related program at Western. No courses will be accepted with a grade less than a "C." Courses must include:
1. Mathematics-6 hours
2. General Chemistry-4 hours
3. Physics-4 hours
4. Computer Science-1 hour
5. General Education—one course each from Area I, Area II, and College Writing.

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.

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.

Consumer Resources and Technology (CRT)

The Department of Consumer Resources and Technology offers education in the value and efficient use of human and material resources, and in the development of the skills and knowledge appropriate to careers that accommodate the needs of the consumers at the various levels of the economic process.

Curricula offered in the department include:
- Agriculture
- Dietetics
- Fashion Merchandising
- Food Distribution
- Food Service Administration
- Individual and Family Relationships
- Industrial Education
- Interior Design
- Petroleum Distribution
- Textiles and Apparel Technology
- Vocational Education Teaching

The Consumer Resources Minor offers the following emphases:
- Family Life Education (Teaching)
- Food Distribution
- General Agriculture (Teaching)
- General Home Economics
- Interior Design
- Occupational Foods (Teaching)

Academic Advising

Room 2038, Kohrman Hall. An academic 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 departmental advisers.

Vocational Education

Students desiring to become qualified as teachers of Vocational Home Economics, Vocational Technical Education (Draughting, Graphic Arts, Metal Working, Power/Automotives, Woodworking), or Distributive Education must complete the appropriate study program found under Vocational Education in the final section describing programs in the College of Engineering and Applied Sciences. Only persons holding the appropriate Vocational and Secondary Provisional Certificates will be qualified to teach in these reimbursed Secondary programs in Michigan Public Schools.
Work Experience Programs

Programs offered in 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 found under the beginning of the College of Engineering and Applied Sciences section of the catalog.

Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first two clock hours 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

Advisor: Dr. Max Berne

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>Credits</th>
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<tbody>
<tr>
<td>CRT 160 Introduction to Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>CRT 161 Animal Industry</td>
<td>4</td>
</tr>
<tr>
<td>AREA V General Education College Writing</td>
<td>3</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
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</table>

Second Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 110 Algebra I</td>
<td>3</td>
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<tr>
<td>OR</td>
<td></td>
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<tr>
<td>MATH 111 Algebra II</td>
<td>3</td>
</tr>
<tr>
<td>CAS 104 Business and Professional Speech</td>
<td>3</td>
</tr>
<tr>
<td>CS 105 Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>AREA I General Education*</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 261 Agronomy</td>
<td>4</td>
</tr>
<tr>
<td>CRT 285 Food and Society</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201 Principles of Economics (Micro)</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRT 262 Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 282 Principles of Horticulture</td>
<td>4</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>2</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
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Fifth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRT 361 Introduction to Soils</td>
<td>4</td>
</tr>
<tr>
<td>MGMT 200 Business Statistics</td>
<td></td>
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<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>FCL 340 Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>AREA I General Education*</td>
<td>3</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
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</table>

Sixth Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 362 Landscape Gardening</td>
<td>3</td>
</tr>
<tr>
<td>CRT 365 Farm Organizations and Management</td>
<td>4</td>
</tr>
<tr>
<td>ACTY 201 Accounting Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>ACTY 210 Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>AREA III General Education*</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>2</td>
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</tbody>
</table>

Seventh Semester—16 hours

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 366 Agriculture Marketing and Finance</td>
<td>4</td>
</tr>
<tr>
<td>AREA IV General Education*</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
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</table>

Eighth Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRT 364 Land Use and Soil Conservation</td>
<td>4</td>
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<tr>
<td>General Education Elective</td>
<td>7</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>4</td>
</tr>
</tbody>
</table>
* At least two of these courses must be at the 300-400 level.

Dietetics

Bachelor of Science Degree

Advisor: Dr. Majja Petersons

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. The dietitian is eligible for positions in hospitals 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>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 110 Algebra I</td>
<td>3</td>
</tr>
<tr>
<td>IEGM 102 Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>BIS 102 Introduction to Information Processing</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101 General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
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</tbody>
</table>

Second Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 194 General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>BMED 112 Introduction to Biomedical Sciences</td>
<td>3</td>
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<tr>
<td>General Education Elective*</td>
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<tr>
<td>Approved Elective</td>
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</table>

Third Semester—14 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 100 Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CRT 165 Food Science Principles</td>
<td>3</td>
</tr>
<tr>
<td>CRT 260 Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
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</table>

Fourth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 365 Quantity Foods</td>
<td>4</td>
</tr>
<tr>
<td>ECON 201 Principles of Economics (Micro)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 220 Cultural Anthropology</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
<td>6</td>
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Fifth Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 365 Introduction to Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>BMED 230 Microbiology and Man</td>
<td>3</td>
</tr>
<tr>
<td>PEGN Physical Education</td>
<td>1</td>
</tr>
<tr>
<td>General Education Elective*</td>
<td>4</td>
</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
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Sixth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BMED 240 Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>MGMT 300 Fundamentals of Management</td>
<td>3</td>
</tr>
<tr>
<td>PSY 517 Psychology of Learning for Teachers</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
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</tbody>
</table>

Seventh Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 460 Advanced Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CRT 468 Advanced and Experimental Foods</td>
<td>4</td>
</tr>
<tr>
<td>CRT 466 Institutional Management</td>
<td>4</td>
</tr>
<tr>
<td>AREA I General Education*</td>
<td>4</td>
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</tbody>
</table>

Eighth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT 461 Diet and Disease</td>
<td>4</td>
</tr>
<tr>
<td>CRT 462 Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 531 Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 450 Introductory Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</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.

The Marketplace Gallery is a student-operated store facility offering training and experience. Fashion merchandising majors are required to participate at the Marketplace Gallery. Third year fashion merchandising students have the option of attending the Fashion Institute of Technology, New York, New York, for one or two semesters if a 3.0 grade point average has been maintained.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Second Semester—16 hours</td>
<td></td>
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<tr>
<td>CAS 170 Interpersonal Communication</td>
<td>13</td>
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<tr>
<td>PSY 194 General Psychology</td>
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<tr>
<td>BMED 112 Introduction to Biomedical Sciences</td>
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</tr>
<tr>
<td>General Education Elective*</td>
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</tr>
<tr>
<td>Approved Elective</td>
<td>3</td>
</tr>
<tr>
<td>Third Semester—14 hours</td>
<td></td>
</tr>
<tr>
<td>CRT 100 Career Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CRT 165 Food Science Principles</td>
<td>3</td>
</tr>
<tr>
<td>CRT 260 Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 120 General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>Fourth Semester—16 hours</td>
<td></td>
</tr>
<tr>
<td>CRT 365 Quantity Foods</td>
<td>4</td>
</tr>
<tr>
<td>ECON 201 Principles of Economics (Micro)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 220 Cultural Anthropology</td>
<td>3</td>
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<tr>
<td>Approved Elective</td>
<td>6</td>
</tr>
<tr>
<td>Fifth Semester—15 hours</td>
<td></td>
</tr>
<tr>
<td>CHEM 365 Introduction to Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>BMED 230 Microbiology and Man</td>
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<tr>
<td>General Education Elective*</td>
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<tr>
<td>Approved Elective</td>
<td>3</td>
</tr>
<tr>
<td>Sixth Semester—16 hours</td>
<td></td>
</tr>
<tr>
<td>BMED 240 Human Physiology</td>
<td>4</td>
</tr>
<tr>
<td>MGMT 300 Fundamentals of Management</td>
<td>3</td>
</tr>
<tr>
<td>PSY 517 Psychology of Learning for Teachers</td>
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<td>Approved Elective</td>
<td>6</td>
</tr>
<tr>
<td>Seventh Semester—15 hours</td>
<td></td>
</tr>
<tr>
<td>CRT 460 Advanced Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>CRT 468 Advanced and Experimental Foods</td>
<td>4</td>
</tr>
<tr>
<td>CRT 466 Institutional Management</td>
<td>4</td>
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<tr>
<td>AREA I General Education*</td>
<td>4</td>
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<tr>
<td>Eighth Semester—16 hours</td>
<td></td>
</tr>
<tr>
<td>CRT 461 Diet and Disease</td>
<td>4</td>
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<tr>
<td>CRT 462 Community Nutrition</td>
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<td>CHEM 450 Introductory Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>Approved Elective</td>
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</tr>
</tbody>
</table>
### Food Distribution

**Bachelor of Science Degree**
Advisers: Frank Gambino, Richard Nesich

This work-study program is one of only six four-year programs in food distribution in the nation leading to management careers in the food industry. Required participation in the two-week industry tour, weekly food forums featuring experts from the food field, and active membership in Sigma Phi Omega, professional business fraternity, provide many opportunities for interaction of students with professionals in the food industry. Students develop, present, and participate in a food management conference held each spring on Western Michigan University's campus.

**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, plus three spring/summer sessions.

**First Semester—15 hours**
- CRT 100 Career Seminar
- CRT 126 Management Practicum
- CRT 155 Design Principles
- IEGM 102 Technical Communications
- BIS 142 Informational Writing
- PEGN Physical Education
- General Education Elective* 3

**Second Semester—16 hours**
- CRT 221 Fashion Analysis
- CRT 226 Fashion Merchandising II
- CRT 102 Introduction to Information Processing
- OR
- CS 105 Introduction to Computers
- AREA III General Education* 4
- PEGN Physical Education
- Elective 2

**Third Semester—15 hours**
- CRT 220 Textiles
- CRT 228 Non-Textile Products
- CRT 229 Menswear
- ECON 201 Principles of Economics
- MATH 110 Algebra I
- PEGN Physical Education
- Elective 3

**Fourth Semester—16 hours**
- CRT 320 Visual Merchandising
- CRT Elective** 3
- ACTY 210 Principles of Accounting
- AREA I General Education 4
- Elective 3

**Fifth Semester—15 hours**
- CRT 202 Field Experience
- CRT 425 Merchandising Practicum
- CRT 429 Internship
- CRT 326 History of Costume
- MGMT 300 Fundamentals of Management
- MKTG 270 Salesmanship
- MKTG 370 Marketing

**Sixth Semester—15 hours**
- CRT 327 History of Costume II
- BIS 242 Business Communications
- MKTG 374 Advertising
- ENGL Writing Course (Above 100 level)
- AREA II General Education* 3

**Seventh Semester—16 hours**
- CRT 329 Promotion and Coordination
- MGMT 312 Personnel Management
- MGMT 404 Business and Society
- AREA II General Education* 3
- AREA IV General Education* 4

**Eighth Semester—14 hours**
- CRT 202 Field Experience
- CRT 425 Merchandising Practicum
- CRT 429 Internship
- AREA I General Education* 3
- AREA III General Education* 3
- Elective 5

* At least two of these courses must be at the 300-400 level

**Approved Electives—Choose 3 hours from the following list:**
- CRT 202 Topics in CRT (1-3)
- CRT 430 Mass Merchandising (3)
- FREN 104 Mini French (1)

**Food Service Administration**
Bachelor of Science Degree
Adviser: Ms. Donna VanWestrienen

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 culinary arts, food management, food service, and 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—15 hours**
- CRT 130 Food Distribution Industry
- CRT 205 Supermarket Foods
- AREA I General Education* 3
- AREA III General Education* 3
- AREA V General Education College Writing
- PEGN Physical Education

**Second Semester—16 hours**
- CRT 132 Food Distribution Merchandising
- BIS 242 Business Communications
- CAS 104 Business and Professional Speech
- OR
- CAS 130 Public Speaking
- AREA I General Education* 3
- PEGN Physical Education
- General Education Elective* 3

**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
- AREA II General Education* 3
- AREA III General Education* 4

**Fourth Semester—6 hours**
- CRT 202 Field Experience
- General Education Elective* 3

**Spring/Summer—9 hours**
- CRT 309 Industry Survey
- ECON 202 Principles of Economics
- BIS 102 Introduction to Information Processing

**Fifth Semester—6 hours**
- CRT 302 Coordinated Distribution Practices
- AREA II General Education* 3

**Sixth Semester—16 hours**
- CRT 232 Food Distribution Operations
- FCL 340 Legal Environment
- MGMT 300 Fundamentals of Management
- AREA IV General Education* 4
- General Education Elective* 3

**Spring/Summer—3 hours**
- CRT 302 Coordinated Distribution Practices

**Seventh Semester—16 hours**
- CRT 331 Food Distribution Management
- OR
- CRT 438 Current Issues in Food Distribution
- MKTG 370 Marketing
- Elective

**Eighth Semester—16 hours**
- CRT 332 Food Distribution Systems Control
- CRT 436 Problems in Food Distribution
- CRT 500 Seminar in Distribution
- Approved Elective

* At least two of these courses must be at the 300-400 level.
### Consumer Resources and Technology 167

#### Fourth Semester—15 hours
- CRT 209 Field Experience ........................................... 3
- Approved Elective** .................................................. 3
- ECON 202 Principles of Economics II (Micro) .................. 3
- MGMT 352 Personnel Management ........................... 3 OR
- IEGM 402 Supervision of Industrial Operations ........... 3
- AREA I General Education * ...................................... 4

#### Fifth Semester—16 hours
- CRT 203 .......................... 3
- Approved Elective* .................................................. 3
- ANTH 220 Cultural Anthropology .............................. 3
- ACTY 210 Principles of Accounting I ......................... 3
- FCL 340 Legal Environment ...................................... 3
- AREA III General Education* .................................... 4

#### Sixth Semester—15 hours
- CRT 368 Quantity Foods ........................................... 4
- Required Related Elective*** ..................................... 3
- Approved Elective .................................................... 8

#### Seventh Semester—15 hours
- CRT 468 Institutional Management .............................. 4
- CRT 469 Advanced and Experimental Foods ................ 4
- Required Related Elective*** ..................................... 3
- Approved Elective .................................................... 4

#### Eighth Semester—14 hours
- CRT 590 Project/Problems in CRT .............................. 3
- Required Related Elective*** ..................................... 3
- Approved Elective .................................................... 8

### Individual and Family Relationships

**Bachelor of Science Degree**

Adviser: Dr. Linda L. Darnsson

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 six semesters, beginning in fall.

#### First Semester—16 hours
- CRT 110 Transitions to Adulthood ................................ 3
- SOC 122 Death, Dying and Bereavement .................... 3
- Required Related Elective* ...................................... 3
- AREA II General Education** .................................... 3
- AREA V General Education College Writing .................. 3
- PEGN Physical Education ........................................ 1

#### Second Semester—16 hours
- CRT 209 Consumer Education ................................. 3
- CRT 214 Human Growth and Development .................. 3
- SOC 190 Men and Women in Contemporary Society ....... 3
- Required Related Elective* ...................................... 3
- AREA I General Education* ....................................... 3
- PEGN Physical Education ........................................ 1

#### Third Semester—15 hours
- CRT 210 Sex Education-Intro to Human Sexuality ....... 3
- Required Related Elective* ...................................... 3
- AREA IV General Education* ..................................... 3
- General Education Elective* ................................... 6

#### Fourth Semester—16 hours
- CRT 266 Food and Society ........................................ 3
- Required Related Elective* ...................................... 3
- AREA II General Education* ..................................... 3
- AREA III General Education* .................................... 4
- Approved Electives ............................................... 3

#### Fifth Semester—15 hours
- CRT 318 Mate Selection and Marriage .......................... 3
- CS 105 Introduction to Computers ................................ 3
- Required Related Elective* ...................................... 3
- AREA I General Education* ....................................... 3

#### Sixth Semester—15 hours
- CRT 413 Marriage and Family in Maturity ................... 3
- Required Related Elective* ...................................... 3
- Approved Elective .................................................... 8

#### Seventh Semester—14 hours
- CRT 415 Effective Parenting ..................................... 3
- CAS 517 Theories of Interpersonal Communications ....... 3
- Required Related Elective* ...................................... 3
- General Education Elective* ................................... 3
- Approved Elective .................................................... 3

#### Industrial Education Curriculum

**Bachelor of Science Degree**

Adviser: Wallace L. Fillingham

The Industrial Education curriculum is designed to prepare teachers of industrial education for the junior and senior high school levels. The student must select one major and one minor from the technical areas available. An industrial education teaching minor is available to students not majoring in industrial education, and includes 20 hours of technical courses plus six hours of professional vocational education courses, VE 342 and VE 344.

1. Minimum hours required for this curriculum .................. 122 hrs.

2. General Education Requirements ......................... 40 hrs.
   3 semester hours of written communications and MATH 110, 111, and 101 or equivalent are required.

3. Technical major in one of the following areas ........... 30 hrs.
   General Industrial Arts
   Drafting
   Graphic Arts
   Metalworking
   Woodworking

4. Technical minor in any one of the above areas other than the major ........ 20 hrs.

5. Professional Education Courses .................. 24 hrs.
   ED 250 Human Development and Learning .................. 4
   ED 301 Teaching and Learning .................................. 3
   ED 322 Teaching of Reading (Secondary) .................. 3
   ED 450 School and Society ...................................... 3
   ED 470 Directed Teaching ....................................... 9

6. Professional Vocational Education Courses .................. 6 hrs.
   VE 342 Course Planning and Construction .................. 3
   VE 344 Teaching Practical Arts and Vocational Education .... 3

7. Physical Education .............................................. 2 hrs.

### Interior Design

**Bachelor of Science Degree**

Adviser: Ms. Rebecca Marvin

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—16 hours
- CRT 141 Introduction to Interior Design .................... 3
- CRT 155 Design Principles ........................................ 3
- ECON 201 Principles of Economics (Micro) ................. 3
- ET 131 Introduction to Building Practices .................. 3
- AREA III General Education* .................................... 4

#### Second Semester—16 hours
- CRT 130 Career Seminar .......................................... 1
- CRT 220 Textiles .................................................... 3
- ET 141 Introduction to Technical Drafting ................. 3
- IEGM 102 Technical Communications ......................... 3 OR
- BIS 142 Informational Writing .................................. 3
- CAS 104 Business and Professional Speech .................. 3
- CAS 170 Interpersonal Communication ....................... 3
- CS 105 Introduction to Computers ............................ 3

#### Third Semester—16 hours
- CRT 202 Field Experience ......................................... 3
- CRT 228 Non-Textile Products ................................... 3
- ART 221 History of Art ............................................ 3
**Petroleum Distribution**

**Bachelor of Science Degree**
Adviser: Lawrence A. Williams

This is the only four-year program in petroleum management and distribution in the nation, and involves learning in the classroom and from on-the-job experiences in alternating semesters in the petroleum field. Additional interaction of students with industry experts occurs through a two-week industry tour and an active advisory board of petroleum professionals.

**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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester—15 hours</td>
<td>CRT 135 Introduction to Petroleum Industry ..... 3</td>
</tr>
<tr>
<td></td>
<td>BIS 142 Informational Writing ..... 3</td>
</tr>
<tr>
<td></td>
<td>CHEM 203 General Chemistry I ..... 4</td>
</tr>
<tr>
<td></td>
<td>AREA I General Education* ..... 3</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 3</td>
</tr>
<tr>
<td>Second Semester—15 hours</td>
<td>CRT 235 Properties/Applications of Petroleum ..... 3</td>
</tr>
<tr>
<td></td>
<td>BIS 242 Business Communication ..... 3</td>
</tr>
<tr>
<td></td>
<td>BIS 102 Introduction to Information Processing ..... 3</td>
</tr>
<tr>
<td></td>
<td>AREA I General Education* ..... 3</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 3</td>
</tr>
<tr>
<td>Spring/Summer—15 hours</td>
<td>CRT 202 Field Experience ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 236 Service Station Supervision ..... 3</td>
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<tr>
<td></td>
<td>ACTY 210 Principles of Accounting ..... 3</td>
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<tr>
<td></td>
<td>ECON 201 Principles of Economics (Micro) ..... 3</td>
</tr>
<tr>
<td></td>
<td>ET 222 Fuels and Lubricants ..... 2</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 2</td>
</tr>
<tr>
<td>Third Semester—14 hours</td>
<td>CRT 302 Coordinated Distribution Practices ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 309 Industry Survey ..... 3</td>
</tr>
<tr>
<td></td>
<td>MGMT 300 Fundaments of Management 3 ..... 4</td>
</tr>
<tr>
<td></td>
<td>AREA IV General Education* ..... 4</td>
</tr>
<tr>
<td></td>
<td>PEGN Physical Education ..... 1</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 6</td>
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<tr>
<td>Fourth Semester—12 hours</td>
<td>CRT 337 Distribution/Handling of Petroleum Products ..... 3</td>
</tr>
<tr>
<td></td>
<td>AREA III General Education* ..... 4</td>
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<td></td>
<td>PEGN Physical Education ..... 1</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 4</td>
</tr>
<tr>
<td>Fifth Semester—12 hours</td>
<td>CRT 336 Petroleum Jobber Operations ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 205 Topic: Preparing for Employment ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 430 Mass Merchandising ..... 3</td>
</tr>
<tr>
<td></td>
<td>AREA II General Education* ..... 4</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 4</td>
</tr>
<tr>
<td>Sixth Semester—12 hours</td>
<td>CRT 432 Issues in Oil ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 500 Seminar in Distribution ..... 3</td>
</tr>
<tr>
<td></td>
<td>General Education Election* ..... 3</td>
</tr>
<tr>
<td></td>
<td>elective Election* ..... 3</td>
</tr>
<tr>
<td>Seventh Semester—12 hours</td>
<td>CRT 336 Petroleum Jobber Operations ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 205 Topic: Preparing for Employment ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 430 Mass Merchandising ..... 3</td>
</tr>
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<td>AREA II General Education* ..... 4</td>
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<td></td>
<td>elective Election* ..... 4</td>
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<tr>
<td>Eighth Semester—12 hours</td>
<td>CRT 336 Petroleum Jobber Operations ..... 3</td>
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<tr>
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<td>CRT 205 Topic: Preparing for Employment ..... 3</td>
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<tr>
<td></td>
<td>CRT 430 Mass Merchandising ..... 3</td>
</tr>
<tr>
<td></td>
<td>AREA II General Education* ..... 4</td>
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<tr>
<td></td>
<td>elective Election* ..... 4</td>
</tr>
</tbody>
</table>

### Textile and Apparel Technology

**Bachelor of Science Degree**
Adviser: Ms. Rebecca Marvin

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.

**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.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester—15 hours</td>
<td>CRT 124 Clothing Construction ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 155 Design Principles ..... 3</td>
</tr>
<tr>
<td></td>
<td>CHEM 107 Chem of Textiles and Design Media ..... 4</td>
</tr>
<tr>
<td></td>
<td>PEGN Physical Education ..... 1</td>
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<tr>
<td></td>
<td>elective Election* ..... 4</td>
</tr>
<tr>
<td>Second Semester—15 hours</td>
<td>CRT 220 Textiles ..... 3</td>
</tr>
<tr>
<td></td>
<td>Option Requirement* ..... 3</td>
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<tr>
<td></td>
<td>CAS 170 Interpersonal Communication ..... 3</td>
</tr>
<tr>
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<td>PSY 194 General Psychology ..... 3</td>
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<td>elective Election* ..... 3</td>
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<tr>
<td>Third Semester—16 hours</td>
<td>CRT 224 Experimental Clothing Techniques ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT ..... 3</td>
</tr>
<tr>
<td></td>
<td>IEGM 102 Technical Communications ..... 3</td>
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<tr>
<td></td>
<td>PEGN Physical Education ..... 1</td>
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<td>SOC 200 Principles of Sociology ..... 3</td>
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<td>elective Election* ..... 3</td>
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<tr>
<td>Fourth Semester—15 hours</td>
<td>CRT 222 Flat Pattern Design ..... 3</td>
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<tr>
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<td>CRT 326 History of Costume I ..... 3</td>
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<td>CRT 420 Advanced Textiles ..... 2</td>
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<td>elective Election* ..... 6</td>
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<tr>
<td>Sixth Semester—15 hours</td>
<td>CRT 327 History of Costume II ..... 3</td>
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<tr>
<td></td>
<td>CRT 524 Social and Psychological Aspects of Clothing ..... 3</td>
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<tr>
<td></td>
<td>CRT 205 Topics in CRT ..... 3</td>
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<tr>
<td></td>
<td>CRT 209 Consumer Education ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 222 Flat Pattern Design (repeatable) ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 221 Fashion Analysis ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 224 Experimental Clothing (repeatable) ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 320 Visual Merchandising ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 324 Dressmaker Tailoring ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 329 Promotion and Coordination ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 350 Textiles for Interiors ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 405 Travel/Study Seminar ..... 3</td>
</tr>
<tr>
<td></td>
<td>CRT 429 Internship ..... 3</td>
</tr>
</tbody>
</table>

### Notes

- At least two of these courses must be at the 300-400 level.
- Electives (21-26 hours depending on career direction courses) and option requirements (18-23 hours) must be planned and approved with an adviser.
- CRT electives—10 hours from the following list:
  - CRT 100 Career Seminar ..... 3
  - CRT 202 Field Experience ..... 3
  - CRT 205 Topics in CRT ..... 3
  - CRT 209 Consumer Education ..... 3
  - CRT 222 Flat Pattern Design (repeatable) ..... 3
  - CRT 221 Fashion Analysis ..... 3
  - CRT 224 Experimental Clothing (repeatable) ..... 3
  - CRT 320 Visual Merchandising ..... 3
  - CRT 324 Dressmaker Tailoring ..... 3
  - CRT 329 Promotion and Coordination ..... 3
  - CRT 350 Textiles for Interiors ..... 3
  - CRT 405 Travel/Study Seminar ..... 3
  - CRT 429 Internship ..... 3

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**College of Engineering and Applied Sciences**

168
Consumer Resources Minor

This 24-hour multi-dimensional minor allows for a choice to be made from six different emphases.

Requirements Students should consult with the appropriate department adviser to plan one of the following minor emphases.

FAMILY LIFE EDUCATION (TEACHING)

REOUIRED COURSES—18 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 210 Introduction to Human Sexuality 3
CRT 214 Human Growth and Development 3
CRT 318 Mate Selection and Marriage 3
CRT 415 Effective Parenting 3

ELECTIVES—6 hours
(CRT 410, Teaching Sex Education in the School, is required for teaching certification.)

FOOD DISTRIBUTION

REOUIRED COURSES—18 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 130 Food Distribution Industry 3
CRT 132 Food Distribution Merchandising 3
CRT 231 Food Distribution Supervision 3
CRT 232 Food Distribution Operations 3

ELECTIVES—6 hours

GENERAL AGRICULTURE (TEACHING)

REOUIRED COURSES—18 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 160 Introduction to Agriculture 4
CRT 161 Animal Industry 3
CRT 261 Agronomy (Crop Production) 4

ELECTIVES—6 hours
(VE 344 or VE 542 is required for teaching certification.)

GENERAL HOME ECONOMICS

REOUIRED COURSES—18 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 124 Clothing Construction 3
CRT 150 Introduction to Interior Design 3
CRT 165 Food Science Principles 3
CRT 415 Effective Parenting 3

ELECTIVES—6 hours

INTERIOR DESIGN

REOUIRED COURSES—18 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 155 Design Principles 3
CRT 220 Textiles 3
CRT 355 Period Interiors I 3
CRT 356 Period Interiors II 3

ELECTIVES—6 hours

OCCUPATIONAL FOODS (TEACHING)

REOUIRED COURSES—20 hours
CRT 202 Field Experience 3
CRT 209 Consumer Education 3
CRT 165 Food Science Principles 3
CRT 260 Nutrition 3
CRT 368 Quantity Foods 4
CRT 466 Institutional Management 4

ELECTIVES—4 hours
(VE 542, Occupational Education, is required for teaching certification.)

Course Descriptions

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).

100 Career Seminar (1-0)
1 hr. Fall, Winter
Orientation to special career opportunities in fashion, textile, interior design or foods and dietetics, featuring resource guest speakers. Specific sections per area of emphasis.

110 Transitions to Adulthood (1-3)
3 hrs. Winter
A study of interpersonal relationships and the physical and psychological development of the person in early and later adolescence.

124 Clothing Construction (2-3)
3 hrs. Fall, Winter
Basic construction techniques, pattern alteration, fitting and design as related to the individual construction of garment. Test available for those desiring placement in upper level courses.

126 Fashion Merchandising I (3-0)
3 hrs. Fall
An overview of retailing and introduction to fashion merchandising and functions of buying and selling of merchandise, with special attention given to principles of merchandise selection, sources of buying information, and responsibilities of buyers in various types of firms.

130 Food Distribution Industry (3-0)
3 hrs. Fall, Winter
An introductory course in the study of food distribution, its history, evolution, and structure with emphasis on the growing importance of the store unit. Basic principles and practices of the industry considered.

132 Food Distribution Merchandising (3-0)
3 hrs. Fall, Winter
Designed to acquaint the student with the various merchandising techniques peculiar to food distribution. Buying, display, promotion, turnover, pricing for profit, and increasing departmental sales emphasized.

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.

150 Introduction to Interior Design (1-3)
3 hrs. Fall, Winter
Basic study of the elements and principles of designing and furnishing interiors.

155 Design Principles (2-3)
3 hrs. Fall, Winter
Introduction to basic principles and elements of design and color fundamentals, with application particularly in the fields of fashion, textiles, and interior design.

160 Introduction to Agriculture (4-0)
4 hrs. Fall, Winter
An introduction to the principles and practices of food and fiber production, and agriculture's role in today's society and economy.

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.

164 Practical Vegetable Gardening (2-0)
2 hrs. Spring
The basic concepts and fundamental practices of vegetable growing for the home gardener.

165 Food Science Principles (3-0)
3 hrs. Fall
Relationship of food science principles to basic food preparation techniques.
Prequisite: CHEM 101.

202 Field Experience
1-3 hrs. Fall, Winter, Spring
On-the-job experience under supervision of department with cooperating organizations. Written materials and performance appraisal required. Department majors only.

205 Topics in Consumer Resources and Technology
1-3 hrs. Fall, Winter, Spring
Individual topics in five to fifteen week formats, ranging in 1-3 hours of credit. Student may elect up to 6 hours of credit if topics vary. Topics to be announced.

209 Consumer Education (3-0)
3 hrs. Fall, Winter
A study of the information available to consumers in our economy with emphasis on personal decision making in money management and product and services choices, and consumer protection.

210 Sex Education—An Introduction to Human Sexuality (3-0)
3 hrs. Fall, Winter, Spring
Covers various aspects of human sexuality, trends in moral values and behavior patterns, anatomy and physiology of human reproduction, and current issues in sex education.

214 Human Growth and Development (1-3)
3 hrs. Fall
A study of physical, social, emotional, and intellectual growth of young people. Three hours per week required participation and observation in youth-oriented centers. (Hours are arranged.)

220 Textiles I (3-0)
3 hrs. Fall, Winter
Consumer-oriented textiles emphasizing fibers, yarns, fabric constructions and finishes as related to use, serviceability, and care.
Prequisite: CHEM 107 or equivalent.

221 Fashion Analysis (3-0)
3 hrs. Fall, Winter
Investigation and evaluation of elements comprising the total fashion appearance most appropriate in individual apparel selections and/or customer recommendations.

222 Flat Pattern Design (1-4)
3 hrs. Winter
A study of the drafting techniques employed in the flat pattern method for designing clothing. May be repeated once.
Prequisite: CRT 124

224 Experimental Clothing Techniques (1-3)
3 hrs. Fall
Experiences in clothing construction with emphasis on special problems relative to varied fabrics and design. May be repeated once.
Prequisite: CRT 124
226 Fashion Merchandising II (3-0) 3 hrs. Winter
Fundamentals of merchandising mathematics and its use in the retail industry, including elements of profit and loss statements, purchase discounts and dating, mark-up, mark-down, and OPEN-TO-BUY computation.

228 Non-Textile Products (3-0) 3 hrs. Fall
Craftsmanship and design as related to non-textile merchandising, raw material sources, manufacturing processes, uses and selections. Select section according to curriculum.

229 Men's Wear (3-0) 3 hrs. Fall
The course includes history, terminology, fabrics, garments, accessories, and the organizational structure peculiar to this industry. Prerequisite: CRT 220.

231 Food Distribution Supervision (3-0) 3 hrs. Fall, Winter
A course emphasizing leadership concepts and techniques in supervising and developing people in food distribution. Attention directed toward organizational principles, labor relations, understanding people, communication, coaching, and building a store team. Periodic lectures from industry resource people enrich classroom instruction.

232 Food Distribution Operation (3-0) 3 hrs. Fall, Winter
Designed to acquaint the student with the principles and methods used in the operation of food distribution units with regard to efficiency in organization, planning, and control. Resource people from food distribution augment the instructional program.

235 Properties and Application of Petroleum Products (3-0) 3 hrs. Winter
A comprehensive study of the properties of petroleum products such as fuels, lubricants, greases, naphthas, waxes, pesticides, and petroleum chemicals, and the application and uses of these products in manufacturing, transportation, agriculture, and by the individual consumer.

236 Service Station Supervision (3-0) 3 hrs. Fall
The responsibilities and activities of the petroleum company salesperson and supervisor are emphasized as they relate to retail establishments. Such items as merchandising policies, advertising, inventory, product knowledge, plant layout, location, equipment, and selling to the consumer are included.

255 Lighting for Interiors (3-0) 3 hrs. Winter
Considers light as an element of design and investigates its role in designing interiors. Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets.

260 Nutrition (3-0) 3 hrs. Fall
A study of the essential nutrients and their function in the human body. Prerequisites: CHEM 101 or BIOL 101 or 107, BMED 112.

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.
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.

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.

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.

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.

366 Agriculture Marketing and Finance (4-0)
4 hrs. Spring
Course emphasizes the organization and functioning of markets as they relate to the marketing of such farm products as grains, fruits, livestock and vegetables and financing of various enterprises and sources of credit available to the farm operator.

368 Quantity Foods (2-4)
4 hrs. Winter
Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity foods institutions. Prerequisites: CRT 165, 260.

405 Travel/Study Seminar 1-4 hrs. Winter, Spring
Student participation in departmentally sponsored travel/study program in U.S. and/or abroad. Written assignments and planned itinerary. Maximum 2-3 foreign, 1-2 domestic, not to exceed 4 in total. Prerequisite: Department approval.

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.

413 Marriage and Family in Maturity (3-0)
3 hrs. Fall
Marital and family interaction in middle and later years.

415 Effective Parenting (3-0)
3 hrs. Winter
Preparation for parenthood. Study of the relationships between the child, the family, development, the process of parental development, school, and family relationships. Special attention to the systems theory as it applies to the family.

420 Textiles II (2-0)
2 hrs. Winter-Odd Years
Investigation of recent fiber developments, new construction techniques and finishes in the textile field. Opportunity for individual investigation and research. Prerequisite: CRT 220.

425 Merchandising Practice (1-3)
3 hrs. Fall, Winter, Spring
Laboratory study of professional concepts used in the operation of a retail boutique. Prerequisite: CRT 329.

429 Internship 6 hrs. Fall, Winter, Spring, Summer
Off-campus, full-time supervised management level merchandising experience. Prerequisite: Department junior or senior.

430 Mass Merchandising (3-0)
3 hrs. Fall, Winter
Mass merchandising competencies of profit, economics, merchandising, space allocation, supervision pricing inventory control, advertising, sales ratios, and merchandise service and productivity performance objectives. Prerequisite: junior standing.

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.

436 Problems in Food Distribution (3-0)
3 hrs. Winter, Every Spring beginning Spring 1985
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.

438 Current Issues in Food Distribution (3-0)
3 hrs. Winter, Every fourth Spring beginning Spring 1985
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.

450 Residential Design (1-3)
3 hrs. Winter
Creation of artistic home interiors with materials of interior design, including preparation of renderings and purchasing data for residential work. Prerequisites: CRT 228, 255, 350, 355, 356, ET 241.

451 Contract Design (2-4)
4 hrs. Fall
Creation of business environment with materials of interior design, including analysis and process of space planning, design presentation alternates, and developing a purchasing procedure. Prerequisites: CRT 228, 255, 350, 355, 356, ET 241.

459 Creative Interiors (1-3)
3 hrs. Winter
Capstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: CRT 450, 451.

460 Advanced Nutrition (3-0)
3 hrs. Fall
Recent developments in nutrition through readings and experiences. Students may elect to work as peer educators in the University Health Center's Weight Control Program. Prerequisites: CRT 260, BMED 240, CHEM 365.

461 Diet and Disease (4-0)
4 hrs. Winter
Study of the dietician treatment of impaired digestive and metabolic conditions. Prerequisite: Dietetics major or consent of instructor.

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.

465 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.

468 Advanced and Experimental Foods (2-4)
4 hrs. Fall
Concentrated study of advanced principles of food preparation, development of experimental techniques, and opportunities for individual study. Prerequisites: CHEM 101, CRT 165.

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.

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.

522 Textile Clinic (2-0)
2 hrs. Summer
Investigation of textile problems, resources, and research. Prerequisite: CRT 220 or permission of instructor.

524 The Socio-Psychological Aspects of Clothing (3-0)
3 hrs. Fall-Even Years
Study of dress and adornment as related to human behavior. An interdisciplinary approach to clothing-related research and non-verbal communication, person perception, and group conformity.

565 Problems in Nutrition (3-0)
3 hrs. Summer
A discussion of current problems in nutrition. Not open to dietetics majors. Prerequisite: CRT 260 or equivalent.

590 Project/Problems in Consumer Resources and Technology
Variable 1-4 hrs. Fall, Winter, Spring
Directed independent project in specialized curricula within Consumer Resources and Technology. Prerequisite: Department approval.

598 Independent Study in Consumer Resources and Technology 1-6 hrs. Fall, Winter, Spring, Summer
Directed independent advanced study in subject matter area not otherwise treated in departmental courses. Department approval required prior to enrollment.
Electrical Engineering

(Coordinated Program in Electrical Engineering – EE)

Cassius A. Hesselberth, Chair
Gurbux A. Alag
Charles A. Davis
Samuel Ensmail
Subramaniam Ganesan
John W. Gesink
Dean Johnson
Joseph Kellem
John L. Mason
William M. McCabe
S. H. Moussavian
Joseph J. Root
Lambert R. VanderKooi

The Electrical Engineering Department offers curricula designed primarily to prepare personnel for professional careers in electrical engineering or computer engineering.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which electrical engineers and computer engineers may be found.

Academic Advising

Students should contact the electrical engineering academic adviser as early as possible. The adviser is available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and credit transfer must be approved by the departmental adviser, curriculum committee, and department chairman. The academic adviser is located in Room 2038, Kohrman Hall, (616) 383-0545.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the Engineering and Applied Sciences section of the catalog.

Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first two hours 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 probability of successful completion of the course as well as to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be accepted by the department no later than the end of the add period of the semester or session.

Electrical Engineering

Bachelor of Science in Engineering (Electrical) Degree

The electrical engineering program is designed to meet the needs of those students who plan to seek employment in such areas as electric power, electronics, communication, instrumentation, and controls.

Requirements

Candidates for the Bachelor of Science in Engineering 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, IEGM, 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.

First Semester—15 hours

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<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<tr>
<td>MATH 122</td>
<td>Calculus I</td>
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<tr>
<td>CHEM 103</td>
<td>General Chemistry</td>
<td>4</td>
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<tr>
<td>CS 134</td>
<td>Engineering Graphics</td>
<td>3</td>
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<tr>
<td>IEGM 102</td>
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<td>PEGN 111</td>
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Second Semester—16 hours

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<td>PHYS 210</td>
<td>Mechanics and Heat</td>
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<td>EE 250</td>
<td>Digital Logic I</td>
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Third Semester—15 hours

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<tr>
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<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
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<tr>
<td>EE 251</td>
<td>Digital Systems</td>
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Fourth Semester—16 hours

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<tbody>
<tr>
<td>MATH 374</td>
<td>Intro Linear Alg. and Diff. Equations</td>
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<tr>
<td>PHYS 211</td>
<td>Introductory Modern Physics</td>
<td>4</td>
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<td>EE 210</td>
<td>Circuit Analysis</td>
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<td>ME 256</td>
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<tr>
<td>PEGN 111</td>
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Fifth Semester—17 hours

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</thead>
<tbody>
<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 361</td>
<td>Electromagnetic Fields</td>
<td>4</td>
</tr>
<tr>
<td>ME 355</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>General Education*</td>
<td>3</td>
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Sixth Semester—17 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>EE 320</td>
<td>Electronics II</td>
<td>4</td>
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<tr>
<td>EE 330</td>
<td>Electrical Machinery</td>
<td>4</td>
</tr>
<tr>
<td>EE 371</td>
<td>Linear Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 380</td>
<td>Probabilistic Methods in Signal and Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME</td>
<td>Engineering Science Elective</td>
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Seventh Semester—17 hours

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EE 470</td>
<td>Feedback Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE 481</td>
<td>Electrical Engineering Elective Group**</td>
<td>6</td>
</tr>
<tr>
<td>IEGM 310</td>
<td>Engineering Economy</td>
<td>3</td>
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<tr>
<td>AREA I</td>
<td>General Education*</td>
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Eighth Semester—15 hours

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EE 482</td>
<td>Electrical Engineering Design II</td>
<td>3</td>
</tr>
<tr>
<td>AREA IV</td>
<td>General Education*</td>
<td>4</td>
</tr>
<tr>
<td>Departmental Approved Electives</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Computer Systems Engineering

Bachelor of Science in Engineering (Computer Systems) Degree

The computer systems engineering program is primarily for those interested in the design, analysis, and implementation of electronic digital systems.

Requirements

Candidates for the Bachelor of Science in Engineering 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, IEGM, 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 with fall.

First Semester—15 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
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<tr>
<td>CHEM 103</td>
<td>General Chemistry</td>
<td>4</td>
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<tr>
<td>EE 250</td>
<td>Digital Logic I</td>
<td>3</td>
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<tr>
<td>IEGM 102</td>
<td>Technical Communications</td>
<td>3</td>
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<tr>
<td>PEGN 111</td>
<td>Physical Education</td>
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Second Semester—15 hours

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<thead>
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<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
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<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>
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<tr>
<td>AREA I</td>
<td>General Education*</td>
<td>3</td>
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<tr>
<td>PEGN 111</td>
<td>Physical Education</td>
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Third Semester—16 hours

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<tr>
<th>Course</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 201</td>
<td>Programming in FORTRAN</td>
<td>2</td>
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<tr>
<td>AREA II</td>
<td>General Education*</td>
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Fourth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Intro Linear Alg. and Diff. Equations</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>Introductory Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE 251</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

Fifth Semester—16 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 310</td>
<td>Discrete Mathematical Structures</td>
<td>3</td>
</tr>
<tr>
<td>EE 221</td>
<td>Electronics I</td>
<td>4</td>
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<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>
<td>3</td>
</tr>
</tbody>
</table>

* At least two of these courses must be at the 300-400 level.
Sixth Semester—16 hours
EE 350 Digital Electronics 4
EE 357 Computer Architecture 3
EE 371 Linear Systems 3
EE 380 Probabilistic Methods in Signal and Systems Analysis 3
CS 331 Design and Analysis of Algorithms and Data Structures 3

SEventh Semester—18 hours
EE 481 Electrical Engineering Design I 2
CS 554 Operating Systems 3
CS 485 Programming of Languages 3
AREA II General Education* 3
Departmental Approved Elective 4
ME Engineering Science Elective 3

Eighth Semester—16 hours
EE 455 Digital Signal Processing 3
EE 451 Digital Systems I 3
EE 482 Electrical Engineering Design II 3
AREA I General Education* 3
AREA IV General Education* 3
*At least two of these courses must be at the 300-400 level.

Course Descriptions
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).

100 Fundamentals of Circuits and Electronics (2-3)
3 hrs. Fall, Winter, Spring
Basic principles of electricity, magnetic devices, and electronics. May not be used as prerequisite for other EE courses except 101. Cannot be used as credit in engineering curriculum. Prerequisites: MATH 111 or equivalent and high school physics.

101 Fundamentals of Electronics and Machines (2-3)
3 hrs. Fall, Winter, Summer
Basic principles, characteristics, and applications of semiconductor devices, AC machines, and DC machines. May not be used as prerequisite for other EE courses. Cannot be used as credit in engineering curriculum. Prerequisite: EE 100.

210 Circuit Analysis (3-3)
4 hrs. Fall, Winter, Spring
Analysis of linear electric circuits using methods based on Kirchhoff’s laws and network theorems. Simple RL and RC circuits. Sinusoidal steady state analysis. Prerequisites: PHYS 211 or taken concurrently. MATH 123

211 Machines and Electronic Circuits (3-3)
4 hrs. Fall, Winter, Summer
Introduction to machines and electronics for non-electrical engineering students. Principle 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.

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 multi-stage circuits. Prerequisites: EE 210, PHYS 211

250 Digital Logic I (2-3)
3 hrs. Fall, Winter, Summer
Analysis and design of combinational and sequential logic systems. Prerequisite: MATH 111 or equivalent.

251 Digital Systems I (3-3)
4 hrs. Fall, Winter
Analysis and design of discrete language and programming of small computers. Introduction to microcomputer architecture and interfacing. Prerequisites: EE 250, CS 106 or 111 or 306

310 Network Analysis (3-0)
3 hrs. Fall, Winter
Introduction to probability, random variables, and random processes, correlation functions, spectral density, response of linear systems and systems analysis. Prerequisite: EE 221, 310.

320 Electronics II (3-3)
4 hrs. Fall, Winter
Analysis, design, and construction of modern electronic circuits using solid-state devices and integrated circuits. Field effect transistors, basic logic gates, multivibrators, operational amplifiers, frequency response analysis and photovoltaic devices. Prerequisites: EE 221, 310.

330 Electrical Machinery (3-3)
4 hrs. Fall, Winter
Three-phase analysis. Analysis of electronic circuits using hardwired and programmable system controllers. Introduction to asynchronous sequential logic circuits and their applications. Prerequisites: EE 221, 355.

350 Digital Electronics (3-3)
4 hrs. Fall, Winter
Analysis and design of digital integrated circuits and their applications. Prerequisites: EE 221, 310.

355 Digital Logic II (3-0)
3 hrs. Fall, Spring
Analysis and design of digital logic circuits using hardwired and programmable system controllers. Introduction to asynchronous sequential logic circuits and their applications. Prerequisite: EE 250.

357 Computer Architecture (3-0)
3 hrs. Winter
Structural organization and hardware design of digital computers. Processing and control units, arithmetic algorithms, input-output systems, and memory systems. Prerequisites: CS 223, EE 251, 355.

361 Electromagnetic Fields (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, PHYS 211.

371 Linear Systems (3-0)
3 hrs. Fall, Winter
Analysis of linear systems and models, state variable formulation, convolution, feedback systems and their analysis, S-plane and frequency response. Prerequisite: EE 310.

380 Probabilistic Methods of Signal and System Analysis (3-0)
3 hrs. Fall, Winter, Spring
Introduction to probability, random variables, random processes, correlation functions, spectral density, response of linear systems and random inputs, optimum linear systems. Prerequisite: EE 310.

420 Power Electronics (3-3)
4 hrs. Winter, Spring
Analysis and design of industrial electronic circuits, power sources, motor controls, timing and sequencing circuits. Industrial applications of solid-state devices. Laboratory analysis of industrial equipment. Prerequisites: EE 250, 320, 330.

450 Digital Systems II (3-2)
3 hrs. Winter
Analysis and design of computer- and microcomputer-based digital systems. Prerequisites: EE 291, 251.

455 Digital Signal Processing (3-0)
3 hrs. Winter

460 Communication Systems (3-0)
3 hrs. Fall
Introduction to digital and analog communication systems. Design constraints of noise and bandwidth, comparison of various modulation techniques, and statistical methods. Information and channel capacity. Prerequisites: EE 371, 380.

470 Feedback Systems (3-0)
3 hrs. Fall, Winter
Design principles of linear and non-linear feedback systems in both the frequency and time domain. Prerequisites: EE 371, 380.

481 Electrical Engineering Design I (1-3)
2 hrs. Fall, Winter, Spring, Summer
First of a 2-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course. Prerequisite: consent of department chairperson.

482 Electrical Engineering Design II (0-6)
3 hrs. Fall, Winter
Senior electrical engineering design project. A continuation of EE 481. A formal written report and a formal presentation is required at the end of the semester. Prerequisite: EE 481.

490 Independent Research and Development 1-4 hrs.
Fall, Winter, Spring, Summer
Individual research or special project in Electrical Engineering. Open only to juniors and seniors having the approval of the faculty member upon whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 4 hours.

495 Topics in Electrical Engineering 1-4 hrs.
A specialized course dealing with some particular area of electrical engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: consent of department.

498 Readings in Electrical Engineering 1-4 hrs.
Fall, Winter, Spring, Summer
A course in which advanced students may elect to pursue a program of readings in areas of special interest. Prerequisite: permission of the instructor with whom the student wishes to work.

499 Studies in Electrical Engineering 1-4 hrs.
Fall, Winter, Spring, Summer
A program of independent study to provide advanced students with the opportunity to
explore a topic of interest under the guidance of a faculty member. Prerequisite: permission of the instructor with whom the student wishes to work.

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.

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.

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Course if the student does not attend the first study. Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first two clock hours, 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 first year courses is required before enrollment in subsequent courses.

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 2038, Kohrman Hall, phone (616) 383-0645. Because of prerequisites and limited offering times, students must consult with an academic adviser for proper course sequence.

Additional Information
General information regarding admissions, counseling, 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 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 counselors. 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 $250 to $1,800, 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...
Aircraft Engineering
Bachelor of Science in Engineering (Aircraft) Degree

The aircraft engineering curriculum offers preparation for careers in the aviation industry in manufacturing, product development, flight test engineering, technical sales, and other areas requiring application of engineering skills and knowledge.

Requirements: Candidates for the Bachelor of Science in Engineering 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, IEGM, 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 137 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—16 hours
ET 110 Science in Engineering (Aircraft) 3
ET 118 Aircraft Structures 3
CS 104 Introduction to Programming 3
MATH 118 Precalculus Mathematics 4
PEGN Physical Education 1

Second Semester—18 hours
ET 117 Aircraft Reciprocating Powerplants 4
IEGM 102 Technical Communication 3
MATH 122 Calculus I 4

Third Semester—18 hours
ET 222 Fuels and Lubricants 3
EE 210 Circuit Analysis 4
ME 256 Statics 3

Fourth Semester—17 hours
ET 245 Aircraft Engine 4
ET 263 Fuel Metering Systems 3
ET 266 Aircraft Powerplant 3
MATH 374 Introduction to Linear Algebra and Differential Equations 4

ME 355 Dynamics 3
EE 211 Machines and Electronic Circuits 4

Fifth Semester—17 hours
ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems 4
ME 270 Science 3
ME 353 Mechanics of Materials 3
ME 356 Fluid Mechanics 3
ET 364 Electronic Systems 3

Sixth Semester—17 hours
ME 332 Thermodynamics 3
ME 365 Machine Design 3
ME 358 Mechanism Analysis 3
ET 367 Instrumentation and Testing 3
AREA IV General Education* 4

Seventh Semester—17 hours
ET 415 Aircraft Turbine Powerplants 4
ET 464 Aircraft Engineering Lab 3
Approved Design Elective 3
Approved Science Elective 3
AREA I General Education* 4

Eighth Semester—17 hours
ET 415 Aircraft Turbine Powerplants 4
ET 464 Aircraft Engineering Lab 3
Approved Design Elective 3
Approved Science Elective 3
AREA II General Education* 4

Automotive Engineering
Bachelor of Science in Engineering (Automotive) Degree

The automotive engineering curriculum offers career preparation for design, development, testing, manufacturing, or service engineering positions within automotive-related industries.

Requirements: Candidates for the Bachelor of Science in Engineering 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, IEGM, 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.

First Semester—16 hours
ET 121 Automotive Chassis 3
CHEM 103 General Chemistry I 4
CS 105 Introduction to Computers 3
ET 124 Automotive Electronics 3
EE 118 Calculus II 4

Second Semester—17 hours
ET 124 Automotive Electronics 3
ET 221 Automatic Transmissions 3
ET 142 Engineering Graphics 4
MATH 122 Calculus II 4

Third Semester—18 hours
ET 221 Automatic Transmissions 3
EE 210 Circuit Analysis 4
ME 272 Vector and Multivariate Calculus 4

Fourth Semester—17 hours
ET 224 Fuels and Lubricants 3
ET 142 Engineering Graphics 4
MATH 123 Calculus II 4

Fifth Semester—16 hours
ET 263 Fuel Metering Systems 3
ET 121 Automotive Chassis 3
MATH 118 Precalculus Mathematics 4
IEGM 102 Technical Communication 3

CS 105 Introduction to Computers 3
ET 150 Introduction to Manufacturing 3

Second Semester—15 hours
ET 124 Automotive Engines 3
ET 142 Engineering Graphics 3
MATH 200 Calculus and Applications 4

Engineering, Science, and Technology
Third Semester—17 hours

ET 221 Automatic Transmissions 3
ECON 201 Principles of Economics 3
EE 100 Fundamentals of Circuits and Electronics 4
PHYS 111 General Physics II 4
CHEM 103 General Chemistry 4

Fourth Semester—16 hours

ET 222 Fuels and Lubricants 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 General Education* 3

Fifth Semester—16 hours

ET 224 Automotive Fuel and Electrical Systems 3
ACTY 211 Principles of Accounting II 3
ET 256 Properties of Materials 4
CAS 104 Business and Professional Speech 3
BIS 242 Business Communication 3

Sixth Semester—17 hours

MGMT 300 Decision Making with Statistics 3
ET 381 Thermo-Fluid Dynamics 4
AREA II General Education* 4
Approved Elective 3
PEGN Physical Education 1

Seventh Semester—15 hours

ET 336 Automotive Diagnosis 3
ET 322 Automotive Service Management 2
FCL 320 Business Finance 3
IEGM 370 Principles of Marketing 3

Eighth Semester—16 hours

ET 421 Automotive Analysis 3
IEGM 422 Conference Leadership 3
FCL 340 Legal Environment 3
AREA I General Education* 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 IEGM 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.

A. TECHNICAL MANAGEMENT OPTION—128 hours

First Semester—15 hours

ET 110 Aerodynamics 3
PHYS 106 Elementary Physics 4
MATH 200 Calculus and Applications 4
IEGM 102 Technical Communication 3
PEGN Physical Education 1

Second Semester—16 hours

ET 117 Aircraft Reciprocating Powerplants 4
CHEM 103 General Chemistry I 4
CS 106 BASIC for Engineers 1
MATH 260 Elementary Statistics 4
ET 142 Engineering Graphics 3

Third Semester—17 hours

ET 118 Aircraft Structures 3
CHEM 103 General Chemistry II 3
CS 106 BASIC for Engineers 1
MATH 260 Elementary Statistics 4
ET 242 Business Communication 3

Fourth Semester—18 hours

ET 222 Fuels and Lubricants 3
ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems 4
EE 101 Fundamentals of Circuits and Electronics 3
ET 117 Aircraft Reciprocating Powerplants 4
EE 100 Fundamentals of Circuits and Electronics 3
CAS 104 Business and Professional Speech 3
BIS 242 Business Communication 3

Fifth Semester—16 hours

ET 311 Aircraft Systems Evaluation and Testing 3
ACTY 201 Accounting Concepts and Applications 3
ECON 201 Principles of Economics 3
AREA I General Education* 4

Sixth Semester—15 hours

ET 313 Aircraft Electrical Systems 3
ET 310 Airport Management OR
ET 317 Air Transportation 3
IEGM 328 Quality Assurance and Control 3
MGMT 300 Fundamentals of Management 3
FCL 340 Legal Environment 3

Seventh Semester—16 hours

ET 415 Aircraft Turbine Powerplants 4
IEGM 320 Engineering Cost Analysis OR
MGMT 360 Quantitative Methods for Business Decisions OR
ECON 400 Managerial Economics 3
IEGM 326 Operations Planning and Control 3
FCL 320 Business Finance 3
IEGM 402 Supervision of Industrial Operations 3

Eighth Semester—14 hours

Approved Elective 5
IEGM 422 Conference Leadership 3

MKTG 370 Marketing 3
AREA I General Education* 3

* At least two of these courses must be at the 300-400 level.

B. PROFESSIONAL PILOT OPTION—128 hours

Enrollment in flight courses is usually subject to a waiting list. A private pilot license is required to enroll in flight courses in this curriculum. Candidates for flight courses must complete an application at the aviation building before registering for these courses.

First Semester—15 hours

ET 110 Aeroscience 3
PHYS 106 Elementary Physics 4
MATH 200 Calculus and Applications 4
IEGM 102 Technical Communication 3
PEGN Physical Education 1

Second Semester—17 hours

ET 117 Aircraft Reciprocating Powerplants 4
CHEM 103 General Chemistry I 4
GEOG 105 Our Physical Environment 4
MATH 260 Elementary Statistics 4
CS 106 BASIC for Engineers 1

Third Semester—16 hours

ET 118 Aircraft Structures 3
EE 100 Fundamentals of Circuits and Electronics 3
ET 256 Properties of Materials 4
MKTG 370 Marketing 3
BIS 242 Business Communication 3

Fourth Semester—18 hours

ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems 4
ET 222 Fuels and Lubricants 3
EE 101 Fundamentals of Circuits and Electronics 3
ET 117 Aircraft Reciprocating Powerplants 4
EE 100 Fundamentals of Circuits and Electronics 3
CAS 104 Business and Professional Speech 3
BIS 242 Business Communication 3

Fifth Semester—16 hours

ET 311 Aircraft Systems Evaluation and Testing 3
ACTY 201 Accounting Concepts and Applications 3
ECON 201 Principles of Economics 3
AREA I General Education* 3

Sixth Semester—16 hours

ET 313 Aircraft Electrical Systems 3
ET 310 Airport Management OR
ET 317 Air Transportation 3
IEGM 328 Quality Assurance and Control 3
MGMT 300 Fundamentals of Management 3
FCL 340 Legal Environment 3

Seventh Semester—16 hours

ET 415 Aircraft Turbine Powerplants 4
IEGM 320 Engineering Cost Analysis OR
MGMT 360 Quantitative Methods for Business Decisions OR
ECON 400 Managerial Economics 3
IEGM 326 Operations Planning and Control 3
FCL 320 Business Finance 3
IEGM 402 Supervision of Industrial Operations 3

Eighth Semester—14 hours

Approved Elective 5
IEGM 422 Conference Leadership 3

MKTG 370 Marketing 3
AREA I General Education* 3

* At least two of these courses must be at the 300-400 level.
Construction Supervision and Management

Bachelor of Science Degree

The construction supervision 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 128 semester credit hours as well as University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in required courses with an EE, ET, IEGM, 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 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.

First Semester—16 hours

ET 131 Introduction to Building Practices 3
ET 141 Introduction to Technical Drafting 3
CS 105 Introduction to Computers 3
ET 256 Properties of Materials 4
ECON 201 Principles of Economics 3
AREA I General Education* 3

Second Semester—15 hours

ET 235 Wood Frame Construction 3
ET 246 Introduction to Computer Aided Design 3
ET 301 Principles of Business Management 3
CS 305 Computers and Business Applications 3
ET 310 Airport Management 3
ET 317 Air Transportation 3
ECON 302 Principles of Economics 3
AREA II General Education* 3

Third Semester—15 hours

ET 259 Wood Frame Construction 3
ET 261 Surveying 2
ET 314 Introduction to Computer Graphics 3
ET 320 Business and Professional Communication 3
MATH 301 Calculus and Applications 4
ET 322 Principles of Economics 3
AREA III General Education* 3

Fourth Semester—14 hours

ET 281 Statics and Strength of Materials 4
ET 256 Properties of Materials 4
ET 210 Principles of Accounting 3
ECON 201 Principles of Economics 3

Spring Session—5 hours

ET 237 Concrete Construction and Masonry 3
ME 261 Surveying 2

Fifth Semester—15 hours

ET 335 Soil Mechanics and Foundations 3
ET 337 Heating, Ventilation, and Air Conditioning 3
ACTY 211 Principles of Accounting 3
BIS 242 Business Communication 3
AREA I General Education* 3

Sixth Semester—16 hours

ET 339 Plumbing and Electrical Practices 3
ET 382 Structural Theory and Design 3
MGMT 200 Decision Making with Statistics 3
MGMT 370 Marketing 3
AREA IV General Education* 3

* At least two of these courses must be at the 300-400 level.
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 I . . 1

Second Semester—17 hours
ET 144 Descriptive Geometry . . . . 3
ET 143 Industrial Design Studio II . . 1
ET 150 Introduction to Manufacturing . 3
ART 102 Foundation 2D Design . . . 3
PHYS 110 General Physics I . . . . 4
IEGM 102 Technical Communication . . 3

Third Semester—17 hours
ET 248 Technical Illustration I . . . . 3
ET 243 Industrial Design Studio II . . 1
ET 245 Design for Manufacturing . . 3
CS 105 Introduction to Computers . . 3
ART 103 Theory of Art . . . . . 3
MATH 200 Calculus and Applications . 4

Fourth Semester—17 hours
ET 242 Production Drafting . . . . 3
ET 281 Statics and Strength of Materials . 4
AREA I General Education* . . . . 4
ART 247 Industrial Design Studio III . . 2
CAS 104 Business and Professional Speech . . 3
ART 104 Foundation Drawing . . . . 3

Engineering Metallurgy
Bachelor of Science Degree

The engineering metallurgy curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tools, machines, and systems necessary for efficient production. Program options allow
students to specialize in cast metals technology or wood manufacturing.

1. A "C" average or better must be earned in required courses with an EE, ET, Me, or IEGM 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 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 .4
CS 105 Introduction to Computers .3
IEGM 102 Technical Communication .3

Second Semester—15 hours
ET 132 Wood Processing .3
MATH 200 Calculus and Applications .4
PHYS 110 General Physics I .4
CAS 104 Business and Professional Speech .3
PEGN Physical Education .1

Third Semester—17 hours
ET 154 Machining Fundamentals .3
ET 242 Production Drafting .3
PHYS 111 General Physics II .4
CHEM 103 General Chemistry .4
AREA I General Education* .3

Fourth Semester—17 hours
ET 246 Introduction to Computer Aided Design .3
ET 250 Plastics Processing .3
ET 256 Properties of Materials .4
ET 281 Statics and Strength of Materials .4
EE 100 Fundamentals of Circuits and Electronics .3

Fifth Semester—17 hours
ET 354 Metrology .3
ET 381 Thermo-Fluid Dynamics .4
MATH 260 Elementary Statistics .4
ECON 201 Principles of Economics .3
EE 101 Fundamentals of Electronics and Machines .3
EE 101 Fundamentals of Electronics and Machines .3
PEGN Physical Education .1

Sixth Semester—17 hours
ET 358 Computer Aided Manufacturing .4
ET 352 Pattern Making and Casting .3
ET 356 Welding and Fabrication .3
ME 375 Experimental Stress Analysis .3
AREA IV General Education* .4

Seventh Semester—15 hours
IEGM 326 Operations Planning and Control .3
IEGM 422 Conference Leadership .3
AREA II General Education* .3
Approved Elective .3

Eighth Semester—14 hours
ET 458 Automated Manufacturing Systems .3
IEGM 328 Quality Assurance and Control .3
AREA I General Education* .4
Approved Elective .4

* At least two of these courses must be at the 300-400 level.

Foundry Option (total hours for graduation—131)
In place of ET 356, 357, and 7 hours of approved electives, the following courses must be completed:
ET 353 Physical Metallurgy I .4
ET 355 Advanced Metal Casting .3
ET 452 Die Casting .3
IEGM 300 Co-op Internship (in Foundry Industry) .3
IEGM 422 Supervision of Industrial Operations .3

Wood Manufacturing Option (total hours for graduation—135)
In place of ET 354, 356, 357, and 3 hours of approved electives, the following courses must be completed:
ET 245 Design for Manufacturing .3
ET 230 Machine Woodworking .3
ET 332 Wood Finishing .3
ET 432 Production Woodworking .3

Course Descriptions
Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester. 

1. A "C" average or better must be earned in required courses with an EE, ET, Me, or IEGM 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 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 .4
CS 105 Introduction to Computers .3
IEGM 102 Technical Communication .3

Second Semester—15 hours
ET 132 Wood Processing .3
MATH 200 Calculus and Applications .4
PHYS 110 General Physics I .4
CAS 104 Business and Professional Speech .3
PEGN Physical Education .1

Third Semester—17 hours
ET 154 Machining Fundamentals .3
ET 242 Production Drafting .3
PHYS 111 General Physics II .4
CHEM 103 General Chemistry .4
AREA I General Education* .3

Fourth Semester—17 hours
ET 246 Introduction to Computer Aided Design .3
ET 250 Plastics Processing .3
ET 256 Properties of Materials .4
ET 281 Statics and Strength of Materials .4
EE 100 Fundamentals of Circuits and Electronics .3

Fifth Semester—17 hours
ET 354 Metrology .3
ET 381 Thermo-Fluid Dynamics .4
MATH 260 Elementary Statistics .4
ECON 201 Principles of Economics .3
EE 101 Fundamentals of Electronics and Machines .3
EE 101 Fundamentals of Electronics and Machines .3
PEGN Physical Education .1

Sixth Semester—17 hours
ET 358 Computer Aided Manufacturing .4
ET 352 Pattern Making and Casting .3
ET 356 Welding and Fabrication .3
ME 375 Experimental Stress Analysis .3
AREA IV General Education* .4

Seventh Semester—15 hours
IEGM 326 Operations Planning and Control .3
IEGM 422 Conference Leadership .3
AREA II General Education* .3
Approved Elective .3

Eighth Semester—14 hours
ET 458 Automated Manufacturing Systems .3
IEGM 328 Quality Assurance and Control .3
AREA I General Education* .4
Approved Elective .4

* At least two of these courses must be at the 300-400 level.

Foundry Option (total hours for graduation—131)
In place of ET 356, 357, and 7 hours of approved electives, the following courses must be completed:
ET 353 Physical Metallurgy I .4
ET 355 Advanced Metal Casting .3
ET 452 Die Casting .3
IEGM 300 Co-op Internship (in Foundry Industry) .3
IEGM 422 Supervision of Industrial Operations .3

Wood Manufacturing Option (total hours for graduation—135)
In place of ET 354, 356, 357, and 3 hours of approved electives, the following courses must be completed:
ET 245 Design for Manufacturing .3
ET 230 Machine Woodworking .3
ET 332 Wood Finishing .3
ET 432 Production Woodworking .3

Manufacturing Technology Minor
The manufacturing technology minor is available to College of Business students majoring in industrial marketing. It is recommended that students select 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 requires 15 semester credit hours including three required courses and two approved elective courses selected in consultation with a student's major adviser.

REQUIRED COURSES—10 hours
ET 142 Engineering Graphics .3
ET 150 Introduction to Manufacturing .3
ET 256 Properties of Materials .4

APPROVED ELECTIVES—6 hours
Select two (2) courses:
EE 100 Fundamentals of Circuits and Electronics .3
EE 101 Fundamentals of Electronics and Machines .3
EE 250 Digital Logic I .3
IEGM 326 Operations Planning and Control .3
IEGM 328 Quality Assurance and Control .3
ET 152 General Metals .3
ET 154 Machining Fundamentals .3
ET 352 Pattern Making and Casting .3
PAPR 354 Paper Industry Processes .3

Course Descriptions
Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester.
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.

141 Introduction to Technical Drawing (2-3) (IEGM 130; 140; ITE 120)
3 hrs. Fall, Winter
Principles of graphic communication in engineering and technology. Topics covered are orthographic projection, technical sketching, engineering lettering, sections, dimensioning practices, auxiliary views, pictorial drawing (oblique and isometric), and charts and graphs. Student is expected to develop a basic degree of skill in each of these areas. Current ANSI standard practices are followed.

142 Engineering Graphics (2-3) (IEGM 131; ITE 220)
3 hrs. Fall, Winter, Spring
Essentials of engineering graphics including technical sketching, 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.

143 Industrial Design Studio I (0-3) (IEGM 238)
1 hr. Fall, Winter
(A) Projects in basic industrial design methods. Sketching, model building, and basic product planning. (B) Sketching, rendering, model building skill development.

144 Descriptive Geometry (2-3) (IEGM 136)
3 hrs. Winter
Applications of analytical graphics in solution of engineering and technical design problems. Study of spatial concepts involving points, lines, planes, and solids.

150 Introduction to Manufacturing (3-0) (ITE 370; ME 121)
3 hrs. Fall, Winter
Industrial methods employed in current manufacturing processes. Analysis of hot and cold working processes, products, materials, casting studies, management techniques, manufacturing productivity, performance testing, engineering design and economic considerations.

152 General Metals (2-3) (ITE 130, 338)
3 hrs. Fall, Winter
Metalworking technology principles and practices. Includes cutting, joining, forming, fabricating, and finishing techniques. Prerequisite: ET 150.

154 Machining Fundamentals (2-3) (ITE 234; ME 120)
3 hrs. Fall, Winter, Spring
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.

183 Principles of Auto Maintenance (2-0) (TRAN 183)
2 hrs. Fall, Winter
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.

190 Childhood/Adulthood Crafts and Adapted Techniques (2-3)
3 hrs. Fall, Winter
Studies of crafts with emphasis on elementary, special therapeutic, and recreational activities with basic techniques and adaptive techniques in wood, leather, metal, graphics, electricity, and plastics.

205 Aviation Safety (2-0) (TRAN 205)
2 hrs. Winter
Physiological and psychological factors relating to flight safety emphasizing cause and effect of accidents. Problem-solving techniques include a systems approach to safety program development and management. Prerequisite: private pilot license or consent of department.

213 Airframe Hydraulic, Pneumatic, and Auxiliary Systems (2-4) (TRAN 213)
4 hrs. Fall, Winter, Spring
Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other auxiliary systems. Prerequisites: ET 110, CS 106 or concurrently.

216 Aircraft Structural Repair (0-6) (TRAN 220)
3 hrs. Fall, Winter
Major structural repair methods including procedures for metal, plastics, composites, and welded structures. Prerequisites: ET 118, 256.

221 Automatic Transmissions (2-2) (TRAN 221)
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.

222 Fuels and Lubricants (2-2) (TRAN 222)
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 grease. Prerequisite: CHEM 103.

224 Automotive Fuel and Electrical Systems (3-4) (TRAN 224)
4 hrs. Fall, Winter
Theory and practice in diagnosing, adjusting and tuning modern automotive engines and electrical accessories. Laboratory practice is provided using oscilloscopes, distributor testers, generator test benches, and other engine and electrical testing equipment. Prerequisite: EE 101.

230 Machine Woodworking (2-3) (ITE 200)
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.

233 Building Codes (3-0) (ITE 308)
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.

235 Wood Frame Construction (2-3) (ITE 206)
3 hrs. Fall
On-site building and prefabrication of floor, wall, and roof framing; exterior door, window, roofing, insulation, and preparation for interior wall coverings. Supervision and optimum value engineered framing techniques are designed and practiced. Post and beam, pole, and heavy timber construction are also included. Prerequisite: ET 131.

237 Concrete Construction and Masonry (2-3) (ITE 205)
3 hrs. Spring
Design and control of concrete mixtures. Form design, control tests for quality concrete, and reinforced concrete problems are practiced. Pre-stressed and post-tensioned concrete construction is included. Masonry skills involving block, brick, and stone and concrete construction practices are performed on a job site. Prerequisites: ET 131, 235.

239 Interior Trim and Finish (2-3) (ITE 207)
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 involves kitchen layout and design activities. Prerequisite: ET 230.

241 Interior Design Graphics I (2-3) (IEGM 242)
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.

242 Production Drafting (2-3) (IEGM 331)
3 hrs. Fall
Engineering documentation as it relates to product development, the design and material specifications of components, manufacturing process considerations, geometric tolerancing, specification, checking, standards, and family of parts processing. Emphasis will be placed on the role that CAD plays in the production process. Prerequisites: ET 142; 154 or concurrent.

243 Industrial Design Studio II (0-3) (IEGM 238)
1 hr. Fall, Winter
(A) Design methods, market analysis, and design decision making. Total product design project concept to consumer. (B) Applied ergonomics in product design and development, sketching, rendering, and advanced model building. Prerequisite: ET 143.

245 Design for Manufacturing (2-3) (ITE 276)
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.
ENGINEERING TECHNOLOGY 181

246 Introduction to Computer-Aided Design (2-3) (EGEM 436)
3 hrs. Fall, Summer
Principles of computer graphics technology and its applications in CAD, systems software and hardware, and design systems operations. An introduction to program structure and FORTRAN programming techniques for 2D software development. Prerequisites: ET 142, CS 105.

248 Technical Illustration I (2-3) (EGEM 434)
3 hrs. Fall
Pictorial drawing, perspective drawing, charting, and use of varied black and white media, texture, and percentage tints and tapes as they apply to catalogs, technical manuals, reports, and sales engineering publications. Prerequisite: ET 142 or equivalent.

250 Plastics Processing (2-3) (ITE 174)
3 hrs. Fall, Winter
Plastic materials, their properties, applications, and processes. Thermoforming, compression molding, transfer injection molding, blow molding, extrusion molding, rotational casting, laminating coating, and welding of thermoplastic and thermosetting materials. Prerequisites: ET 150, CHEM 103.

254 Advanced Machining (2-3) (ITE 235)
3 hrs. Winter
Advanced theory and practice in the application of machine tool metalworking processes. Prerequisite: ET 154.

256 Properties of Materials (3-3) (ME 271, 371)
4 hrs. Fall, Winter, Spring
Relationship of chemical and physical properties to internal structure and response to the environment. Prerequisites: CHEM 103, PHYS 111.

263 Fuel Metering Systems (2-2) (TRAN 223)
3 hrs. Winter
The design and operation of fuel management systems including induction, fuel metering, and exhaust systems. Carburetion, fuel injection, carburetion, emission reduction, manifold design, and volumetric and thermal efficiencies as applied to naturally aspirated and supercharged gasoline and diesel engines, as well as gas turbine engines. Prerequisites: ET 117 or 124, 222, CS 106; MATH 122.

280 Transportation in the United States (3-0) (TRAN 270)
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.

281 Statics and Strength of Materials (4-0) (ME 251)
4 hrs. Winter, Spring
Forces on structures, moments, equilibrium. Stresses and deformation in axially loaded members, torsion members and beams. Elementary design of structural members. Prerequisite: MATH 200.

300 Navigation Systems (3-0) (TRAN 300)
3 hrs. Winter
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.

301 Commercial Flight I (0-5-5) (TRAN 301)
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 license and second class medical certificate.

303 Commercial Flight II (0-5-5) (TRAN 303)
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 environment. Prerequisite: ET 301.

305 Commercial Flight III (0-5-5) (TRAN 305)
3 hrs. Fall, Winter, Spring, Summer
Completion of instruction and experience requirements for commercial and instrument pilot certification. Includes flight, ground, and simulator instruction. Prerequisites: ET 303, 300 or taking concurrently.

310 Airport Management (3-0) (TRAN 310)
3 hrs. Winter
An introduction to airport operation and the duties of the airport manager. Topics studied will include the relationship between airport and community, legislation affecting airports, and planning, organizing, financing, and developing programs and services. Prerequisite: Junior standing in aviation curricula or approval of instructor.

311 Powerplant Systems Evaluation and Testing (3-2) (TRAN 230, 231, 235)
4 hrs. Fall, Winter
Principles of reciprocating engine fuel, induction, exhaust, ignition, and propeller systems. Classroom and lab experiences covering engine instruments, engine operation and testing. Prerequisites: ET 117, EE 101.

312 Power Plant Service and Management (2-2) (TRAN 311)
5 hrs. Spring
Aircraft powerplant inspection, repair and overhaul programs including reciprocating engines, turbine engine hot section, propellers, and drive systems. Emphasis on repair station procedures, organization, and management. Prerequisites: ET 311, MGMT 300, and consent of department.

313 Aircraft Electrical Systems (2-3) (TRAN 313)
3 hrs. Fall, Winter, Spring
A study of basic electricity, and laboratory practice in aircraft electrical components and systems, electrical instrumentation, and auto pilot systems. Prerequisites: ET 110, EE 101.

315 Propulsion System Performance (0-6) (TRAN 331)
3 hrs. Fall, Winter
Operation, testing, and diagnosis of aircraft engines and accessory systems. Application of instrumentation, dynamometers, and service test equipment. Prerequisites: ET 312, EE 101.

316 Avionics Systems (2-2) (TRAN 333)
3 hrs. Fall, Winter
Advanced topics in airborne electrical and electronics systems including multiplexing, flight control, and navigation applications. Prerequisite: ET 313.

317 Air Transportation (3-0) (TRAN 344)
3 hrs. Winter
Regulation, organization, and operation peculiar to the air transportation industry. Includes a study of legal aspects of air transportation and fundamentals of the air traffic control system.

318 Aircraft Service and Management (2-2) (TRAN 318)
5 hrs. Summer
Airframe inspection, repair, and servicing including routine and 100-hour inspections, minor repairs, and preventive maintenance. This study will also include management aspects of FBO service centers and related service management problems and solutions. Prerequisites: ET 213, 216, 312.

320 Automotive Service Management (2-3) (TRAN 320)
2 hrs. Winter
Principles involved in management of automotive repair shops including establishing objectives, organizational problems, controls, personnel management, merchandising, pricing, and customer relations. Prerequisites: Junior standing, ACTY 210, MGMT 300.

326 Automotive Diagnosis (2-3) (TRAN 326)
3 hrs. Fall
Procedures and techniques used in evaluating performance and identifying malfunctions in automotive systems. Laboratory equipment as well as service shop test equipment will be used in diagnostic procedures. Prerequisites: ET 121, 124, 221, 222, 224.

330 Wood and Related Materials for the Interior Designer (2-3) (ITE 302)
3 hrs. Winter
For interior design students. An introduction to woodworking materials, tools, and machining processes. Emphasis on finishing materials and their application. Also includes pad post upholstering.

331 Upholstering and Wood Turning (2-3) (ITE 300)
3 hrs. Winter

332 Wood Finishing (2-3) (ITE 201)
3 hrs. Winter
Principles of use of color in mixing and matching finishes. Purpose and characteristics of finishing materials and their interrelationships for developing finishing schedules. Application of these materials to a variety of wood species using several methods and rubbing and polishing. Prerequisites: ET 132, CHEM 103.

335 Soil Mechanics and Foundations (2-2) (ITE 309)
3 hrs. Fall
Properties of soil and earth materials, soil identification, use of soils as a building and foundation material, compaction of soils, and an introduction to bearing capacities and spread footings. Foundation analysis will include piles, drilled piers, caissons, lateral earth pressures, and soil pressure distribution. Design problems and soil testing will be included. Prerequisites: ET 237, 281; GEOL 130.

337 Heating, Ventilation, and Air Conditioning (2-0) (ITE 305)
3 hrs. Fall
The design and sizing aspects needed to plan a complete air conditioning system are covered. Emphasis is placed on design procedures, calculating heating and cooling loads by various private and government
code authorities. Types of heating systems, principles of air conditioning, ventilation, heat exchanges, heat pumps, solar applications, and psychrometric space conditioning processes are included. Computer applications to problems are practiced. Prerequisites: ET 131, 141, CS 105.

339 Plumbing and Electrical Practices (2-3) (ITE 307) 3 hrs. Winter Design, planning, and installation of the electrical and plumbing utilities. Both residential and commercial applications are covered. Skills in using various materials and methods is practiced. Utility designs are drawn by students and installed at a job site. Prerequisites: ET 131, 141, 235, CS 105.

341 Interior Design Graphics II (2-3) (IEGM 243) 3 hrs. Winter Study of angular and parallel perspective in interior design. Further emphasis is placed on shading, shadows, and shadowlining in drawings rendered in pencil, ink, and color as they apply to client and commercial presentation drawings. Sketching and diazo techniques are included. Introduction to computer aided planning. Prerequisite: ET 241.

342 Machine Drafting (2-3) (IEGM 330; ITE 326) 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, 242, 354.

343 Industrial Design III (1-3) (IEGM 438) 2 hrs. Fall, Winter (A) The design and development of a transportation product with sketches, renderings, and clay models. (B) The design and development of an industrial trade show with sketches, rendering and modeling. Presentation will include market and cost studies. (C) The development of a final critique portfolio of student work for presentation at a graduating senior show. Prerequisite: ET 243.

344 Tool Design I (2-3) (IEGM 332) 3 hrs. Fall Basic practices, standards, and components will be applied to tooling. Tooling considerations for group technology. Prerequisite: ET 342.

346 Programming for Computer Aided Design (2-3) (IEGM 437) 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 295.

348 Tool Design II (2-3) (IEGM 333) 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.


351 Chemical Metallurgy (4-0) (ME 372) 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.

352 Pattern Making and Casting (2-3) (ITE 335; ME 330) 3 hrs. Fall, Winter, Spring Principles of pattern design and construction using a variety of materials and production techniques. Theory and practice in metalcasting processes using green sand, plaster, investment, centrifugal, and vacuum processes. Prerequisites: ET 132, 154, 256.

353 Physical Metallurgy I (4-0) (ME 373) 4 hrs. Winter Introduction to the electron theory of metals, crystal geometry, and the defect structure of metals and their application to solid state diffusion, deformation and fracture, and oxidation and corrosion of metals. Prerequisites: CHEM 101, 102, or 103; MATH 123 or 200; PHYS 110.

354 Metrology (2-3) 3 hrs. Fall Precision measurement, its relationship to positional tolerances, critical dimensions, calibration, and statistical analysis of manufactured goods. Quality assurance through use of modern gages, checking fixtures, laser, vision, and coordinate measuring systems. Prerequisites: ET 154, 242.

355 Advanced Metal Casting (2-3) (ME 380) 3 hrs. Winter A study relating metallurgical aspects of cast irons and aluminum to melting, solidification patterns and thin microstructures. Current industrial methods for core making, melting, molding, and pouring are emphasized. Prerequisite: ET 352.

356 Welding and Fabrication (2-3) (ITE 336; ME 221) 3 hrs. Fall, Winter Principles of joining metals by fusion welding, brazing, and soldering. Practices in the use of materials, tools, and equipment for gas, SMA, GTA, GMA, resistance welding and brazing, and ornamental and automatic flame cutting of ferrous metals. Prerequisites: ET 256, EE 100.

357 Pressworking (2-3) (ME 320) 3 hrs. Fall Basic die design, pressworking processes used for blanking, coining, piercing, forming and for progressive dies. Press construction and application. Prerequisites: ET 154, 242, 281.

358 Computer-Aided Manufacturing (3-3) (ME 321, 420) 4 hrs. Fall, Spring Point-to-point programming systems applied to drill, mill, and turning applications. Economic analysis of computer integrated manufacturing, application of computer programming for CNC, continuous path machine tools. Prerequisites: ET 154, 246; CS 105.

359 Welding Design Analysis (3-0) (ME 521) 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, weld testing techniques. Prerequisites: ET 256, 281, 356.

364 Electronic Systems (2-2) (TRAN 324) 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 design of system functions and design parameters. Prerequisites: ET 117 or 124, EE 211, CS 106.

367 Instrumentation and Testing (2-2) (TRAN 327) 3 hrs. Fall, Winter Principles of engineering measurements as applied to engine and structure testing. Laboratory assignments include calibration of instruments, obtaining raw 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: ET 364, ME 356.

381 Thermo-Fluid Dynamics (4-0) (ME 331) 4 hrs. Fall, Summer Fundamentals of fluid mechanics, thermodynamics, and heat transfer using a unified approach. Prerequisites: ET 281, PHYS 110.

382 Structural Theory and Design (3-0) (ME 351) 3 hrs. Winter Design of beams, trusses, retaining walls, floor systems and columns in steel, reinforced concrete, and timber. Prerequisite: ET 281.

399 Field Experience (ITE 312; TRAN 399) 1-6 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. Prerequisite: Consent of department.

400 Aerodynamics and Flight Principles (2-0) (TRAN 400) 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.

402 Multi-Engine Flight (0-1-3) (TRAN 402) 1 hr. Fall, Winter, Spring, Summer Principles of flight in multi-engine aircraft. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Prerequisite: ET 305 or equivalent.

403 Flight Instruction Fundamentals (1-5) (TRAN 403) 3 hrs. Fall, Winter, Spring, Summer A study of airplane performance skills, flight maneuvers, critical situation type differences emphasizing instructional methods and techniques. Features flight
INSTRUMENT FLIGHT INSTRUCTING (1-1) (TRAN 404)
1 hr. Fall, Winter, Spring, Summer
Techniques of flight instruction applied 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.

FLIGHT OPERATIONS ANALYSIS (3-0) (TRAN 405)
3 hrs. Winter
Advanced topics in aircraft operations with consideration of human factors, efficiency, air traffic control, environmental problems, and equipment constraints. Prerequisites: ET 300, 305, 400 or concurrent.

AIRCRAFT TURBINE POWERPLANTS (3-3) (TRAN 415)
4 hrs. Fall, Winter
Reaction engine principles, gas turbine engine construction, design and operation. Includes testing and operation of jet aircraft powerplant systems. Prerequisites: MATH 122 or MATH 260, CS 106.

MAINTENANCE REGULATIONS (2-0) (TRAN 430)
2 hrs. Fall
Regulatory impact on maintenance practices, legal considerations, specific requirements for licensing and certification of airman, repair stations, and aircraft. Prerequisites: ET 312, 318.

SYSTEMS RELIABILITY AND MAINTAINABILITY (3-0) (TRAN 432)
3 hrs. Fall
Development of maintenance monitoring and control procedures. Analysis of data essential for planning and quality control. Data base management applications. Prerequisites: ET 315, MATH 260, CS 106.

AUTOMOTIVE ANALYSIS (2-2) (TRAN 421)
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 reliability. Prerequisite: ET 326.

PRODUCTION WORKSHOPING (2-3) (ITE 500)
3 hrs. Fall

SPECIFICATIONS AND ESTIMATING (3-0) (ITE 403)
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, 337, 339.

WOODBOROUGHING TECHNOLOGY (1-3) (ITE 502)
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.

COMMERCIAL CONSTRUCTION METHODS (3-0) (ITE 503)
3 hrs. Winter
An introduction to the principles and practices that are peculiar to heavy construction. Covers excavating equipment, cranes, dewatering, drainage, and paving. Erection methods of commercial buildings will be studied. Structural steel frame practices, vertical transportation, curtainwalls, and membrane type roofs are included. Prerequisites: ET 335, 382.

UNIVERSITY PLANNING (5-0) (ITE 505)
3 hrs. Winter
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.

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, subcontractors, and general conditions will be discussed. Preparation of complete bid packages using plans and specifications will be performed. Prerequisite: ET 439.

SCHEDULING AND PROJECT MANAGEMENT (3-0) (ITE 403)
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, 300.

RESIDENTIAL ARCHITECTURAL DESIGN (2-3) (ITE 520)
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, 131.

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 355, 382.

ARCHITECTURAL DESIGN II (2-3) (ITE 524)
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.

COMPUTER APPLIED DESIGN (2-3) (ITE 578)
3 hrs. Winter
Advanced drafting techniques and presentation methods. Laboratory work will center around industrial utilizing equipment, and computer-aided illustrating aids. Prerequisite: ET 248.

DRAFTING/DESIGN MANAGEMENT (2-0)
2 hrs. Winter
Organization, administration, procedures, and methods involved in personnel planning, management, equipping an industrial drafting/design department.

DESIGN AND ESTIMATING (3-0)
3 hrs. Winter
Design and estimating principles and applications of composite materials. Introduction to X-ray diffraction of minerals, phase diagrams and solid state phase changes and phase equilibrium. Prerequisite: ET 353.

MAINTENANCE IN MANUFACTURING (2-3) (ITE 573)
3 hrs. Winter
Introduction to X-ray diffraction of metals, phase diagrams and solid state phase changes and phase equilibrium. Prerequisite: ET 353.

ADVANCED CASTING DESIGN (2-3) (ITE 584)
3 hrs. Fall
Failure analysis of parts as the basis for design improvement. Casting sections are evaluated for multi-directional loads. Graphical methods of determination of the moment of area and moment of inertia of regular sections. Prerequisites: ET 281, 352.
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456 Studies in Cast Metal Technology (ME 470) 2-2 hrs. Spring
A study of the metalurgy, design, and processes used in cast metal technology. Prerequisites: ME 332, 358, 365.

457 Metal Fabrication (3-0) (ME 470) 3 hrs. Winter
Fundamentals of metal fabrication including smelting, forging, drawing, and welding. Prerequisites: ME 332, 358, 365.

458 Automated Manufacturing Systems (2-3) 3 hrs. Winter
Applications of advanced manufacturing techniques, including robotics, programmable controllers, machine vision, and interfacing of computer controlled systems. Prerequisites: ET 263, 281, MATH 200.

459 Mold Design and Construction (2-3) 3 hrs. Winter
A study of mold design and construction, including design, material selection, and construction techniques. Prerequisites: ET 154, 250.

460 Engineering Design Concepts (2-0) (TRAN 409) 2 hrs. Fall
An introduction to the design process including problem definition and project planning with social, ethical, aesthetic, and technical considerations. Preliminary planning will be accomplished for the major senior design project. Prerequisite: ET 367.

461 Aircraft Aerodynamic Design (3-0) (TRAN 410) 3 hrs. Fall
Aerodynamic design of aircraft emphasizing performance, stability, and control characteristics. Prerequisite: ET 461 or taking concurrently.

462 Aircraft Structural Design (3-0) (TRAN 413) 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: ET 461 or taking concurrently.

463 Aircraft Engineering Lab (0-6) (TRAN 419) 3 hrs. Winter
Aerodynamic and structural analysis of aircraft. Emphasis on design and application of wind tunnel and flight testing techniques. Prerequisites: ET 462, 463.

464 Vehicle Dynamics (3-0) (TRAN 424) 3 hrs. Fall
Design of automobile and truck suspensions, steering, brakes, drive lines, and frames. Vehicle handling, structural requirements, and safety systems. Prerequisites: ET 364, ME 356, 365.

466 Automotive Engineering Lab (0-6) (TRAN 429) 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: ET 461, 465.

467 Combustion Engine Processes (3-0) (TRAN 454) 3 hrs. Fall
Combustion process investigation and cycle analysis. Prerequisites: ET 461, 465.

468 Engine Systems Design (2-2) (TRAN 455) 3 hrs. Winter
Advanced topics in engine design including optimization of power transmission using a systems approach. Prerequisites: ET 367, 467.

469 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.

470 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 (IEGM)
Frank K. Wolf, Chair
Brian L. Akers
David W. Aldrich
Kalilash M. Balna
Robert E. Boughner
Gregory R. Cheek
Richard E. Munsterman
Leo S. Rayl
Bob E. White
Robert M. Wygant

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 of major companies.

Academic Advising
Students should contact the industrial engineering academic 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 departmental advisers, curriculum committee, and department chair. The academic adviser is located in Room 2038, Kohrman Hall, (616) 383-0545.

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 two clock hours, unless prior arrangements have been made with the instructor. Students not attending courses are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Prerequisites are designed to both increase the probabilities of successful completion of the course as well as to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be accepted by the department no later than the end of the add period of the semester or session.
**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.

The industrial engineer is particularly responsible for the improvement and development of engineering management, production planning and control, plant organization, technical design related to manufacturing processes, inspection, plant safety, and employee and employer relations.

**Requirements**

Candidates for the Bachelor of Science in Engineering (Industrial) 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, IEGM, 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.

### First Semester—16 hours

- **MATH 222 Calculus I**
- **CHEM 101 General Chemistry I**
- **IEGM 105 Technical Communications**
- **ET 142 Engineering Graphics**
- **CS 105 Introduction to Computers**
- **PEGN Physical Education 1**

### Second Semester—15 hours

- **MATH 123 Calculus II**
- **ET 150 Introduction to Manufacturing**
- **ME 270 Material Science**
- **ACTY 201 Accounting Concepts and Applications**
- **PEGN Physical Education 1**

### Third Semester—17 hours

- **MATH 272 Vector and Multivariate Calculus**
- **PHYS 210 Mechanics and Heat**
- **IEGM 100 Introduction to Industry**
- **ME 356 Statics**
- **ECON 201 Principles of Economics**

### Fourth Semester—18 hours

- **MATH 360 Probability and Statistics for Engineers**
- **EE 210 Circuit Analysis**
- **ME 353 Mechanics of Materials**
- **ME 332 Thermodynamics I**
- **ECON 202 Principles of Economics**

### Fifth Semester—18 hours

- **MATH 374 Introduction to Linear Algebra and Differential Equations**
- **PHYS 212 Introductory Modern Physics**
- **IEGM 316 Report Preparation**
- **EE 211 Machines and Electronic Circuits**
- **ME 355 Dynamics**

### Sixth Semester—16 hours

- **IEGM 310 Engineering Economy**
- **IEGM 307 Computer Controlled Systems**
- **IEGM 319 Simulation Modeling and Analysis**
- **IEGM 318 Statistical Quality Control**
- **AREA IV General Education**

### Seventh Semester—16 hours

- **IEGM 402 Supervision of Industrial Operations**
- **IEGM 415 Senior Industrial Engineering Design Project**
- **IEGM 419 Introduction to Operations Research**
- **AREA I General Education**

### Eighth Semester—12 hours

- **IEGM 403 Industrial Labor Relations**
- **IEGM 414 Facilities Planning and Design**
- **IEGM 420 Modern Industrial Practices**
- **AREA I General Education**

*At least two of these courses must be at the 300-400 level.

**Manufacturing Administration**

**Bachelor of Science Degree**

The manufacturing administration curriculum provides academic background in humanities, social sciences, communication, and technical subjects relating to manufacturing systems. Human relation skills used in industry when dealing with people are developed. The manufacturing administrators may direct production employees working on line operations or may direct staff personnel specifically assigned to assist the line in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

A selection of one of two groups of courses provides the student an opportunity to concentrate on either the supervision of line/manufacturing operations or staff management functions directly applied to the line.

The manufacturing administration program is designed to accommodate students who have transferred from other institutions or programs. Questions concerning transfer of credits to this program can be answered by the department adviser.

**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, IEGM, 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—13 hours

- **MATH 111 Algebra II**
- **CHEM 103 General Chemistry I**
- **IEGM 100 Introduction to Industry**
- **IEGM 102 Technical Communications**
- **PEGN Physical Education 1**

### Second Semester—16 hours

- **MATH 200 Analysis and Application**
- **CAS 104 Business and Professional Speech**
- **ET 142 Engineering Graphics**
- **ET 150 Introduction to Manufacturing**
- **AREA II General Education**

### Third Semester—17 hours

- **MATH 260 Elementary Statistics**
- **PHYS 110 General Physics II**
- **CS 105 Introduction to Computers**
- **ET 256 Properties of Materials**
- **AREA II General Education**

### Fourth Semester—14 hours

- **PHYS 111 General Physics II**
- **ACTY 210 Principles of Accounting**
- **ET 352 Patternmaking and Cading**
- **PEGN Physical Education 1**
- **Technical Elective**

### Fifth Semester—15 hours

- **IEGM 305 Work Analysis**
- **IEGM 320 Engineering Cost Analysis**
- **IEGM 326 Operations Planning and Control**
- **Technical Elective**
- **Free Elective**

### Sixth Semester—15 hours

- **IEGM 322 Safety in Industry**
- **IEGM 328 Operations Planning and Control**
- **FCL 340 Legal Environment**
- **Technical Elective**
- **Free Elective**

### Seventh Semester—16 hours

- **IEGM 402 Supervision of Industrial Operations**
- **IEGM 403 Industrial Labor Relations**
- **IEGM 404 Plant Layout and Material Handling**
- **PSY 344 Psychology in Business and Industry**
- **AREA I General Education**
- **Technical Elective**
- **Free Elective**

### Spring Semester of Senior Year—6 hours

- **IEGM 420 Modern Industrial Practices**
- **ECON 201 Principles of Economics**
- ****At least two courses at the 300-400 level are required.
- ****See list below for Technical Elective Requirements.

### Technical Elective Requirements

Nine hours of selected technical elective courses, all in either Group A or Group B, must be completed to satisfy the requirements for a B.S. degree. Students must inform their adviser in writing of their selection prior to registering for the equivalent of the sixth semester in the program.

**Group A**

- **Line Supervision/Administration-Manufacturing—9 hours**
- **EE 100 Fundamentals of Circuits and Electronics**

**Group B**

- **Further Elective—6 hours**
- ****At least one hour must be from General Education.

* ECON 201 Principles of Economics is recommended.
** At least two courses at the 300-400 level are required.
*** See list below for Technical Elective Requirements.
******* Of the nine free elective hours, at least one hour must be from General Education.

**Technical Elective Requirements**

Nine hours of selected technical elective courses, all in either Group A or Group B, must be completed to satisfy the requirements for a B.S. degree. Students must inform their adviser in writing of their selection prior to registering for the equivalent of the sixth semester in the program.

**Group A**

- **Line Supervision/Administration-Manufacturing—9 hours**
- **EE 100 Fundamentals of Circuits and Electronics**

**Group B**

- **Further Elective—6 hours**
- ****At least one hour must be from General Education.

**Technical Elective Requirements**

Nine hours of selected technical elective courses, all in either Group A or Group B, must be completed to satisfy the requirements for a B.S. degree. Students must inform their adviser in writing of their selection prior to registering for the equivalent of the sixth semester in the program.

**Group A**

- **Line Supervision/Administration-Manufacturing—9 hours**
- **EE 100 Fundamentals of Circuits and Electronics**

**Group B**

- **Further Elective—6 hours**
- ****At least one hour must be from General Education.
Course Descriptions

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).

100 Introduction to Industry (2-0) 2 hrs. Fall
The anatomy of manufacturing industries, operational responsibilities and relationships in companies of various sizes and using various processes. Includes a foundation in basic analytical methods.

102 Technical Communication (3-0) 3 hrs. Fall, Winter, Spring
Practical writing skills, bibliographical research, data analysis and presentation, format for problems, pages and outlines. Effective reading and listening.

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.

300 Co-op Internship (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 four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

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.

307 Computer Controlled Manufacturing Systems (2-3) 3 hrs. Winter
Analysis and design of computer controlled manufacturing systems. Prerequisites: CS 106, EE 211 (EE 211 may be taken concurrently).

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: MATH 123, CS 106 or CS 306.

316 Report Preparation (2-3) 3 hrs. Fall
Techniques and procedures used as a basis for preparing a report. Planning, conducting, analyzing, and communicating the results of a useful project. Prerequisite: IEGM 102.

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: CS 106, MATH 360.

319 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 language and GPSS are used. Statistical analysis of both input data and simulation results. Prerequisites: CS 106, MATH 360.

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.

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.

325 Operations Planning and Control (3-0) 3 hrs. Fall, Summer
Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisite: MGMT 200 or MATH 260.

326 Quality Assurance and Control (3-0) 3 hrs. Fall, Winter
Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measurement, and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 260 or MGMT 200.

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.

403 Industrial Labor Relations (3-0) 3 hrs. Fall, Summer
Relationships between government agencies, labor organizations, and management. Emphasis on development of collective bargaining procedures. Prerequisite: senior standing.

404 Plant Layout and Material Handling (3-1-3) 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: IEGM 305, 326, senior standing.

405 Systems Analysis and Design (2-3) 3 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 and case study oriented course drawing on previous courses in the student’s program. NOT FOR ENGINEERING CREDIT. Prerequisites: IEGM 305, senior standing.

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 their function to society. Prerequisite: senior standing.

413 Facilities Planning and Design (3-3) 4 hrs. Fall
Methodology for planning and designing manufacturing and service-related facilities, facilities location, material handling analysis and design, and warehouse design. Includes an intensive semester project to plan and design a manufacturing facility. Prerequisites: IEGM 205, 310, 316, 416 or taken concurrently.

415 Senior Industrial Engineering Design Project (2-3) 3 hrs. Fall, Winter
A student project team 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: IEGM 414.

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: CS 106, MATH 360, EGM 310.

419 Introduction to Operations Research (3-0) 3 hrs. Winter
The development of mathematical concepts and models connected with industrial engineering problems. Topics include linear programming, queuing theory, game theory, and simulation. Prerequisite: MATH 360.

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 procedures will be used in exploring many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: IEGM 326, 328, 402, 403, 405, or consent of department.

422 Conference Leadership (3-0) 3 hrs. Fall, Winter
Basic methods of planning and presenting an industrial conference. Techniques of leadership with opportunity for practical application of these techniques. Prerequisites: CAS 104, upperclass.

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.

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 different topics. Prerequisites: permission of instructor.

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.

499 Studies in Engineering (Arr.)
1-6 hrs. Fall, Winter, Spring, Summer
Independent studies in engineering. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

500 Labor Management Relations (3-0)
3 hrs. Winter
Interplay among government agencies, labor organizations, and management. Particular emphasis is placed on collective bargaining procedures and applications through case studies. Prerequisite: EIGM 403 or consent of instructor based on similar course or experience in field.

505 Advanced Methods Engineering (3-0)
3 hrs. Fall
Synthesis of effective work methods using a predetermined basic motion-time system. Methods-Time Measurement, standard data system development, and administration. Prerequisite: EIGM 306.

508 Advanced Quality Control (3-0)
3 hrs. Fall
Analysis and application of new concepts in the field of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Prerequisite: EIGM 318 or 328.

518 Engineering Valuation and Depreciation (3-0)
3 hrs. Winter
A study of the valuation of industrial property with emphasis on methods of estimating depreciation. Topics include concepts of value, the courts and valuation, property and other accounting records, cost indexes, estimation of service life, and methods of estimating depreciation. Prerequisite: EIGM 310.

542 Human Factors Engineering (2-3)
3 hrs. Winter
A survey of research on the adaptation of equipment, products, and environment to human use. Prerequisite: permission of instructor. (Cross-listed with PSY 542.)

Mechanical Engineering (ME)
M. Jerry Kenig, Chair
Christopher S. K. Cho
Jay Easwaran
Joseph H. Gill
Meshulam Groper
Jerry H. Hamelin
Jerome H. Hemmey
Raymond N. House, Jr.
James B. Matthews
Iskender Sahin
Richard C. Schubert
Rameshwar P. Sharma
William J. Stiefel, III
Dennis J. VandenBrink
Molly W. Williams

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 vehicle and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; and construction and urban development. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Academic Advising
Students should contact a mechanical engineering academic 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, curriculum committee, and department chair. The academic advisers are located in Room 2038, Kohnman Hall. (616) 383-0545.

Scholarships and Awards
Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Durametallic Corporation, Society of Manufacturing Engineers, H. H. Harris Foundation, and the College itself. Program announcements are distributed during the application period.

The Department of Mechanical Engineering also annually presents several awards, which include:
- Dean E. Bluman Memorial Award—presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and

Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.
- Outstanding Mechanical Engineering Scholar Award—presented to a mechanical engineering student who is outstanding 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 two clock hours 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

Requirements: Candidates for the Bachelor of Science in Engineering (Mechanical) 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, EIGM, 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.

First Semester—15 hours
- MATH 122 Calculus I .......................... 4
- EIGM 102 AREA V Writing Requirement .... 3
- ET 142 Engineering Graphics .................. 3
- CS 106 BASIC for Engineers .................. 1
- AREA I General Education* .................. 3
- PEGN Physical Education ..................... 1

Second Semester—16 hours
- MATH 123 Calculus II .......................... 4
- CHEM 102 General Chemistry I ................. 4
PHYS 210 Mechanics and Heat........4
AREA I General Education*........3
PEGN Physical Education........1

Third Semester—17 hours
MATH 272 Vector/Multivariate Calculus..4
PHYS 211 Electricity and Light.......4
ME 256 Statics........................3
ME 332 Thermodynamics I...........3
AREA II General Education*........3

Fourth Semester—18 hours
MATH 374 Introduction to Linear Algebra and Diff. Equations...4
PHYS 212 Introduction to Modern Physics**...4
ME 270 Material Science...........3
ME 353 Mechanics of Materials........3
ME 355 Dynamics....................3

Fifth Semester—17 hours
EE 210 Circuit Analysis I............4
ME 356 Fluid Mechanics.............3
ME 362 Theory of Engineering Experimentation........3
ME 432 Thermodynamics II........3
ME 220 Manufacturing Productivity....4

Sixth Semester—16 hours
ME 358 Mechanism Analysis........3
ME 359 Project Design..............3
ME 431 Heat Transfer................3
ME 335 Mechanical Engineering Laboratory........3
EE 211 Machine and Electronic Circuits........4

Seventh Semester—14 hours
ME 436 Energy Systems Laboratory.....2
ME 453 Product Engineering........3
ME 460 Mechanical Engineering Project........3
IEGM 310 Engineering Economy........3
AREA II General Education*........3
Dept. Approved Elective........3

Eighth Semester—15 hours
ME 360 Control Systems.............3
ME 437 Mechanical Systems Laboratory........2
ME 460 Mechanical Engineering Project........3
IEGM 310 Energy Systems Laboratory........3
AREA IV General Education*........4

* At least two of these courses must be at the 300-400 level.
** PHYS 212 is recommended, PHYS 342 or CHEM 120 may be substituted.
*** Design elective options include ME 359, ME 433, ME 451, or ME 553.

Course Descriptions
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).

220 Manufacturing Productivity (3-3) 4 hrs. Fall, Winter, Spring Design, fabrication, and analysis of productive tools. Computer applications to cost estimation, manufacturing, and the fundamentals of robotics. Prerequisites: CS 106, ET 142, ME 270.

256 Statics (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. Prerequisites: Math 123, CS 106.

261 Surveying (1-3) 2 hrs. Spring Operation of the transit, theodolite, level, steel tape, and ancillary equipment with emphasis on construction surveying. NOT FOR ENGINEERING CREDIT. Prerequisite: MATH 200 or 101.

270 Material Science (3-3) 4 hrs. Fall, Winter, Summer An introductory course in the science of engineering materials. The relationships between metallurgical 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 103, MATH 122.

332 Thermodynamics I (3-0) 3 hrs. Fall, Winter, Spring Fundamental laws of classic thermodynamics including ideal and non-ideal processes. Application are studied in relationship to the traditional thermodynamic cycles and to alternate energy systems such as solar and wind energy. (Credit may not be earned in both ME 332 and ET 381.) Prerequisites: MATH 123, PHYS 210.


339 Solar Energy Systems (3-0) 3 hrs. Fall, Winter Fundamental theory of solar energy for non-engineers which includes heat loads, insulation, system sizing, and design. Prepared computer programs are used by the student in solar design analysis. NOT FOR ENGINEERING CREDIT.

353 Mechanics of Materials (3-0) 3 hrs. Fall, Winter, Spring Compression, tension, shear, torsion, and bending in structural members including stress distribution, deflection, buckling, and fatigue on engineering materials. Design and selection of simple machine members and a knowledge of design codes and standards are applied. Prerequisite: ME 256.

355 Dynamics (3-0) 3 hrs. Fall, Winter, Spring Analysis of displacement, velocity, and acceleration in mechanisms by analytical and graphical methods. Introduction to mechanism synthesis with computer applications. Prerequisite: ME 355.

359 Dynamics of Machinery (3-0) 3 hrs. 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.

360 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 355, MATH 374, EE 211.


365 Machine Design (2-2) 3 hrs. Fall, Winter, Spring The application of engineering principles to the fundamental design of machine mechanisms and basic systems. Prerequisites: ME 220, 270, 353, 365. (ME 358 may be taken concurrently.)

375 Experimental Stress Analysis (2-3) 3 hrs. Fall, 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, 256.

431 Heat 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, 432.

432 Thermodynamics II (3-0) 3 hrs. Fall, Winter, Summer Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Prerequisites ME 356, 355. (ME 356 may be taken concurrently.)

433 Environmental Systems Design in Buildings (2-2) 3 hrs. Fall, Winter 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, 432.

436 Energy Systems Laboratory (1-3) 2 hrs. Fall, Winter Experimentation and theory verification in thermodynamics, fluids, and heat transfer including planning, testing, and computer analysis of data with report preparation. Prerequisites: ME 335, 431.

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. Prerequisites: ME 335, 365.

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.

451 Design of Solar Systems (3-0) 3 hrs. Fall, 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 355, MATH 374.

453 Product Engineering (2-2) 3 hrs. Fall, Winter, Spring
The application of mechanical engineering concepts to the design process. Evaluation of performance including computer simulation as it relates to product development. Prerequisites: ME 362, 365.

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. Prerequisite: PAPR 261 or equivalent.

460 Mechanical Engineering Project (1-6) 3 hrs. Fall, Winter, Spring
To provide an engineering experience emphasizing an open-ended project design concept primarily based on either energy or system structure and motion. Prerequisites: ME 453, 436, 437 (concurrent enrollment in either 436 or 437 will be allowed), admission to the Mechanical Engineering program.

490 Independent Research and Development 1-4 hrs. Fall, Winter, Spring, Summer
Individual research or special project. Available only by special arrangement with an instructor and approved by the department chair. Prerequisite: consent of department.

495 Topics in Mechanical Engineering: Variable Topics 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.

498 Independent Readings 1-6 hrs. Fall, Winter, Spring, Summer
An independent readings assignment, the description and purpose of which will be set forth on a form available at the department office. Prerequisite: Consent of department.

499 Independent Studies 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.

531 Energy Management (3-0) 3 hrs. Winter
Theory and application of industrial energy audits. Energy conservation and waste heat recovery. Prerequisite: ME 332 or consent of department.

553 Advanced Product Engineering (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, 453.

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 355, MATH 374.

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.

573 Engineering Materials (3-0) 3 hrs. Spring—Odd 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 353.

Military Science (MLSC)

LTC Ralph I. Sebacher Chair
MAJ J. Bradley Johnson
CPT Michael P. Dally
SGM Charles A. Eaton, Jr.
SGC Glen W. Lopers
SFC Joseph A. Simmons

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 U.S. Army. The four year military science program is divided into a basic course (first two years) and an advanced course (last two years). Students become officers 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. Scholarships are awarded competitively based on ability, not on financial need.

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 and textbooks for all advanced course students as well as additional financial assistance for students in the last two years of the program. Students should refer to the miscellaneous information section of this bulletin for additional details concerning the ROTC program, the leadership and career opportunities it offers, and the admission requirements.

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 must 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. The military science department also offers PEGN 175 each semester, which qualifies for one credit hour of the University's physical education requirement. PEGN 175 offers the student an opportunity to participate in rappelling, cross country skiing, orienteering, CPR, and rifle marksmanship.

Exceptions to the above requirements must be approved by the chair of the department. Students who participate as
Military Science Minors
A department minor slip is required.

Four Year Program—24 hours
Freshman Year
MLSC 140 and MLSC 150 and
PEGN 175 .......................... 5 hours
Sophomore Year
MLSC 240 and MLSC 250 ............. 5 hours
Junior Year
MLSC 340 and MLSC 350 ............ 6 hours
Senior Year
MLSC 440 and MLSC 450 ............ 5 hours
Approved history course ............... 3 hours

Two Year Program—14 hours
Prerequisite: Veteran, or 3 yrs JROTC, or
Basic Camp, or approval of department
chair.
Junior Year
MLSC 340 and MLSC 350 ............ 6 hours
Senior Year
MLSC 440 and MLSC 450 ............ 5 hours
Approved history course ............... 3 hours

ROTC Scholarships
ROTC scholarships that provide for tuition,
fees, flat rate for books, and a subsistence
allowance of $100 per month are available to
qualified students. See military science in the
Scholarships section of the catalog.
Scholarships are based on ability, not
financial need.

Course Descriptions
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
140 Military Aspects of National Power (1-2)
2 hrs. Fall
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.
150 Military Survival Skills (2-2)
2 hrs. 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.
204 Contemporary Roles of National Defense
(3-0)
3 hrs. Fall, Winter
The study of foundations of defense and
subjects of current national military
implication and interest. Subject material
includes military involvement around the
world, and other topics of current U. S.
military/civilian interest.
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.
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.

ROTC Scholarships
ROTC scholarships that provide for tuition,
fees, flat rate for books, and a subsistence
allowance of $100 per month are available to
qualified students. See military science in the
Scholarships section of the catalog.
Scholarships are based on ability, not
financial need.

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the evolution, purpose, and organization of the
military.
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.
Paper Science and Engineering (PAPR)

Richard B. Valley, Chair
Arvon D. Byle
Dennis E. Darling
John M. Fisher
Raymond L. Janes
James E. Kline
Keith J. Lash
Reid Miner
David K. Peterson
James L. Ulmer

The Department of Paper Science and Engineering offers three B.S. programs and a M.S. program which provide extensive scientific and technical education to prepare graduates for professional employment in the research and development, technical-manufacturing, and technical-marketing areas of the paper, pulp, environmental, printing and related fields. The breadth and depth of the programs are such that a significant number of graduates have progressed into management positions and into graduate school in the sciences.

Academic Advising

Students should contact the paper science and engineering academic advisers 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 to help solve academic problems. Substitutions and transfer credit must be approved by the department adviser, curriculum committee, and department chair. The academic adviser for Paper Science and Paper Engineering is Dr. David Peterson, located in Room 2031 McCracken Hall. Appointments may be made by calling (616) 383-1804. The academic adviser for Printing is Mr. James Ulmer, located in Room 1073 Kohrman Hall. Appointments may be made by calling (616) 383-6057.

Work Experience

Industrial experience in the programs are 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 plant of the department. An extensive recycled fiber pilot plant is also available. The pilot plant 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: 100, 101, 203, 204, 340, and 342. Prerequisites for the above courses must be completely satisfied except for PHYS 106 for 210 and CHEM 385 for 360 and 361.

Paper Science

Bachelors 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, 251 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

MATH 122 Calculus I 4
CHEM 101 General Chemistry I OR
CHEM 102 General Chemistry I 4
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
CS 106 BASIC for Engineers 1
AREA I General Education* 3
PEGN Physical Education 1

Second Semester—16 hours

MATH 123 Calculus II 4
CHEM 120 General Chemistry II 4
PAPR 101 Lab Problems in Pulp and Paper Manufacturing 1
PEGN Technical Communication 3
AREA II General Education 3

Third Semester—18 hours

PHYS 211 Electricity and Light 4
PAPR 204 Paper Manufacturing 4
PAPR 203 Pulp Manufacture 4
PAPR 352 Fiber Resource Conservation and Recycling 3
AREA I General Education* 3

Fourth Semester—18 hours

MATH 364 Statistical Methods 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 204 Paper Manufacturing 4
PEGN Industrial Environmental Engineering 3
ECON 201 Principles of Economics 3

Fifth Semester—17 hours

MATH 374 Introduction to Linear Algebra 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I 4
CHEM 360 Organic Chemistry I 4
PAPR 440 Current Topics in Paper and Pulp 1

Sixth Semester—18 hours

PAPR 307 Process Engineering II 4
PAPR 310 Introduction to Computer Engineering Experience 2
CHEM 361 Organic Chemistry II 4
CHEM 222 Quantitative Analysis 4
PAPR 371 Introduction to Independent Research 1
PAPR 440 Current Topics in Paper and Pulp 1

Seventh Semester—16 hours

PAPR 340 Paper Processing Processes 3
PAPR 370 Senior Thesis I 3
CHEM 430 Physical Chemistry I 3
AREA IV General Education* 4

Eighth Semester—17 hours

PAPR 360 Printing Processes 2
PAPR 430 Polymer and Surface Chemistry 3
PAPR 471 Senior Thesis II 3
CHEM 431 Physical Chemistry II 2
CHEM 436 Physical Chemistry Lab Technical Elective** 4

* At least two of these courses must be at the 300-400 level
** Technical-Professional Electives—4 hours

Paper Engineering

Bachelor of Science in Engineering (Paper) Degree

Requirements

Candidates for the Bachelor of Science in Engineering 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, 251 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 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.

First Semester—16 hours

MATH 122 Calculus I 4
CHEM 101 General Chemistry I OR
CHEM 102 General Chemistry I 4
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
CS 106 BASIC for Engineers 1
AREA I General Education* 3
PEGN Physical Education 1

Second Semester—16 hours

MATH 123 Calculus II 4
CHEM 120 General Chemistry II 4
PAPR 101 Lab Problems in Pulp and Paper Manufacturing 1
PEGN Technical Communication 3
AREA II General Education 3

Third Semester—18 hours

PHYS 211 Electricity and Light 4
PAPR 204 Paper Manufacturing 4
PAPR 203 Pulp Manufacture 4
PAPR 352 Fiber Resource Conservation and Recycling 3
AREA I General Education* 3

Fourth Semester—18 hours

MATH 364 Statistical Methods 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I 4
CHEM 360 Organic Chemistry I 4
PAPR 440 Current Topics in Paper and Pulp 1

Fifth Semester—17 hours

MATH 374 Introduction to Linear Algebra 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I 4
CHEM 361 Organic Chemistry II 4
PAPR 440 Current Topics in Paper and Pulp 1

Sixth Semester—18 hours

PAPR 307 Process Engineering II 4
PAPR 310 Introduction to Computer Engineering Experience 2
CHEM 361 Organic Chemistry II 4
CHEM 222 Quantitative Analysis 4
PAPR 371 Introduction to Independent Research 1
PAPR 440 Current Topics in Paper and Pulp 1

Seventh Semester—16 hours

PAPR 340 Paper Processing Processes 3
PAPR 370 Senior Thesis I 3
CHEM 430 Physical Chemistry I 3
AREA IV General Education* 4

Eighth Semester—17 hours

PAPR 360 Printing Processes 2
PAPR 430 Polymer and Surface Chemistry 3
PAPR 471 Senior Thesis II 3
CHEM 431 Physical Chemistry II 2
CHEM 436 Physical Chemistry Lab Technical Elective** 4

* At least two of these courses must be at the 300-400 level
** Technical-Professional Electives—4 hours

Bulletin:

Requirements:

Candidates for the Bachelor of Science in Engineering 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, 251 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 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.

First Semester—16 hours

MATH 122 Calculus I 4
CHEM 101 General Chemistry I OR
CHEM 102 General Chemistry I 4
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
CS 106 BASIC for Engineers 1
AREA I General Education* 3
PEGN Physical Education 1

Second Semester—16 hours

MATH 123 Calculus II 4
CHEM 120 General Chemistry II 4
PAPR 101 Lab Problems in Pulp and Paper Manufacturing 1
PEGN Technical Communication 3
AREA II General Education 3

Third Semester—18 hours

PHYS 211 Electricity and Light 4
PAPR 204 Paper Manufacturing 4
PAPR 203 Pulp Manufacture 4
PAPR 352 Fiber Resource Conservation and Recycling 3
AREA I General Education* 3

Fourth Semester—18 hours

MATH 364 Statistical Methods 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I 4
CHEM 360 Organic Chemistry I 4
PAPR 440 Current Topics in Paper and Pulp 1

Fifth Semester—17 hours

MATH 374 Introduction to Linear Algebra 4
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I 4
CHEM 361 Organic Chemistry II 4
PAPR 440 Current Topics in Paper and Pulp 1

Sixth Semester—18 hours

PAPR 307 Process Engineering II 4
PAPR 310 Introduction to Computer Engineering Experience 2
CHEM 361 Organic Chemistry II 4
CHEM 222 Quantitative Analysis 4
PAPR 371 Introduction to Independent Research 1
PAPR 440 Current Topics in Paper and Pulp 1

Seventh Semester—16 hours

PAPR 340 Paper Processing Processes 3
PAPR 370 Senior Thesis I 3
CHEM 430 Physical Chemistry I 3
AREA IV General Education* 4

Eighth Semester—17 hours

PAPR 360 Printing Processes 2
PAPR 430 Polymer and Surface Chemistry 3
PAPR 471 Senior Thesis II 3
CHEM 431 Physical Chemistry II 2
CHEM 436 Physical Chemistry Lab Technical Elective** 4

* At least two of these courses must be at the 300-400 level
** Technical-Professional Electives—4 hours

Select from Paper Science, Chemistry, Engineering, or Business courses. All electives need approval of the Department.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Differential</td>
<td>4</td>
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<tr>
<td></td>
<td>Equations</td>
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<tr>
<td>PAPR 440</td>
<td>Current Topics in Paper and Pulp</td>
<td>1</td>
</tr>
<tr>
<td>ME 256</td>
<td>Statics</td>
<td>3</td>
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<tr>
<td>PAPR 309</td>
<td>Mechanics and Optics of Fiber Systems</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 306</td>
<td>Process Engineering</td>
<td>4</td>
</tr>
<tr>
<td>PAPR 350</td>
<td>Water Quality and Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PAPR 440</td>
<td>Current Topics in Paper and Pulp</td>
<td>1</td>
</tr>
<tr>
<td>ME 256</td>
<td>Statics</td>
<td>3</td>
</tr>
</tbody>
</table>

Sixth Semester
- Pulp and Paper Processes—17 hours
  - EE 210 Circuit Analysis ............................................. 4
  - ME 353 Mechanics of Materials ........................................ 3
  - CHEM 103 General Chemistry ........................................... 4
  - PAPR 150 Introduction to Graphic Arts* ............................. 3
  - IEGM 100 Introduction to Industry .................................... 2
  - IEGM 102 Introduction to Information Processing .................... 3
  - CHEM 103 General Chemistry ........................................... 4
  - MGMT 200 Business Statistics ......................................... 3
  - IEGM 305 Work Analysis ................................................ 3
  - IEGM 326 Operations Planning and Control ............................. 3
  - IEGM 328 Quality Assurance and Control ............................... 3
  - IEGM 357 Color Separation ............................................. 3
  - IEGM 362 Estimating ................................................... 3
  - MGMT 300 Fundamentals of Management .................................. 3
  - IEGM 326 Operations Planning and Control ............................. 3
  - IEGM 328 Quality Assurance and Control ............................... 3

Seventh Semester
- Pulp and Paper Processes—19 hours
  - EE 211 Machines and Electronic Circuits ............................ 4
  - CHEM 355 Introduction to Physical Chemistry ....................... 3
  - MATH 374 Introduction to Linear Algebra and Differential Equations | 4
  - PAPR 460 Pulp and Paper Process Design ............................... 4

Eighth Semester
- Pulp and Paper Processes—17 hours
  - EE 211 Machines and Electronic Circuits ............................ 4
  - CHEM 355 Introduction to Physical Chemistry ....................... 3
  - MATH 374 Introduction to Linear Algebra and Differential Equations | 4
  - PAPR 460 Pulp and Paper Process Design ............................... 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
- CHEM 110 Finite Mathematics ........................................... 3
- PAPR 150 Introduction to Graphic Arts* ............................. 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 102 Introduction to Information Processing .................... 3
- CHEM 103 General Chemistry ........................................... 4
- ECON 201 Principles of Economics ..................................... 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 305 Work Analysis ................................................ 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3

Second Semester—17 hours
- PAPR 250 Lithographic Imaging ........................................ 3
- PAPR 251 Photo Typesetting ............................................ 3
- PAPR 257 Half Tone Photography ........................................ 3
- PAPR 259 Introduction to Gravure ...................................... 3
- PAPR 354 Paper Industry Processes ..................................... 3
- PAPR 357 Color Separation ............................................. 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 305 Work Analysis ................................................ 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3

Approved Electives** .................................................. 3
- PAPR 150 Introduction to Graphic Arts* ............................. 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 305 Work Analysis ................................................ 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3

* PAPR 150 may be waived on demonstration of adequate printing preparation at the high school level.

** Electives to be selected with the Printing curriculum adviser.

MANAGEMENT OPTION

First Semester—16 hours
- CHEM 103 General Chemistry ........................................... 4
- PAPR 157 Line Photography ............................................. 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 305 Work Analysis ................................................ 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3

Approved Electives** .................................................. 3
- PAPR 150 Introduction to Graphic Arts* ............................. 3
- IEGM 100 Introduction to Industry .................................... 2
- IEGM 305 Work Analysis ................................................ 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3
- IEGM 357 Color Separation ............................................. 3
- IEGM 362 Estimating ................................................... 3
- MGMT 300 Fundamentals of Management .................................. 3
- IEGM 326 Operations Planning and Control ............................. 3
- IEGM 328 Quality Assurance and Control ............................... 3

* PAPR 150 may be waived on demonstration of adequate printing preparation at the high school level.

** Electives to be selected with the Printing curriculum adviser.
**PAPER SCIENCE AND ENGINEERING 193**

**Course Descriptions**

Courses described in italics are approved for General Education. Numbers following course titles indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). For convenience in referencing older catalogs, the previous course numbers are listed in parentheses. The new and old courses may not be fully interchangeable, and students should consult their adviser.

100 Introduction to Pulp and Paper Manufacture (2-3) 3 hrs. Fall
A lecture-laboratory consideration of the fundamentals of paper-making processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student should acquire a basic understanding of the nature and scope of the paper industry. Prerequisite: High school chemistry, CHEM 101 or 102 concurrent.

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 basics of tests and test procedures used in the pulp and paper industry and their significance. Prerequisite: PAPR 100.

200 Introduction to Graphic Arts (2-3) (ITE 150) 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.

201 Typographic Layout and Design (2-2) (ITE 251) 3 hrs. Fall
Lecture and laboratory study of the fundamentals of typography and typography. Emphasis is on principles and 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.

202 Advanced Lithographic Presswork (2-4) (ITE 252) 3 hrs. Fall
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.

203 Pulp Manufacture (3-5, 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: PAPP 100, CHEM 101 or 102. 204 Paper Manufacture (3-5, 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.

215 Lithographic Imaging (2-4) (ITE 253) 3 hrs. Winter
A study of the total field of computerized machine composition: Advantages, limitations, and operation of photo composition methods and equipment will be stressed. Economic and planning implications of the composition area will also be explored. Prerequisite: PAPR 151, BIS 102.

250 Phototypesetting (2-2) (ITE 254) 3 hrs. Fall, Winter
A study of the total field of computerized machine composition: Advantages, limitations, and operation of photo composition methods and equipment will be stressed. Economic and planning implications of the composition area will also be explored. Prerequisite: PAPR 151.

257 Halftone Photography (1-6) (ITE 551) 3 hrs. Fall
Experience is 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.

258 Introduction to Flexography (3-3) (ITE 258) 3 hrs. Fall, Winter
A study of the flexographic printing process focusing on the process, application, technology, and equipment. Prerequisite: PAPR 150.

259 Introduction to Gravure Printing (3-0) (ITE 359) 3 hrs. Fall
A study of gravure printing focusing on the process, application, technology, and equipment. Prerequisites: PAPR 150.

261 Industrial Environmental Engineering (3-0) (PAPR 251) 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 102, PHYS 210.

305 Mechanics and Optics of Fiber Systems (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.

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, thermodynamics, and chemical engineering. Prerequisites: CHEM 101 or 102, MATH 123, PHYS 210.

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.

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 or senior standing.

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.

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.

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.

350 Water Quality and Microbiology (2-3)
3 hrs. Fall
A study of the physical, chemical, and biological characteristics of water. Topics covered include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. Prerequisite: CHEM 101 or 102.

351 Water Quality and Microbiology (2-0)
2 hrs. Fall
A discussion of the physical, chemical, and biological characteristics of water. Topics covered 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 and engineering department majors.

352 Fiber Resource Conservation and Recycling (2-2)
3 hrs. Fall
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.

353 Waste Water 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.

354 Paper Industry Processes (2-2)
3 hrs. Winter
Offered primarily for students in graphic arts and printing management 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.

357 Color Separation Photography (2-3)
3 hrs. Fall
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 257.

358 Flexographic Presswork (2-3) (ITE 358)
3 hrs. Fall
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.

359 Gravure Presswork (2-3) (ITE 459)
3 hrs. Winter
This lecture/lab course will emphasize traditional cylinder manufacturing, proofing and gravure press operation. Press components, register controls, ink variables, doctor blades, and electrosist will be stressed. Prerequisite: PAPR 259.

360 Printing Processes (1-3) (ITE 451)
2 hrs. Winter
A course designed to provide Paper Science and Engineering students with a working knowledge of the various printing processes and their relation to the performance factors of paper. Prerequisite: PAPR or PAE majors only.

362 Estimating (3-0) (ITE 452)
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 or senior standing.

371 Introduction to Independent Research (1-0)
1 hr. Fall, Winter
Methods of approaching and planning independent research will be discussed. Familiarity with research will 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.

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 365.

440 Current Topics in Paper and Pulp (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. Prerequisite: Junior or senior standing.

450 Solid Waste Treatment (1-3)
2 hrs. Fall
The practice, technology, and economics of the treatment of solid wastes generated by municipal and industrial sources are studied. Discussion will include treatment, disposal, in-process utilization, and conversion to useful by-products for solid and semi-solid wastes. Prerequisite: Junior standing.

454 Advanced Lithographic Technology (2-3)
3 hrs. Provides the student with practical problems in press setup. Emphasizes plate imaging, register controls, inks, substrates, and litho press systems. Folding applications are also included. Prerequisite: PAPR 250, CHEM 103.

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, and identification of equipment performance, and environmental concern. Prerequisites: PAPR 203, 204, 307.

462 Computer Estimating (1-3) (ITE 552)
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.

464 Modern Printing Practices (ITE 547)
2 hrs. Study, development, application of printing management/marketing production practices. Technical short courses offered by production management will be practiced. Computerized estimating systems may be utilized. May be elected in two hour blocks to a maximum of six hours. Prerequisite: Junior or senior standing.

466 Printing Production Management (3-0) (ITE 553)
3 hrs. Fall
Managerial procedures used in printing industries to forecast, plan, schedule, and record production to control production costs. Hourly costs of printing machines will be developed by students. Prerequisite: Junior standing.

470 Senior Thesis I (0-4 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. Student-staff discussion will be held weekly. Attendance at PAPR 440, Current Topics, is required. Prerequisites: PAPR 101 or 102 or 103, MATH 123, PHYS 211.

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. Attendance at PAPR 440, Current Topics, is required. Prerequisite: PAPR 470.

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 attendance at student-staff seminars and attendance at PAPR 440, Current Topics, is required. Prerequisites: PAPR 371, paper engineering major.

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 attendance at student-staff seminars and attendance at PAPR 440, Current Topics, is required. Prerequisite: PAPR 472.

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, transducers, controllers, and control valves. Prerequisites: CHEM 101 or 102 or 103, MATH 123, PHYS 211.
Vocational Education (VE)

Jack T. Humbert, Coordinator

Bachelor of Science Degree

The vocational education teaching curriculum (VE) 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

Distributive Education—Jack T. Humbert
Health Studies—Sterling L. Breed
Home Economics—Linda L. Dannison
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)—Wallace Fillingham

Minors

Distributive Education—Jack T. Humbert
Occupational Foods—Linda L. Dannison
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)—Wallace F. Fillingham

Vocational Education 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 four major sequences:

1. Distributive Education—33 hours
   (4,000 work hours required; may necessitate an internship or work experience program.)
   CRT 130 Food Distribution Industry..................3
   CRT 135 Introduction to Petroleum Industry..............3

VOCATIONAL EDUCATION 195

ECON 201 Principles of Economics
(Micro).............................................3
ACTY 210 Principles of Accounting..................3
MKTG 270 Salesmanship............................3
CRT 302 Coordinated Distribution Practices..............3
CRT 320 Visual Merchandising.........................3
MKTG 370 Marketing.................................3
MKTG 374 Advertising........................................3
CRT 430 Mass Merchandising..........................3
CRT 500 Seminar in Distribution.....................3

2. Health Studies—30 hours
   Fifteen (15) hours from license/registration health credit plus 15 hours from approved course list planned in consultation with adviser. Areas of certification include dental hygiene, medical lab technician, and nursing.

3. 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.....................2
   CRT Electives (adviser planned).....................22

4. 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 471 Directed Teaching...........................9

G. ELECTIVES—Based on MAJOR SEQUENCE requirements

H. PHYSICAL EDUCATION—2 hours

Vocational Minors

BUSINESS EDUCATION
   Accounting and Computing—27 hours
   (4,000 work hours are required which may necessitate an internship or work experience program.)
   BIS 102 Introduction to Information Processing........3
   ACTY 210 Principles of Accounting..................3
   ACTY 211 Principles of Accounting..................3
   BIS 260 Business EDP Systems and Procedures I........3
   BIS 261 GameBOR.................................3
VE 342 Course Planning and Construction OR
VE 344 Teaching Practical Arts and Vocational Education 3
VE 512 Principles of Vocational Education 3
VE 543 Coordination Techniques in Cooperative Education 3

Business/Data Processing—27 hours

ACTY 310 Financial Accounting I OR
ACTY 322 Managerial Accounting OR
ACTY 324 Income Tax Accounting 3
VE 342 Course Planning and Construction OR
VE 344 Teaching Practical Arts and Vocational Education 3
VE 512 Principles of Vocational Education 3
VE 543 Coordination Techniques in Cooperative Education 3

Office Education—27 hours

BIS 102 Introduction to Information Processing 3
CS 111 Computer Programming I 3
CS 223 Computer Organization 3
BIS 260 Business EDP Systems and Procedures I 3
BIS 261 COBOL 3
BIS 264 Report Program Generator (RPG) 3
BIS 360 Business EDP Systems and Procedures II OR
CS 233 Computer Organization 3
VE 342 Course Planning and Construction OR
VE 344 Teaching Practical Arts and Vocational Education 3
VE 512 Principles of Vocational Education 3
VE 543 Coordination Techniques in Cooperative Education 3

Course Descriptions

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).

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.

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.

512 Principles of Vocational Education (3-0) 3 hrs. Fall, Summer
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.

513 Technical Education Methods (3-0) 3 hrs. Business Industry
College of Fine Arts offers a variety of opportunities for the non-arts major to participate in applied, theoretical, and appreciative 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:

<table>
<thead>
<tr>
<th>Art</th>
<th>Music</th>
<th>Theatre</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 Theory of Art</td>
<td>581 History of Baroque Art</td>
<td>THEA 125 Stagecraft I (Prereq: THEA 120)</td>
</tr>
<tr>
<td>120 Introduction to Art</td>
<td>582 History of Medieval Art</td>
<td>THEA 140 Elements of Stage Acting (3)</td>
</tr>
<tr>
<td>220 History of Art</td>
<td>585 History of Renaissance Art</td>
<td>THEA 210 Improvisation (Prereq: THEA 246)</td>
</tr>
<tr>
<td>221 History of Art</td>
<td>586 History of Baroque Art</td>
<td>THEA 246 Characterization (Prereq: THEA 246)</td>
</tr>
<tr>
<td>520 Independent Study in Art History</td>
<td>588 History of 19th Century Art</td>
<td>THEA 340 Special Techniques of Physical Characterization (Prereq: THEA 246)</td>
</tr>
<tr>
<td>521 Topics in Art History</td>
<td>589 History of 20th Century Art 1900-1945</td>
<td>THEA 355 Directing I (Prereq: THEA 120, 140, Junior standing)</td>
</tr>
<tr>
<td>581 History of Ancient Art</td>
<td>590 History of 20th Century Art 1945 to Present</td>
<td>THEA 372 Music Theatre Script Analysis and Critique (Prereq: Adviser consent) (3)</td>
</tr>
<tr>
<td>583 History of Medieval Art</td>
<td>591 History of Prints</td>
<td>MUS 395 Performance Development and Technique (Prereq: Adviser consent) (3)</td>
</tr>
<tr>
<td>585 History of Renaissance Art</td>
<td>593 History of American Art</td>
<td>DANC 495 Performance Workshop (Prereq: MUS 395, 4 semesters, 2 hrs. ea.) (8)</td>
</tr>
<tr>
<td>586 History of Baroque Art</td>
<td>597 History of Modern Architecture</td>
<td>Required Courses in Dance—10 hrs.</td>
</tr>
<tr>
<td>588 History of 19th Century Art</td>
<td></td>
<td>DANC 101 Beginning Ballet I (1)</td>
</tr>
<tr>
<td>589 History of 20th Century Art 1900-1945</td>
<td></td>
<td>DANC 102 Beginning Jazz I (1)</td>
</tr>
<tr>
<td>590 History of 20th Century Art 1945 to Present</td>
<td></td>
<td>DANC 103 Beginning Modern I (must take fall semester of freshman year) (1)</td>
</tr>
<tr>
<td>591 History of Prints</td>
<td></td>
<td>DANC 104 Beginning Tap I (1)</td>
</tr>
<tr>
<td>593 History of American Art</td>
<td></td>
<td>DANC 106 Recreational Dance (1)</td>
</tr>
<tr>
<td>597 History of Modern Architecture</td>
<td></td>
<td>DANC 111 Beginning Ballet II (Prereq: DANC 101) (1)</td>
</tr>
</tbody>
</table>

Required Courses in Dance—10 hrs.

<table>
<thead>
<tr>
<th>Dance</th>
<th>Music</th>
<th>Theatre</th>
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</thead>
<tbody>
<tr>
<td>100 Foundations of Dance</td>
<td>270 Music History and Literature</td>
<td>THEA 120 Theatre Production (3)</td>
</tr>
<tr>
<td>200 Dance History and Philosophy</td>
<td>271 Music History and Literature</td>
<td>THEA 125 Stagecraft I (Prereq: THEA 120)</td>
</tr>
<tr>
<td>300 Dance and the Related Arts</td>
<td>360 Style Analysis</td>
<td>THEA 140 Elements of Stage Acting (3)</td>
</tr>
<tr>
<td></td>
<td>572 Baroque Music (1600-1750)</td>
<td>THEA 210 Improvisation (Prereq: Sophomore standing) (3)</td>
</tr>
<tr>
<td></td>
<td>573 Classical Music (1750-1800)</td>
<td>THEA 230 Stage Make-up (3)</td>
</tr>
<tr>
<td></td>
<td>574 Romantic Music (1800-1910)</td>
<td>THEA 246 Characterization (Prereq: THEA 246) (3)</td>
</tr>
<tr>
<td></td>
<td>577 Symphonic Literature</td>
<td>THEA 340 Special Techniques of Physical Characterization (Prereq: THEA 246) (3)</td>
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<td></td>
<td>578 Chamber Music Literature</td>
<td>THEA 355 Directing I (Prereq: THEA 120, 140, Junior standing) (3)</td>
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<tr>
<td></td>
<td>579 Operatic Literature</td>
<td>Electives—10 hrs.</td>
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<tr>
<td></td>
<td>581 Choral Music Literature</td>
<td>Seven hours from courses in the Department of Dance, the School of Music and the Department of Theatre, with the consent of the Music Theatre Performer curriculum adviser.</td>
</tr>
<tr>
<td></td>
<td>583 Jazz History and Literature</td>
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Required Courses in Music—20 hrs.

<table>
<thead>
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<th>Dance</th>
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<th>Theatre</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>115 Voice Technique I (2)</td>
<td>DANC 101 Beginning Ballet I (1)</td>
</tr>
<tr>
<td></td>
<td>116 Voice Technique II (2)</td>
<td>DANC 102 Beginning Jazz I (1)</td>
</tr>
<tr>
<td></td>
<td>120 Keyboard Fundamentals (1)</td>
<td>DANC 103 Beginning Modern I (must take fall semester of freshman year) (1)</td>
</tr>
<tr>
<td>MUS 121</td>
<td>162 Aural Comprehension (Prereq: MUS 159) (3)</td>
<td>DANC 104 Beginning Tap I (1)</td>
</tr>
<tr>
<td>MUS 160</td>
<td>163 Aural Comprehension (Prereq: 162, C or better) (1)</td>
<td>DANC 106 Recreational Dance (1)</td>
</tr>
<tr>
<td>MUS 162</td>
<td>199 Applied Voice (Prereq: Audition -4 semesters 2 hrs. ea.) (8)</td>
<td>DANC 111 Beginning Ballet II (Prereq: DANC 101) (1)</td>
</tr>
<tr>
<td>MUS 220</td>
<td>220 Keyboard Musicianship (Prereq: MUS 121, C or better) (1)</td>
<td>DANC 112 Beginning Jazz II (Prereq: DANC 102) (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DANC 113 Beginning Modern II (Prereq: DANC 103) (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DANC 120 Jazz Studio I (Prereq: Adviser consent) (2)</td>
</tr>
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Required Courses in Theatre—24 hrs.

<table>
<thead>
<tr>
<th>Dance</th>
<th>Music</th>
<th>Theatre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>120 Theatre Production (3)</td>
<td>THEA 120 Theatre Production (3)</td>
</tr>
<tr>
<td>THEA 125</td>
<td>125 Stagecraft I (Prereq: THEA 120) (3)</td>
<td>THEA 125 Stagecraft I (Prereq: THEA 120) (3)</td>
</tr>
<tr>
<td>THEA 140</td>
<td>140 Elements of Stage Acting (3)</td>
<td>THEA 140 Elements of Stage Acting (3)</td>
</tr>
<tr>
<td>THEA 210</td>
<td>210 Improvisation (Prereq: Sophomore standing) (3)</td>
<td>THEA 210 Improvisation (Prereq: Sophomore standing) (3)</td>
</tr>
<tr>
<td>THEA 230</td>
<td>230 Stage Make-up (3)</td>
<td>THEA 230 Stage Make-up (3)</td>
</tr>
<tr>
<td>THEA 246</td>
<td>246 Characterization (Prereq: THEA 210) (3)</td>
<td>THEA 246 Characterization (Prereq: THEA 210) (3)</td>
</tr>
<tr>
<td>THEA 340</td>
<td>340 Special Techniques of Physical Characterization (Prereq: THEA 246) (3)</td>
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<td>THEA 355</td>
<td>355 Directing I (Prereq: THEA 120, 140, Junior standing) (3)</td>
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Electives—10 hrs.

In the belief that arts understanding, involvement, and appreciation are an important part of liberal education, the departments in the College of Fine Arts offer 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, textiles, graphic design, printmaking, photography, jewelry and metalsmithing, painting, and water color. Each program is designed to prepare students for graduate or professional work. One may also elect an art major with certification to teach art at the elementary and secondary levels.

The Department of Dance offers three undergraduate degrees: Bachelor of Arts, Bachelor of Science, and Bachelor of Fine Arts. Majors are offered in modern dance and ballet. 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.

Bachelor of Fine Arts Degree

<table>
<thead>
<tr>
<th>Music Theatre Performer</th>
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<tbody>
<tr>
<td>Bachelor of Fine Arts Degree</td>
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<tr>
<td>81 credit hours</td>
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Interdisciplinary Program

Music Theatre Performer

Bachelor of Fine Arts Degree

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>THEA 120</td>
<td>Theatre Production (3)</td>
</tr>
<tr>
<td>THEA 125</td>
<td>Stagecraft I (Prereq: THEA 120)</td>
</tr>
<tr>
<td>THEA 140</td>
<td>Elements of Stage Acting (3)</td>
</tr>
<tr>
<td>THEA 210</td>
<td>Improvisation (Prereq: Sophomore standing) (3)</td>
</tr>
<tr>
<td>THEA 230</td>
<td>Stage Make-up (3)</td>
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<tr>
<td>THEA 246</td>
<td>Characterization (Prereq: THEA 210) (3)</td>
</tr>
<tr>
<td>THEA 340</td>
<td>Special Techniques of Physical Characterization (Prereq: THEA 246) (3)</td>
</tr>
<tr>
<td>THEA 355</td>
<td>Directing I (Prereq: THEA 120, 140, Junior standing) (3)</td>
</tr>
</tbody>
</table>

Electives—10 hrs.

Seven hours from courses in the Department of Dance, the School of Music and the Department of Theatre, with the consent of the Music Theatre Performer curriculum adviser.
Additional requirements
A student must complete all the General Education Distribution Program requirements as outlined in this bulletin. Within these specifications, it is required that the student take one semester of the following foreign languages: FREN 100, 101, and GER 100, 101.

Admission to the program is by prepared audition before a faculty team from Dance, Music, and Theatre. Additional information is available by contacting the curriculum adviser. At the end of the sophomore year, each student must pass a performance jury in order to continue in the program; unanimous approval by each performance area is required.

ART (ART)
Melvin N. Strawn, Chair
T.D. Argyropoulos
John M Carney
James Chressanthis
Joseph V. DeLuca
Gordon J. Grinwis
Edward Harkness
Richard J. Keaveny
Donald E. King
John Link
Paul S. Mergen
John M. Methaney
Mary Joanne Mohr
Helmi Moulton
Bruce Nafte
Mary Eleanor Neu
Barbara Rensenhouse
Curtis A. Rhodes
Louis B.M. Rizzolo
Paul A. Robbert

The Department of Art offers many programs with various purposes and objectives. These are described under the heading of each program.

The department is accredited by the National Association of Schools of Art and Design and affiliated with the College Art Association and subscribes to the recommendations of these organizations.

The various programs are designed to promote the education of good artists and artists-teachers and to increase artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by visiting artists, a student-operated gallery, and individual studios for advanced BFA candidates. There are approximately 300 undergraduate and 30 graduate art majors active during the academic year. Approximately 80 art degrees are awarded annually.

Programs
The Department of Art offers programs leading to the following three degrees:

Bachelor of Fine Arts with an 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 Fine Arts also offers courses for students in other areas including non-art major courses in Drawing, Acrylic Painting, Printmaking, Sculpture, Ceramics, Jewelry, Watercolor, and Textile Art. Two programs satisfying the minor requirements of other curricula are also offered.

For specific information see the description of each program.

Transfer Credit
Transfer students are required to submit a portfolio for transfer credit evaluation of art courses from other institutions one semester prior to enrollment. The application for admission as an art major includes the transfer evaluation procedure. For portfolio requirements please write to Screening Committee, Department of Art.

Transfer credit is granted for all courses taken at accredited institutions either for specific WMU equivalent courses or as general art credit.

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) 383-6028.

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 individual 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.

Bachelor of Fine Arts Degree
85 credit hours

This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art majors must make specific application to a departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art, one semester residency in the department, and at or above the 300 level in the area they are applying to. Applications will be considered each November and March. Areas of emphasis: ceramics, graphic design, jewelry and metal smithing, painting/watercolor, photography, printmaking, sculpture, and textile design. 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 Arts Education Program: ART 252, 352, 452, and 552. The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

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
8 hours in Advanced Drawing (210, 310)
2 hours in Art Seminar (425)
21 hours in the studio area of emphasis
25 hours of other elective and required art courses determined in consultation with a faculty adviser within the studio area of emphasis.
1 hour in ART 490, 491, 492, 493, 494, 495, 496, or 497. Approval of the presentation by a reviewing committee and submission of a thesis is necessary for the granting of the B.F.A. degree.

Art Major
Bachelor of Arts or Bachelor of Science
64 credit hours

This program is designed for the liberal arts-oriented student who wishes 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, sculpture and textile design. 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, jewelry and metalsmithing, and textile design) 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 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, sculpture and textile design.
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:
15 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)

Art Minor
24 credit hours

This program is designed to expose the student to the field of art and satisfy the minor requirements of the liberal arts, arts and sciences, or education curricula. Art minors must register with the art adviser to prepare a complete program before completing any art courses. A minor slip is required:
9 hours in the basic program (101, 102, 103)
3 hours in Fine Arts (231 or 240)
12 hours in art electives, including ART 252 and 352 for education majors and minors.

Art History Minor
18 credit hours

This program is designed for liberal arts students interested in art history and satisfies the minor requirements of the liberal arts and arts and sciences curricula. A minor slip is required. The 18 credit hours are distributed as follows:
6 hours of Art History 220 and 221
12 hours of electives chosen from the remaining Art History courses in the department, in consultation with the Art adviser.

Art Courses for Non-Art Majors or Minors
Elementary education majors are advised to take ART 130, 140, 150. Any course with no prerequisites may be taken by non-art majors. Those seeking a broadly inclusive studio experience in art are advised to take ART 130 and/or 140. Further recommended courses in specific media for non-art majors include Drawing, Acrylic Painting, Printmaking, Sculpture, Ceramics, Jewelry, Watercolor, and Textile Art. The Art Survey 120, ART 130, 140, and Art History 220 and 221 are not to be elected by majors or minors in any art or art education. It is designed primarily for the general degree of education student who wishes to have some experience in art.

Course Descriptions
(Course descriptions in italics are approved for General Education purposes.)

101 Foundation Drawing
3 hrs.
The visual elements and principles of organization in relationship to perceiving both two and three dimensional space.

102 Foundation 2D Design
3 hrs.
3 hrs.

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.

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 experience, as symbol, as play and as form. This course will enable the non-art student to develop an art vocabulary and gain an understanding of one’s own aesthetic experiences.

130 Studio Experience—(3-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 any art or art education.

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 clay, wood, metal and other sculptural materials. This course may not be elected by majors or minors in any art or art education. It is designed primarily for the general degree of education student who wishes to have some experience in art.

150 Art Education Workshop
3 hrs.
A studio course structured to provide the classroom teacher with the opportunity to explore, experiment and develop concepts related to art, creativity, and perception. Such concepts are explored and developed through the use of a variety of art materials and techniques. Prerequisite: For the Elementary Education Minor only. May not be taken by Integrated Creative Arts minors, nor Art majors or minors.

200 The Creative Process through Art
4 hrs.
Individual involvement in the creative process related to human growth and development by means of exploration with many art media. Prerequisite: The Nature of
Creativity Ed 230. For the Integrated Creative Arts Minor only. This course waives the ART 150 requirement for the Elementary Education majors.

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.

202 Non-Art Major: Acrylic Painting 3 hrs.
This course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to develop a basic understanding of color and composition, 2) to learn the fundamental techniques of application for acrylic paint, and 3) to develop a personal expressive use of the medium. Not applicable to art majors or minors.

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.

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.

206 Non Art Major: Ceramics 3 hrs.
This course is a non-professional enrichment experience in basic Ceramics. The course objectives are 1) to learn the fundamentals of ceramic construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors.

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-managing 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.

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.

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.

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, 102, 103 and 240, or 240 concurrently.

220 History of Art 3 hrs.
An historical survey of art from prehistoric ages to the Renaissance.

221 History of Art 3 hrs.
An historical survey of art from the Renaissance through the contemporary period.

230 Ceramics 3 hrs.
A course devoted to a survey of pottery process, including handbuilding, technical information, and a limited experience with the potter’s wheel. Prerequisite: ART 101, 102, 103 and 231, or 231 concurrently.

231 Sculpture 3 hrs.
A fundamental course in sculpture exploring the theories and concepts of three-dimensional forms in space. Mechanical, structural, and compositional principles will be studied. An overview of historical sculpture forms will be presented. Prerequisites: ART 101, 102, and 103.

234 Textile Design 3 hrs.
An introductory survey of textiles to include weaving, spinning, stitchery, hooking, macrame, silk screen printing, tie-dye and batik. Prerequisite: ART 101, 102, 103 and 231, or 231 concurrently.

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, 102, 103, and 231 or 231 concurrently.

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, 102, and 103.

241 Intaglio and Relief 3 hrs.
A fundamental exposure to the techniques of Intaglio and Relief painting and an introduction to Print aesthetics. Prerequisites: ART 101, 102, 103 and 240, or 240 concurrently.

242 Watercolor Painting 3 hrs.
A survey of the application, techniques, and limitations of the watercolor painting medium. Prerequisites: ART 101, 102, 103 and 240, or 240 concurrently.

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, 102, 103 and 240, or 240 concurrently.

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, 102, 103 and 240, or 240 concurrently.

246 Screenprint 3 hrs.
Introduction to screenprint fundamentals, techniques and procedures, exporing at length the expressive potentials of the medium—to include basic color printing procedures. Prerequisites: ART 101, 102, 103 and 240, or 240 concurrently.

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, 102, 103 and 240, or 240 concurrently.

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, 102, 103, 231 and 240, or 231 and 240 concurrently.

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 craftsmanhip of each art form, the experiences of synthesizing art forms so that each form contributes to the aesthetic value of the final product.

310 Intermediate Drawing 3 hrs.
Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately ½ of the class meetings. Prerequisite: ART 210.

330 Ceramics 3 hrs.
Continuation of ART 230 with opportunity for concentration in the medium. Some experiment in glazing. Prerequisite: ART 230.
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 instructor.

334 Textiles
3 hrs.
Advanced work in textile design allowing for specialization with a material or technique surveyed in ART 234. Prerequisite: ART 234.

336 Jewelry and Metalsmithing
3 hrs.
Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. Prerequisite: ART 238

340 Painting II
3 hrs.
Continuation of ART 240. Prerequisite: ART 240.

341 Intaglio and Relief
3 hrs.
An intermediate course continuing the investigation of basic and advanced Intaglio and Relief techniques with the introduction of color printing. The artist-student should begin to discover and adapt media and/or techniques (or synthesis of media and/or techniques) appropriate to individual aesthetic intentions. Prerequisite: ART 241.

342 Watercolor
3 hrs.
Advanced problems in watercolor techniques to include composition. Prerequisite: ART 242.

343 Lithography
3 hrs.
An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover methods and techniques adaptable and appropriate to his aesthetic intent. Prerequisite: ART 243.

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, figural, and decorative imagery for posters, covers, promotions, magazines and newspaper advertising. Includes thematic development, graphic planning, comprehensive and finished art production. Prerequisite: ART 245.

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 method of technique appropriate to their aesthetic intent. Prerequisite: ART 246.

348 Photography
3 hrs.
Introduction to the view camera, color processing/printing, and various studio lighting techniques involved in product photography. Emphasis is placed upon exploring the potential of color photography and the development of individual imagery. Prerequisite: ART 248 and ownership of a 35mm slr or 2 1/4 X 2 1/4 camera.

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.

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.

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.

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.

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.

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.

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.

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.

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.

495 Graduation Presentation—Jewelry and Metalsmithing
1 hr.
Preparation and presentation of graduating exhibition in jewelry and metalsmithing, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

496 Graduation Presentation—Ceramics
1 hr.
Preparation and presentation of graduating exhibition in ceramics, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

500 Independent Studies
1-6 hrs.
An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. Prerequisite: Permission of instructor. Repeatable for credit.

510 Drawing Workshop
1-6 hrs.
Continuation of ART 310. Prerequisite: ART 310. Repeatable for credit.

520 Independent Study in Art History
2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221, and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

521 Topics in Art History: Variable Topics
3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220, 221 for majors. None for other students. Repeatable for credit under a different title.

530 Ceramics Workshop
1-6 hrs.
Advanced work in ceramics on an independent basis. Prerequisite: ART 330. Repeatable for credit.

531 Sculpture Workshop
1-6 hrs.
Continuation of ART 331. The advanced student explores the expressive possibilities of his or her own individual sculptural direction, with bronze and aluminum casting related techniques. Prerequisite: ART 331. Repeatable for credit.
This course is open to graduate and non-degree level students. Education. (Not to be taken in place of permission of the art education chairman.)

An arranged elective course in which the student investigates and researches a problem, a project, or trends in art teaching and learning in the visual arts at all levels of the public school; the creative construction of an operant art curriculum for the elementary, teacher. 3 hrs. A studio course for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit.

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.

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).

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.

586 History of 19th Century 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.

589 History of 20th Century 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.

591 History of Ancient Art 3 hrs. The development of art through the early Roman Empire to the decline of the Roman Empire. The development of art through the early Roman Empire is considered in the context of the decline of the Roman Empire and the subsequent rise of the barbarian empires. The development of art through the early Roman Empire is considered in the context of the decline of the Roman Empire and the subsequent rise of the barbarian empires.

597 History of Modern Architecture 3 hrs. Emphasis is placed upon the roots of the modern movement in architecture and its impact on society. The development of modern architecture is considered in the context of the decline of the Romantic period and the rise of the modern movement. The development of modern architecture is considered in the context of the decline of the Romantic period and the rise of the modern movement.
the faculty on the basis of outstanding achievement in the field and overall academic excellence. Applicants for New Student Scholarships must audition and interview with the faculty. For specific information, contact the Dance Academic Adviser.

Extra-University Study
Students are encouraged to study with professional concert dancers whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western's campus for which a limited number of scholarships are available.

Handbook
The Department of Dance provides a handbook, Connections, for dance majors and minors as a supplement to the Undergraduate Catalog. Each major/minor is required to pick up a copy from the department secretary during the first week on campus.

Major/Minor Meeting
A departmental meeting is held during the second week of each Fall Semester to prepare the student for the academic year. Attendance is mandatory for all dance majors and minors.

Majors in Dance
Bachelor of Fine Arts (BFA) in Dance

Ballet or Modern Major
80 credit hours

Enrollment in the B.F.A. is contingent upon admission to the University and approval of the Department of Dance through audition. Audition information is available from the Department of Dance upon request. Students are urged to complete admission to the University by March 1.

A student must complete all General Education requirements for either the Distributive or the Integrated Program as outlined in this bulletin. The Dance Academic Adviser is available to help students with their general education requirements.

Required Courses in Technique and Ensembles—31 total hours

DANCE 100 Foundations of Dance (Prereq: 100) 2
DANCE 180 Choreography I (Prereq: consent of adviser) 2
DANCE 181 Dance Improvisation 1
DANCE 200 Dance History and Philosophy (Prereq: 100) 2
DANCE 295 Kinesiology for the Dancer 3
MUS 185 Music Fundamentals for Dancers 1
MUS 285 Musical Style and Form for Dancers 3

Eighteen hours from:

ANTH 220 Cultural Anthropology 3
ANTH 370 Culture and Communication 3
ART 140 Studio Experience—2D 3
ART 220 History of Art—Prehistoric-Renaissance 3
ART 221 History of Art—Renaissance-Contemporary 3
BME 112 Introduction to Biomedical Sciences 3
BME 210 Mammalian Anatomy 4
ENGL 105 Introduction to Writing: Variable Topics 4
ENGL 110 Literary Interpretation 4
ENGL 150 Literature and Other Arts 4
ENGL 305 Practical Writing: Variable Topics 4
FREN 100 Basic French 4
FREN 101 Basic French 4
GHUM 102 Direct Encounter with the Arts 4
HIST 315 Popular Art and Architecture in America 3
MGMT 210 Small Business Management 3
MUS 382 Non-Western Music 4
MUS 450 Music Appreciation: The Symphony 3
PHIL 200 Introduction to Philosophy 4
PHIL 312 Philosophy of Art 4
REL 311 Myth and Ritual 4
THEA 100 Introduction to Theatre 3

Bachelor of Science or Bachelor of Arts with a Major in Dance

Ballet or Modern 42 credit hours

A student must complete all General Education requirements for either the Distributive or the Integrated Program as outlined in this bulletin. The Dance Academic Adviser is available to help students with their general education requirements.

Required Courses in Choreography—9 total hours

DANCE 180 Choreography I (Prereq: consent of adviser) 2
DANCE 181 Dance Improvisation 1
DANCE 280 Choreography II (Prereq: 180, 181, consent of adviser) 2
DANCE 380 Choreography III (Prereq: 280) 2
DANCE 480 Graduating Presentation (Prereq: 380) 2

Required Courses in History/Philosophy—9 total hours

DANCE 100 Foundations of Dance 2
DANCE 200 Dance History and Philosophy (Prereq: 100) 2
DANCE 300 Dance and Related Arts (Prereq: 200) 3
DANCE 500 Special Studies in Dance History (Prereq: 300) 2

Required Courses in Related Theory—31 total hours

DANCE 295 Kinesiology for the Dancer 3
DANCE 385 Introduction to Dance Notation 2
DANCE 588 Dance Production 2
DANCE 589 Dance Management 2
MUS 185 Music Fundamentals for Dancers 1
MUS 285 Musical Style and Form for Dancers 3

Twelve hours chosen from:

ANTH 220 Cultural Anthropology 3
ANTH 370 Culture and Communication 3
ART 140 Studio Experience—2D 3
ART 220 History of Art—Prehistoric-Renaissance 3
ART 221 History of Art—Renaissance-Contemporary 3
BME 112 Introduction to Biomedical Sciences 3
BME 210 Mammalian Anatomy 4
ENGL 105 Introduction to Writing: Variable Topics 4
ENGL 110 Literary Interpretation 4
ENGL 150 Literature and Other Arts 4
ENGL 305 Practical Writing: Variable Topics 4
FREN 100 Basic French 4
FREN 101 Basic French 4
GHUM 102 Direct Encounter with the Arts 4
HIST 315 Popular Art and Architecture in America 3
MGMT 210 Small Business Management 3
MUS 382 Non-Western Music 4
MUS 450 Music Appreciation: The Symphony 3
PHIL 200 Introduction to Philosophy 4
PHIL 312 Philosophy of Art 4
REL 311 Myth and Ritual 4
THEA 100 Introduction to Theatre 3

Minors in Dance

Dance Minor

Required Courses in Technique and Ensembles—19 total hours

DANCE 100 Foundations of Dance 2
DANCE 200 Dance History and Philosophy (Prereq: 100) 2
DANCE 300 Dance and Related Arts (Prereq: 200) 3

Twelve hours chosen from the following list of Dance major studio courses including at least one course in each of the three forms:

DANCE 110 Ballet Studio I (Prereq: consent of adviser) 2
DANCE 210 Ballet Studio II (Prereq: consent of adviser) 2
DANCE 310 Ballet Studio III (Prereq: consent of adviser) 2
DANCE 120 Jazz Studio I (Prereq: consent of adviser) 2
DANCE 220 Jazz Studio II (Prereq: consent of adviser) 2
DANCE 320 Modern Studio I (Prereq: consent of adviser) 2
DANCE 330 Modern Studio II (Prereq: consent of adviser) 2
DANCE 340 Modern Studio III (Prereq: consent of adviser) 2

Required Choreography/Theory (5 total hours)

DANCE 100 Foundations of Dance 2
DANCE 180 Choreography I (Prereq: consent of adviser) 2
DANCE 181 Dance Improvisation 1

DANCE 203
Dance Education Minor

Required Courses in Technique—11 total hours

- DANC 106 Recreational 1
- DANC 130 Modern Studio I (prereq: consent of adviser) 2
- DANC 230 Modern Studio II (prereq: consent of adviser) 2
- DANC 330 Modern Studio III (prereq: consent of adviser) 2
- DANC 110 Ballet Studio I (prereq: consent of adviser) 2
- DANC 210 Ballet Studio II (prereq: consent of adviser) 2
- DANC 310 Ballet Studio III (prereq: consent of adviser) 2
- DANC 120 Jazz Studio I (prereq: consent of adviser) 2
- DANC 220 Jazz Studio II (prereq: consent of adviser) 2
- DANC 130 Modern Studio I (prereq: consent of adviser) 2
- DANC 230 Modern Studio II (prereq: consent of adviser) 2
- DANC 330 Modern Studio III (prereq: consent of adviser) 2

Electives:

- DANC 106 Recreational 1
- DANC 130 Modern Studio I (prereq: consent of adviser) 2
- DANC 230 Modern Studio II (prereq: consent of adviser) 2
- DANC 330 Modern Studio III (prereq: consent of adviser) 2

Course Descriptions

100 Foundations of Dance 2 hrs.
An introduction to the art of dance
101 Beginning Ballet I ($10) 1 hr.
An introduction to ballet technique for the beginning general student
102 Beginning Jazz I ($2) 1 hr.
An introduction to jazz technique for the beginning general student
103 Beginning Modern I 1 hr.
An introduction to modern technique for the beginning general student
104 Beginning Tap I 1 hr.
An introduction to tap technique for the beginning general student
105 Social Dance Forms 1 hr.
A study of traditional and current ballroom dance styles
106 Recreational Dance 1 hr.
Investigation of folk, square and social forms of dance, with a concentration on overlapping dance skills
110 Ballet Studio I 2 hrs.
An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with the development of technique. The emphasis is placed on alignment, basic vocabulary and classical elements of movement. Students will continue in Studio I until advanced to Studio II by the instructor. Repeatable for credit. Prerequisite: Adviser consent.
111 Beginning Ballet II ($10) 1 hr.
Continued development of ballet 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 101.
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.
113 Beginning Modern II 1 hr.
Continued development of modern technique beyond the introductory level for the general student. Application of the technique to movement combinations, with increased dynamic awareness, is stressed. Prerequisite: DANC 103.
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.
120 Jazz Studio 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 Studio I until advanced to Studio II by the instructor. Repeatable for credit. Prerequisite: Adviser consent.
130 Modern Studio 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 Studio I until advanced to Studio II by the instructor. Repeatable for credit. Prerequisite: Adviser consent.
180 Choreography I 2 hrs.
A practical experience in dealing with the basic elements of dance composition. DAN 181 Dance Improvisation must be taken concurrently with, or in advance of, this course. Prerequisite: Adviser consent.
181 Dance Improvisation 1 hr.
The extemporaneous exploration of motion through neuro-muscular logic. Dance majors must take Choreography I concurrently with this course.
200 Dance History and Philosophy 2 hrs.
A study of philosophic influences on dance history. Prerequisite: DANC 100.
210 Ballet Studio 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 Studio II until advanced to Studio III by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Studio I instructor.
220 Jazz Studies 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. Repeatable for credit. Prerequisite: Placement audition or approval of Studio I instructor.
230 Modern Studio 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 Studio II until advanced to Studio III by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Studio I instructor.
280 Choreography II 2 hrs.
Further exploration of the compositional elements as used in group choreography. Prerequisite: DANC 180 and 181.
290 Teaching of Dance in the Elementary School 3 hrs.
Concerned with methods and techniques of teaching dance to elementary age children. Laboratory experience provides an opportunity for practical application. Should not be elected by students taking DANC 341.
295 Kinesiology for the Dancer 3 hrs.
This course is designed for the dance student who does not have a major or minor in Physical Education. It is concerned with analysis of movement from an anatomical and mechanical point of view, with special attention given to the problems of dance technique.
300 Dance and Related Arts  
3 hrs.  
An historical examination of dance philosophies as related to concurrent trends in other arts. Prerequisite: DANC 200.

310 Ballet Studio III  
2 hrs.  
Ballet technique for the advanced/pre-professional student in the classical idioms. Emphasis is placed on specialized areas (pointe technique, ballet for the male dancer, and pas de deux), pedagogy, advanced technique style and ensemble awareness. All undergraduate members and apprentices of University Ballet Theatre (UBT) must take this course as a required technique class. Repeatable for credit. Prerequisite: Placement audition, approval of Studio II instructor or member/apprentice of UBT.

330 Modern Studio III  
2 hrs.  
Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the technique. All undergraduate members of Western Michigan Repertory Dance Company (WMRDC) must take this course as a required technique class. Repeatable for credit. Prerequisite: Placement audition, approval of Studio II instructor or member of WMRDC.

341 Creative Movement in the Elementary School  
4 hrs.  
This course is open to students in the Integrated Creative Arts Minor and explores the principles, materials and techniques of creative movement for elementary school children. A concentrated study is made of how children discover movement through problem-solving within their own physical abilities. Lecture, participation, observation and laboratory experience are provided.

380 Choreography III  
2 hrs.  
Concert and musical theatre choreography in the student's area of concentration. Prerequisite: DANC 280.

385 Introduction to Dance Notation  
2 hrs.  
A study of Labanotation—a practical system of recording human movement for purposes of analysis and reading. The course includes reading (interpretation), theory and practice. Prerequisites: DANC 110, 130, and MUS 185.

390 Teaching Dance in the Secondary School  
3 hrs.  
An investigation into procedures for presentation of information related to the dance forms most commonly taught at the secondary school level. Prerequisites: DANC 106, 230.

400 Practicum  
1-4 hrs.  
An individual approach to a practical field experience in dance. Through reading and practice the student will have an opportunity to explore a topic or problem of interest in the dance areas. Prerequisite: Adviser consent.

480 Graduating Presentation  
2 hrs.  
The preparation and presentation of an advanced choreographic project accompanied by a portfolio and an oral examination. Prerequisite: DANC 380.

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.

500 Special Studies in Dance History  
2 hrs.  
A concentrated examination of available literature on selected topics within the student's major area. Group discussions and individual presentations will be an outgrowth of this study. Prerequisite: DANC 300.

525 Special Studies in Dance  
1-6 hrs.  
A study of dance styles not included within program. Examples of possible topics include: Afro-American dance, Ballet repertoire, 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.

540 University Dancers (UD)  
1 hr.  
Open to all University students by application. Audition for this group will include performance in various dance styles. Studio Evenings and Annual Concert of Dance experiences will take place through further choreographic and rehearsal auditions. May be repeated for credit. Prerequisite: By audition.

550 Western Michigan Repertory Dance Company (WMRDC)  
2 hrs.  
WMRDC is a major performing ensemble which provides master classes, lecture-demonstrations and concerts in various dance styles on and off campus. Members must show proficiency in the areas of performance, improvisation, teaching, public speaking and composition. Members must attend DANC 330. Repeatable for credit. Prerequisite: Audition or consent of Company Director.

560 Performance Variable  
An experience in student or faculty choreographed dance works, in projects not encompassed in specific dance courses. Application with approval of dance faculty committee must be filed with the dance adviser one month prior to performance. Registration occurs after performance has been completed. Prerequisite: Adviser Consent.

570 University Ballet Theatre (UBT)  
2 hrs.  
UBT is a major performing ensemble of the Department of Dance. Ballet dancers will have experience rehearsing and performing in a professional company environment. Members and apprentices must attend DANC 310. Repeatable for credit. Prerequisite: Audition or consent of Ballet Director.

588 Dance Production  
2 hrs.  
The study of the production aspects of dance including sound, lighting, costuming, 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.

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 where ever possible.

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.

599 Non-Reading Independent Study in Dance  
1-4 hrs.  
Advanced students with good academic standing may elect to independently pursue the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approved application required.
Music (MUS)

Donald Bullock, Director
William Algoed
William Appel
Russell W. Brown
Curta Curtis-Smith
Anthony Elliott
Jack J. Frey
Thomas C. Hardie
Marilynn Y. Heim
Robert Humiston
Milton K.
Stephen Jones
Trent P. Kynaston
Kathryn Loew
James McCarthy
Leonard V. Meretta
Judy Moonert
Richard O'Hearn
Charles E. Osborne
Donald J. Para
Johnny Pherigo
David Pocock
Marion Pratnicki
Phyllis Rappeport
Robert J. Ricci
Mary Scovel
Lee Selbert
David A. Sheldon
Matthew Steel
Richard Suddendorf
David Updegraff
Robert L. Whaley
Brian Wilson
Bradley Wong
Joseph T. Work
James Wright
Joyce Zastrow
Stephen Zegree
Ramon 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 their fellow men 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 NASM 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 to become 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 in the elementary classroom and/or to teach as a music specialist in the classroom; 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.

Two programs of study lead to a music minor, one for the elementary education student (24 hours) and one for the student who is not seeking teaching certification (24 hours). Those students seeking a music minor must secure a minor slip from the adviser 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. The student who does not read music will be required to complete MUS 159—Music Fundamentals before commencing work leading to the music minor.

Admission

Admission to Western Michigan University is granted only by the Admissions Office for undergraduate students. Application forms may be obtained by writing to the Admissions Office.

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 and testing program. The student may proceed by making application to the University at which time a notification of admission will be sent about the audition and testing program in the School of Music; or a request may be made for an opportunity to audition and be tested prior to making application to the University by obtaining an Audition Request 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 encouraged becoming a music major should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as an all courses in the major instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 160, which is required to 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 grated with its audit and testing program. The program has helped many students make a more intelligent choice regarding their educational careers. 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 fully develop talents that they have discovered through the audition and tests which were administered. 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 conditioned 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 that 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 applied music, 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 consider 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. The transfer
student who elects music history, composition, jazz studies, theory, applied music, music education, or elementary education-music as a major must take a Piano Placement Examination before admission to those majors in order to project the feasibility of completion of piano proficiency requirements in these curricula. For further information regarding the transfer of music credits, contact the Music Adviser in the School of Music.

Advising
Adviser: Donald Para
Appointments: 2146 Dalton Center
(616-336-0913)

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 general 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 recitals each semester they are in residence. Each student is allowed to be absent from one recital 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 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, convocation or area recital) 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 major 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 or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum. Currently enrolled students apply and audition for awards and renewal of awards during the Winter Semester.

For a listing of music grants and scholarships and application forms, contact the 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 curriculum, a major area of concentration is usually not declared. Before any student may declare a major area of concentration the student must complete requirements in the music “core”, which are courses required 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, an opportunity will be provided for them to register for Field Experience courses in music education and music therapy.

Core Requirements
Bachelor of Music Degree

Music Convocation 101 (1 semester) 0
Applied Music 200, 300 (see Electives below) 10
Basic Music 160, 161, 260, 261 11
Aural Comprehension 162, 163, 259 3
Theory Elective (see Electives below) 2
*MUSIC 207
*MUSIC 307, 308, 309, 310 10
*MUSIC 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369 35

*MUSIC History and Literature 270, 271, and one History/Literature Elective (see Electives below) 10
Performance Elective (see Electives below) 8
Keyboard Fundamentals 120-121 2
Conducting 215 1
General Education Electives 35
Major Area of Concentration 13-41
Free Electives to make a minimum of 122 semester credit hours.

Music Clearance (verification of completion of recital performance and attendance requirements). Note: *Music therapy majors are required to complete only 8 hours of Applied Music 200 (including successful completion of a Sophomore Hearing). 8 hours of Music History 270-271, and 4 hours of Performance Electives.

Electives
Performance electives may be selected from the following list of courses:
1. All students are required to elect four semesters of a major ensemble. The major ensembles are: MUS 107, 108, 111, 112, 113 and 114.

Please note the following:
• At least two of the required four semesters of major ensemble must be taken during the junior-senior years.
• The four semesters MUST be taken in an ensemble in the student's area.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum. Currently enrolled students apply and audition for awards and renewal of awards during the Winter Semester.

For a listing of music grants and scholarships and application forms, contact the 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 curriculum, a major area of concentration is usually not declared. Before any student may declare a major area of concentration the student must complete requirements in the music "core", which are courses required commonly of all music majors, regardless of professional or vocational interests in the

Math 207

MUSIC 207
Applied Music Option: Six hours of applied music may be used in the junior and senior years to support the student's professional major, provided the student has passed a "Sophomore Hearing" and has the joint approval of his or her performance area and major area. Students are encouraged to invent independent study projects which may fulfill elective requirements in the above categories. The student must secure approval of a faculty member to supervise the project and of the music adviser for allocation of the project toward curricular requirements.

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. The student will automatically 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 3.25 in "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 major must have at least a 3.25 average in applied music courses required in the first two years; music history majors must have at least a 3.25 average in music history and literature courses required in the first two years; music therapy—3.25 in theory courses; composition—3.25 in composition courses).
3. Since no courses “in the area of the elected major” are required in the first two years in music education and music therapy, a student may freely elect either of these curricula, but 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 automatically 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: Instrumental Major

Grants certification to teach music at any grade level (K-12) Hrs.

Instrumentalists elect from Voice 100, 190, 230, 231, 321, 322, 530, 590 Pianoists elect from Voice 100, 190, 230, 231, 321, 322, 530, 590 
Education and Professional Development 250, 301 .................. 7 Directed Teaching Block 410, 450, 470 .................. 14 Before the student will be recommended for directed teaching, he/she must have completed courses in the major with a minimum grade point average of 3.0. The application for a directed teaching assignment must be made in the Office of Professional Field Experiences prior to one full semester before the assignment is to begin.

Wind/percussion students must complete two semesters of MUS 139 (Marching Band) in fulfilling physical education requirements.

Note: State law requires that students who graduate with a degree which carries elementary or secondary teaching certification must take a Teaching of Reading course. ED 312 Teaching of Reading (Elementary) satisfies this requirement for elementary certification. ED 322 Teaching of Reading (Secondary) satisfies this requirement for secondary certification.

Music Education: Vocal Major

Grants certification to teach music at any grade level (K-12) Hrs.

Instrumentalists elect from Voice 100, 190, 230, 231, 321, 322, 530, 590 
Education and Professional Development 250, 301 .................. 7 Directed Teaching Block 410, 450, 470 .................. 14 Before the student will be recommended for directed teaching he/she must have completed courses in the major with a minimum grade point average of 3.0. The application for a directed teaching assignment must be made in the Office of Professional Field Experiences prior to one full semester before the assignment is to begin.

Note: All Music Education-Vocal majors must achieve the 321 proficiency level for Keyboard Musicianship. No more than 4 credit hours in class piano may be applied toward the Bachelor of Music degree. If a student enters the program without any keyboard background, two semesters of class piano must be taken as a deficiency. Piano majors must substitute Voice Class 122-23 for Keyboard Fundamentals 120-121 in the Core Requirements.

Music Therapy Major

Grants certification to teach music at any grade level (K-12) Hrs.

Music Methods (elect from 240, 344, 345, 346) .................. 4 "Core" (minus Music History/Literature elective) Courses in Music Therapy 281, 289, 290, 380, 383, 472, 473, 479, 480, 481, 543 .................. 22
Teacher Certification

Students wishing to receive certification to teach music in the public schools (K-12), must complete the following courses: ED 250, 300, 301, 410, 450, 470, MUS 330, 340, 320, 321, 240.

Note: State law requires that students who graduate with a degree which carries elementary or secondary teaching certification must take a Teaching of Reading course.

Music Theory

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition</td>
<td>2</td>
</tr>
<tr>
<td>Seminar in Music Theory 466 (2 semesters)</td>
<td>4</td>
</tr>
<tr>
<td>Music History/Literature Elective (see Electives above)</td>
<td>4</td>
</tr>
<tr>
<td>Counterpoint 560-561</td>
<td>4</td>
</tr>
<tr>
<td>Orchestration 567-568</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 263, Seminar in Electronic Music Composition 264, Seminar in Music Composition 262, Musical Acoustics 566, Style Analysis 360, Improvisation 518, Jazz Arranging 555, Jazz Improvisation 556)</td>
<td>8</td>
</tr>
</tbody>
</table>

All Bachelor of Music: Music History candidates must pass a piano proficiency examination as outlined below.

Composition

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition</td>
<td>4</td>
</tr>
<tr>
<td>Musical Acoustics 566</td>
<td>3</td>
</tr>
<tr>
<td>Seminar in Music Composition 362</td>
<td>8</td>
</tr>
<tr>
<td>Seminar in Electronic Music Composition 364</td>
<td>8</td>
</tr>
<tr>
<td>Counterpoint 560-561</td>
<td>4</td>
</tr>
</tbody>
</table>

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.

In completing General Education requirements the Composition major must include ENGL 239. It is recommended that the student also consider ART 120, ENGL 150, and THEA 100.

Music History

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GER 200-201</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>Counterpoint 560-561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 262, Seminar in Music Theory 466, Orchestration 567/568, Improvisation 518, Music Before 1600)</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>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music (in addition to Core Requirements) 300</td>
<td>2</td>
</tr>
<tr>
<td>Jazz Ensembles 119, 210, 212, 218</td>
<td>4</td>
</tr>
<tr>
<td>Jazz Composition 264</td>
<td>2</td>
</tr>
<tr>
<td>Jazz Arranging 555, 556</td>
<td>4</td>
</tr>
<tr>
<td>Jazz Improvisation 558, 559</td>
<td>4</td>
</tr>
<tr>
<td>Jazz History and Literature 563</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard Musicianship 220, 221, 320, 322</td>
<td>4</td>
</tr>
<tr>
<td>Counterpoint 560-561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 100, Conducting 330/331, Composition 262/263, Seminar in Composition 364, Orchestration 567/568, Musical Acoustics 566, Electronic Media 594)</td>
<td>5</td>
</tr>
</tbody>
</table>

Keyboards 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:

Theory/Composition

1. Ability to harmonize at sight:
   - Level: Oxford Folk Song Sightsinging Series—Book III
2. Play harmonized ascending and descending major and minor scales—all keys
3. Ability to demonstrate in context the following:
   - All diatonic triads and seventh chords, including all inversions
   - Chromatic chords including the following: secondary dominants, borrowed chords, augmented sixth chords, augmented dominant seventh chords, the Neapolitan sixth chord, diminished seventh chords, and half-diminished seventh chords.

Music Theatre Performer

See "Interdisciplinary Program" in College of Fine Arts.
Bachelor of Science Degree

Elementary Education—Music

See description under the College of Education section of this Undergraduate Catalog.

Music Minor

Requirements for the elementary education student (24 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Music</td>
<td>160</td>
</tr>
<tr>
<td>Aural Comprehension</td>
<td>162</td>
</tr>
<tr>
<td>*Keyboard Musicanship</td>
<td>120-121</td>
</tr>
<tr>
<td>Voice Class 122</td>
<td></td>
</tr>
<tr>
<td>General Music Methods</td>
<td>240</td>
</tr>
<tr>
<td>Elementary Music Practicum</td>
<td>244</td>
</tr>
<tr>
<td>Instruments of Band &amp; Orchestra</td>
<td>279</td>
</tr>
<tr>
<td>American Music 350</td>
<td></td>
</tr>
<tr>
<td>Creating Music in the Classroom</td>
<td>373</td>
</tr>
</tbody>
</table>

Note: *The student must demonstrate competency in piano classes by registering for a piano proficiency examination through the music adviser. A waiver of the piano requirements means that the student will fulfill the 24-hour minor program by taking two additional hours of music electives.

Requirements for students who will not receive a teaching certificate (24 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Music</td>
<td>160</td>
</tr>
<tr>
<td>Fundamentals of Music</td>
<td>159</td>
</tr>
<tr>
<td>Basic Music</td>
<td>160</td>
</tr>
<tr>
<td>Aural Comprehension</td>
<td>162</td>
</tr>
<tr>
<td>Minor must choose one of the following two groups:</td>
<td></td>
</tr>
<tr>
<td>*Applied Music 100</td>
<td>2</td>
</tr>
<tr>
<td>*Performance Electives</td>
<td>2</td>
</tr>
<tr>
<td>(Select from 107, 108, 110, 111, 112, 113)</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Music Appreciation: Live Music</td>
<td>150</td>
</tr>
<tr>
<td>American Music 350</td>
<td>4</td>
</tr>
<tr>
<td>*Personal auditions required</td>
<td></td>
</tr>
<tr>
<td>Electives (10 to 14 hours)</td>
<td></td>
</tr>
</tbody>
</table>

THE SCHOOL OF MUSIC DOES NOT OFFER A MINOR FOR STUDENTS WHO WILL RECEIVE SECONDARY TEACHING CERTIFICATION.

Course Descriptions

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

Ensembles

105 Campus Choir
(Director: J. Frey)
1 hr.

A choral ensemble which emphasizes the recreational aspects of ensemble singing. A minimal schedule of informal performances is maintained on campus and in the community. Membership is open to all students without audition. Credit/No Credit only

107 Treble Choir
1 hr.
An ensemble of female vocalists which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

108 Collegiate Singers
1 hr.
A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

109 Marching Band
(Director: J. Wright)
1 hr.
The University Marching Band is the major performing ensemble. Membership is open to all students who play wind or percussion instruments. Credit will be substituted for P.E. credit. Membership by audition.

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.

111 University Orchestra
(Director: A. Elliott)
1 hr.
The orchestra is open to all students who have had a reasonable amount of orchestra experience. Many fine compositions are studied and played during the year, and the orchestra joins other campus organizations in joint programs. Instruments are available for the use of students. Membership by audition.

112 University Chorale
(Director: M. Ivey)
1 hr.
An advanced choral ensemble which maintains an active performance schedule on campus and in the community as well as throughout Michigan and the surrounding states. Membership by audition.

113 Concert Band
(Director: R. Suddendorf)
1 hr.
The University Concert Band is an all-campus organization dedicated to the performance of fine literature, including original works for band as well as outstanding orchestral transcriptions. The aesthetic aspect of the music is stressed and special emphasis is placed on musical style. This ensemble presents concerts on campus and in the surrounding community. Membership by audition.

114 Wind Ensemble
(Director: R. Suddendorf)
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.

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.

210 Jazz Lab Band
(Director: T. Kynaston)
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.

211 Studio Accompanying
(Coach: P. Rappaport)
1 hr.
A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied studio accompanying per week. This course may be repeated for credit not to exceed a total of two semester hours.

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.

218 Instrumental Chamber Music
1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, e.g., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

219 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 the instructor.

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.

512 New Music Ensemble 1 hr.
(Director: R. Zupko)
A performing organization which is committed to the performance of music and mixed-media works in the avant garde style. The ensemble is open to vocalists and instrumentalists on an audition basis.

514 Instrumental Chamber Music 1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

516 Music Theatre Practicum 1 hr.
A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

517 Collegium Musicum 1 hr.
(Director: M. Steel)
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.

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 always 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 $6 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.

099 Applied Music 0 credit ($60 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. Instructions will be School of Music professors or qualified students.

100 Applied Music 1-2 hrs.
This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music.

199 Applied Music-Music Theatre (voice) 1-4 hrs.
This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 116.

200 Applied Music 1-4 hrs. ($6.)
This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations.

201 Sophomore Hearing 1 hr.
An examination in applied music must be passed to qualify for upper-level applied study.

300 Applied Music 1-4 hrs. ($6.)
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.

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.

501 Master Class 2 hrs.
The study of literature, performance practices, and techniques for a specific musical medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to meetings of the entire class for the purpose of discussing techniques common to all performers. The class may be repeated for credit. Music majors only.

Music Classes

101 Music Convocation No Credit ($30 fee)
A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. (A $30 fee is assessed to all music majors in order to provide funds for travel and instruments used by students throughout the music program.)

102 Piano Class I 2 hrs.
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.

103 Piano Class II 2 hrs.
A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. Prerequisite: MUS 102 or instructor consent.

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 dialogue will be included. Prerequisite: Audition only.

116 Voice Technique II 2 hrs.
A continuation of MUS 115, Voice Technique I. Prerequisite: MUS 115.

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.

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.

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.

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: 122.
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.

125 Guitar Class II
2 hrs.
This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: Completion of MUS 124 or instructor consent.

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.

129 String Class
2 hrs.
A thorough examination of all string instrument performance, pedagogy, materials, methods and maintenance. For wind and percussion majors in Public School Music.

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.

131 Flute Class
1 hr.
Fundamentals of flute pedagogy and performance. For music majors only.

132 Oboe Class
1 hr.
Fundamentals of oboe pedagogy, performance and reed-making. For music majors only.

133 Clarinet Class
1 hr.
Fundamentals of clarinet pedagogy and performance. For music majors only.

134 Bassoon Class
1 hr.
Fundamentals of bassoon pedagogy, performance, reed-making, and instrument maintenance. For music majors only.

135 Saxophone Class
1 hr.
Fundamentals of saxophone pedagogy and performance. For music majors only.

136 Trumpet Class
1 hr.
Fundamentals of trumpet pedagogy and performance. For music majors only.

137 French Horn Class
1 hr.
Fundamentals of French horn pedagogy and performance. For music majors only.

138 Trombone Class
1 hr.
Fundamentals of trombone pedagogy and performance. For music majors only.

139 Tuba Class
1 hr.
Fundamentals of tuba pedagogy and performance. For music majors only.

140 Music for the Classroom Teacher
3 hrs.
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.

150 Music Appreciation: Live Music
4 hrs.
An introduction to music and music literature in conjunction with attendance at music concerts and recitals on campus. Classroom discussion and readings will guide the student through a variety of listening experiences that will stimulate perception and enjoyment of music on a visual as well as aural level. This approach will also insure a wide sampling of musical styles and media while encouraging the student to become more aware of his/her musical surroundings. A schedule of the musical events required for the semester will be issued during the first week of the semester.

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 study 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 various styles and forms of jazz and pop. Implications for the future will be considered.

159 Fundamentals of Music
2 hrs.
A study of fundamentals, including notation, scales, intervals, basic chord construction, and the rhythm/metric aspect of music. This course is open to all students as an introductory study in music theory.

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.

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.

162 Aural Comprehension
1 hr.
Training in the basic skills of music reading and ear-training. Prerequisite: Acceptance into MUS 160.

163 Aural Comprehension
1 hr.
A continuation of MUS 162. Prerequisite: MUS 162 with a grade of C or better.

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 skills for score-reading. Concurrent with the development of these skills will be instruction in the basics of traditional musical forms: phrase, cadence, section, binary and ternary, and minuet forms. Prerequisite: Dance majors only.

190 Accompanying
1 hr.
Supervised experience in accompanying vocal and instrumental music, both solo and ensemble.

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, 162.

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.

221 Keyboard Musicianship
1 hr.
A continuation of MUS 220. Prerequisite: MUS 220, or instructor consent.

230 Italian and Latin Diction
1 hr.
A phonetic approach to the pronunciation of these languages designed for singers and choral directors. The performance of the language utilizes the vocal literature of major composers in the respective fields of vocal literature.

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.
222 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 literature.

240 General Music Methods 2 hrs.
A study and survey of sequential musical experiences in general music classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and materials and various innovative approaches used in the general music class. Administration and implementation of the class will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student will have an opportunity to participate in general music classes in area schools one-half day a week. Prerequisite: Instructor consent.

244 Elementary Music Practicum 3 hrs.
This course is designed to meet the needs of the elementary music teacher in the areas of theory and practice. Special emphasis is given to keyboard facility in accompaniments in the elementary classroom, harmonizations of melodies, the playing of rhythms, modulations, and a continuation of ear-training. Prerequisite: MUS 221 or consent of department.

259 Aural Comprehension 1 hr.
Continuation of MUS 163. Prerequisite: MUS 163 with a grade of C or better.

260 Basic Music 3 hrs.
A continuation of MUS 161 designed to reinforce the melodic, harmonic and rhythmic concepts of general 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.

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.

262 Composition 2 hrs.
Beginning work in composition, with emphasis on the development of short works utilizing small instrumental combinations. Attention is given to melodic, rhythmic and harmonic devices. Prerequisite: MUS 161, or permission of instructor.

263 Composition 2 hrs.
A continuation of Mus 262. Prerequisite: 262.

264 Jazz Composition 2 hrs.
The fundamental aspects of composition in the jazz idiom, including harmonic progression, melodic design and rhythmic formulation. Intensive study will be made of well-known standard tunes as well as classic jazz compositions. All periods will be studied so that the student will have a well-grounded familiarity with basic compositional idioms, including the blues, standard AABA song forms, modal forms and more complicated sectional forms. All compositions created in class will be performed by class members or by the appropriate ensemble outside of class. Prerequisite: MUS 260 or concurrently.

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.

271 Music History and Literature 4 hrs.
A survey of Western music from 1700 to 1900.

279 Instruments of the Band and Orchestra 2 hrs.
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 identification 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 varous 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.

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.

285 Musical Style and Form for Dancers 3 hrs.
The course surveys composers and musical style from the Renaissance through the Twentieth Century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choreographic treatment. Score-reading is an important aspect of the course. Prerequisite: MUS 161.

289 Music Therapy Activities for Children 2 hrs.
This class will examine labels and categorizations involved in children populations, offer instruction in social-recreational instrumentation, allow for a more indepth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individualized instruction. Exams will be of a written, playing and/or presentational format. Prerequisite: MUS 260 and 281, both may be taken concurrently.

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.

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 320 or instructor consent. Note: Required for Music Education: Vocal and Applied Voice majors.

332 Keyboard Harmonization Skills 1 hr.
A course devoted to developing harmonization/improvisation skills necessary for music therapy and elementary education majors. Emphasis will be on the playing of folk and popular music. The coursework will include the use of guitar symbols, playing by ear, some functional keyboard harmony and figured bass, as well as sight-reading and general technique. The course will also be open to piano majors wishing to increase their functional skills on the piano. Prerequisite: "C" or better in 320 or instructor consent. Note: Required for Jazz Studies, Elementary Music, and Music Therapy majors.

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. Each student will be sent into the local schools during the part of the course in order to work with younger students. Prerequisite: MUS 215, with a grade of C or better.

331 Instrumental Conducting and Literature 2 hrs.
Beginning homogenous and heterogeneous methods 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 be served as materials for conducting with students performing major instruments. Each student will have the opportunity to rehearse with the Symphonic Band at least once, and will be sent into local schools during part of the course to work with younger students. Prerequisite: MUS 215, with a grade of C or better.

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. Musical 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.
An analytic study of the larger forms from the 360 Style Analysis attempt will be made to understand the customs and attitudes of a people through their music. Japan, Southeast Asia, India and the Arabic cultures around the world, such as American Indian, Australian Aborigine, African, and Persian perspective of its musical heritage. Ability to social-musical statements. Cultural change in read music is not required. This country's history will be viewed from the construction.

346 Marching Band Techniques
2 hrs.
Extensive involvement with actual teaching of band in public schools is the central part of this course. In addition, the student will be exposed to various philosophies of instrumental music. The student will be acquainted with such administrative duties as budget, fund-raising, equipment purchase and inventory, instrument maintenance and repair (including actual experience with repair), and public relations. Job seeking and professional growth will also be discussed. Prerequisite: MUS 129 or consent of instructor.

346 American Music
4 hrs.
A survey of the diverse styles of the music of the United States from the Pilgrims to the present. The development of popular music and jazz will be explored as well as that of church, band, and concert music. Folk song and regional styles will be observed as social-musical statements. Cultural change in this country's history will be viewed from the perspective of its musical heritage. Ability to read music is not required.

352 Non-Western Music
4 hrs.
A study of the traditional music of China, Japan, Southeast Asia, India and the Arabic countries, as well as of the non-literate cultures around the world, such as American Indian, Australian Aborigine, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the customs and attitudes of a people through their music.

360 Style Analysis
2 hrs.
An analytic study of the larger forms from the instrumental and vocal repertoire.

Prerequisite: MUS 260 with a grade of C or better.

362 Seminar in Music Composition
2 hrs.
Original work in composition accompanied by study and analysis of advanced 20th century compositions and creative concepts. May be repeated for credit. Prerequisite: MUS 263.

364 Seminar in Electronic Music Composition
2 hrs.
Original electronic music composition including a study of techniques since 1950, application of studio technique to sound production, and the operation of the synthesizer as a performance instrument. Advanced students will develop and submit an outline of a compositional project. The student will be assigned a number of hours weekly for independent work in the studio for realization of the project, which will receive periodic guidance and criticism from the instructor. May be repeated for credit. Prerequisite: MUS 263.

366 Instrumental Arranging
3 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.

373 Creating Music in the Classroom
4 hrs.
Using the elements of music as a focus, students explore their creative potential by devising musical activities for use in the general music classroom. Because classroom experience in area schools is an integral part of the course, students must have functional piano skills. Prerequisite: MUS 240 and 244, or consent of department.

375 Twentieth Century Music Literature
2 hrs.
A chronological survey of 20th century music literature through listening and analysis.

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.

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.

384 Music in Special Education
3 hrs.
Designed for teachers of exceptional children. Study of methods and materials for singing, rhythmic, and creative activities in classes for mentally and physically handicapped. The student learns functional use of piano and informal instruments. Values of musical activities for all exceptionalities are emphasized. For Special Education majors only. Substitutes for MUS 140.

Prerequisite: MUS 260 with a grade of C or better.
for use in music education programs. This activity in the course will be programming; the course may be repeated for a maximum of 4 credits with consent of instructor.

The primary goal of the course is to teach students who already program some of 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.

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.

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.

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.

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.

543 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.

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.

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 502 or consent of instructor.

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.

556 Advanced Jazz Arranging 2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Prerequisite: MUS 555 and 264 or concurrently.

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.

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 218 Jazz Ensemble or concurrently.

560 Counterpoint 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th and 20th Centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: MUS 161 with grade of C or better.

561 Counterpoint 2 hrs.
A continuation of MUS 560. Prerequisite: MUS 560.

562 Advanced Composition 2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 362.

563 Advanced Composition 2 hrs.
A continuation of MUS 562. Prerequisite: MUS 562.

566 Musical Acoustics 3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstrations of such principles 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, and psycho-acoustics. Prerequisite: MUS 161.

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.

568 Orchestration 2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.

570 Introduction to Musicology 3 hrs.
History, purposes, scope of musicology leading historians, past and present, modern methods of research, with special emphasis on primary sources and bibliography of the field.

571 Introduction to Musicology 3 hrs.
A continuation of MUS 570.

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 is given to the development of style from monody through harmonic polyphony. Prerequisite: MUS 270 and 271.

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 271.

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 271.

575 Musicology and Research 2 hrs.
Presentation of musico-pedagogical material in formal writing as well as informal classroom lecture, specific research projects with emphasis on selection and qualitative judgment of materials used.

576 Musicology and Research 2 hrs.
A continuation of MUS 575. Prerequisite: MUS 575.

577 Symphonic Literature 2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.

578 Chamber Music Literature 2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

579 Operatic Literature 2 hrs.
A survey of opera from 1600 to the present.

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 271.

581 Choral Music Literature 3 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

582 Western Music Before 1600 4 hrs.
A survey of music to 1600. Major developments in style, notation and performance practices will be stressed using works of theorists and primary manuscript sources.
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.

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. Prerequisite: MUS 270 and 271.

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 genres of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and 271.

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: 300 level applied voice or permission of instructor.

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).

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.

598 Readings in Music
1-4 hrs.
Graduate students may enroll in this course after consultation with the graduate adviser.

Theatre (THEA)
D. Terry Williams, Chair
Daniel Fleischhacker
Russell J. Grandstaff
David Karsten
Greg D. Roehrick
Lyda Stillwell
Vern Stillwell
Judith K. Massie, Administrative Assistant

The Department of Theatre offers programs leading to Bachelor of Arts and Bachelor of Science degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools or professional theatre internship/apprentice programs.

Opportunities for participation in the production program begin with the freshman year. The department presents six 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. Information regarding admission and transfer credit may be obtained by contacting the theatre adviser at the Department of Theatre office at Shaw Theatre.

Advising
Adviser: Dr. Daniel Fleischhacker
Shaw Theatre: (610)383-1878

The department adviser will assist any student enrolled in the University with course selections in theatre. Appointments are made through the departmental secretary. Theatre majors and minors must confer with the theatre student 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
50 credit hours
This program is designed for students who want to prepare for graduate study in theatre or advanced, specialized professional training. It offers a program combining a broad background in theatre with a concentration in acting and directing, or design and technical theatre.

Required Courses
<table>
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<tr>
<th>Hrs.</th>
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<tr>
<td>120 Theatre Production</td>
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<tr>
<td>125 Stagecraft I</td>
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<tr>
<td>140 Elements of Stage Acting</td>
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<tr>
<td>175 Script Analysis</td>
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<td>230 Stage Makeup</td>
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<td>235 Theatrical Costuming</td>
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<td>324 Stage Lighting and Sound</td>
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<td>327 Scenic Design</td>
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<td>355 Directing I</td>
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<td>370 History of Theatre I</td>
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<tr>
<td>371 History of Theatre II</td>
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<tr>
<td>470 Development of Theatre Art</td>
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<tr>
<td>Electives arranged with departmental adviser</td>
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A grade of "C" or better is required in all courses.

Majors Emphasies
Acting/Directing Emphasis

First Year
Fall
120 Theatre Production (core) | 3 |
140 Elements of Stage Acting (core) | 3 |
175 Script Analysis (core) | 3 |

Winter
125 Stagecraft I (core) | 3 |
147 Body Dynamics for the Actor (required of acting/directing emphasis) | 3 |
186 ENGL 252 Shakespeare | 3 |

Second Year
Fall
210 Improvisation (required of acting/directing emphasis) | 3 |
Suggested ENGL 252 Shakespeare | 3 |
246 Characterization (required of acting/directing emphasis) | 3 |
324 Stage Lighting and Sound (core) | 3 |
Winter
230 Stage Makeup (core) | 3 |
246 Characterization (required of acting/directing emphasis) | 3 |
327 Scenic Design (core) | 3 |

All acting/directing emphasis majors are reviewed by the performance staff in Thea. A satisfactory review is needed before the student may elect upper level acting courses.

Third Year
Fall
341 Special Techniques of Physical Characterization (elective) | 3 |
355 Directing I (core) | 3 |
370 Theatre History I (core) | 3 |
Winter
346 Performing Period Styles (elective) | 3 |
356 Directing II (elective) | 3 |
371 History of Theatre II (core) | 3 |

Fourth Year
Fall
400 Special Topics: Topic in Acting or Directing (elective) | 3 |
440 Acting Studio (elective) | 3 |
### Theatre Minor

24 credit hours

- A core of three required courses totaling 9 hours with the remaining 15 hours arranged in consultation with the departmental advisor. Students may plan their electives in acting/directing, design/technical theatre, or a combination of both. Students may not elect THEA 590, Theatre Practicum, or THEA 490 Individualized Study in Theatre in this minor. A grade of "C" or better is required in all courses.

**Required Courses** Hrs.
- 120 Theatre Production 
- 140 Elements of Stage Acting 
- 175 Script Analysis 

**Electives in Theatre** Hrs. 15

### Theatre Education Minor

24 credit hours

A grade of "C" or better is required in all courses.

**Required Courses** Hrs.
- 120 Theatre Production 
- 140 Elements of Stage Acting 
- 175 Script Analysis 

### Theatre as an Elective

The department offers courses for students who want to explore specific areas of theatre, broaden their background and appreciation of theatre, and/or acquire skills in a particular area.

**Recommended Courses** Hrs.
- 100 Introduction to Theatre 
- 110 Explorations in Performance 
- 120 Theatre Production 
- 175 Script Analysis 

### Music Theatre Performer

See "Interdisciplinary Program" in the College of Fine Arts.
3 hrs.
A methods course for beginning students in scenic, costume, lighting design, and technical production. This course provides instruction and practice in the use of various color media for design renderings; the techniques which apply to scale models, and theatrical drafting. Prerequisite: 125 or consent of instructor.

230 Stage Makeup
3 hrs.
Study and practice of the basic principles and techniques of stage makeup. Lab fee $20.00

235 Theatrical Costuming
3 hrs.
An introductory course in the creation of costumes for the stage, including study and practice in costume construction and basic principles of costume design and laboratory work in the University Theatre. Prerequisite: 120 or consent of instructor.

241 Voice Dynamics for the Actor
3 hrs.
Techniques for the training and use of the actor's voice with continued emphasis on the interrelationship of the voice and body. Prerequisite: 147.

246 Characterization
3 hrs.
This course integrates theories of acting, body dynamics, voice dynamics, and improvisation in the process of role study and development. Satisfactory staff evaluation of this course is required to elect upper level acting courses. Prerequisites: 175, 210, 241.

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.

290 Theatre Practicum
1-2 hrs.
Supervised experience in one or more areas of theatre in the University Theatre program. Nature of involvement determined by student-teacher contract. May be repeated for credit up to a maximum of six semester hours. Prerequisite: consent of instructor.

324 Stage Lighting and Sound
3 hrs.
A course in the design of theatre lighting and sound and in the practical application of those designs to the stage. Includes laboratory practice in the staging of University Theatre productions. Prerequisite: 125; (226 recommended) or consent of instructor.

327 Scenic Design
3 hrs.
A course in scenography covering the design of stage settings and properties, including further development of skills in rendering, the scenic model, and theatrical drafting. Prerequisite: 324 or consent of instructor.

336 Costume Design
3 hrs.
A course in the design of stage costumes and accessories. Prerequisites: 235; (226 recommended) or consent of instructor.

341 Special Techniques of Physical Characterization
3 hrs.
Exercises in the use of character masks, pantomime, stage combat, and techniques to aid physical characterization. Prerequisite: 246.

346 Performing Period Styles
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: 246.

355 Directing I
3 hrs.
Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing. Students prepare and direct scenes from realistic plays. Prerequisites: THEA 120, 140, 175, junior/senior standing or above.

356 Directing II
3 hrs.
A continuation of THEA 355. Students prepare and direct one short realistic play and one short nonrealistic play. Prerequisites: THEA 355, or consent of instructor.

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.

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. Theatre 371 may be taken without first having taken Theatre 370.

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. Prerequisite: Consent of adviser.

390 Professional Theatre Internship
3 or 6 hrs.
Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with major professional theatres. Students must arrange an internship application and number of credits with the department's Internship Coordinator. A maximum of six credit hours may be applied to a major in theatre. Prerequisite: Consent of Internship Coordinator.

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, advanced lighting, sound design. Prerequisites: variable.

425 Advanced Technical Problems
3 hrs.
An investigation of the application of modern materials and techniques to the problems of technical theatre production. Prerequisite: 225 or 327 or consent of instructor.

427 Advanced Design
3 hrs.
A course for advanced students in the design of scenery, costumes, lighting, and properties; the professional drafting of those designs, for theatre production, and the preparation of the designer's resume and portfolio. Prerequisites: 324 or 327 or 336 or consent of instructor.

430 3-D Makeup
3 hrs.
An advanced laboratory for the design and construction of three dimensional makeup. Prerequisite: 230 or consent of instructor.

440 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. Prerequisite: 246.

470 Development of Theatre 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: 370 or 371, or consent of instructor.

490 Individualized Study in Theatre
Variable
Designed to enable upper division theatre majors 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. Up to 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 departmental chair and supervising instructor.
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 and the Integrated Program. These provide alternate choices for students in meeting their general education requirements. Students who select 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. The Integrated Program option provides students with a unique and concise way of satisfying those same requirements.

Integrated Program
Nita H. Hardie, Director

The program consists of a series of interrelated courses, designed to assist students in seeing the interconnections among the various ways of knowing. Students examine the value each disciplinary perspective brings to the study and understanding of a given topic. Through the cooperative and coordinated efforts of faculty, students engage in learning experiences which are designed to foster their ability to think critically, to synthesize information, and to become more effective in problem solving and decision making. Attention is also given to the development of communication skills. Students who successfully complete the three entry courses meet the college-level writing requirement of the University Intellectual Skills Program. Students receive certification on their university records upon successful completion of the Integrated Program.

Requirements for the Integrated Program
(Students must contact the program adviser for formal admission.)

Beginning Level
(Students must complete by the end of their sophomore year.) Students who successfully complete the beginning courses meet the college-level writing requirement of the University Intellectual Skills Program.
GHUM 102, GSCI 132, GSSC 121… 12 hrs.

Intermediate Level
GHUM 101, GHUM 300 or GHUM 302 4 hrs.
GSCI 131, GSCI 133 or GSCI 433 4 hrs.
GSSC 123, GSSC 256 or GSSC 325 4 hrs.
GENL 304 or GENL 305 4 hrs.
E elective from Program offerings 4 hrs.

Advanced Level
GINT 490 4 hrs.

Admission and Advising
The Integrated Program is open to enrollment by all students. For questions regarding Integrated Program requirements, and Beginning Level course transfers to the Distribution Program, contact Ms. Pearl Baskerville-Robinson, Integrated Program Advisor, 2090 Friedmann Hall, Phone: 383-0941

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

Integrated Program (GINT)
490 Capstone Seminar
4 hrs.
Students will explore contemporary issues by applying the skills and insights acquired earlier in the Integrated Program. Each student will be required to compose and present for approval a Senior Thesis. (Open only to students who have completed Levels I and II of the Integrated Program.)

General Purposes (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.

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.

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.

305 Non-Western Societies in the Modern World
4 hrs.
An analysis of the distinctive cultural configuration of one of the following regions: East Asia, Southeast Asia, South Asia, the Middle East and North Africa, Sub-Saharan Africa. The types of transition being made in the particular region from a traditional to a modern society will be explored through an examination of the interrelationship between technology, social structure, and ideology.

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.

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.

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 (GHUM)

Visho Sharma, Chair
Phillip D. Adams
Lynwood H. Bartley
Lewis H. Carlson
Joseph M. Condic
Beverly P. David
Audrey Davidson
Richard dePeaux
Howard Dooley
James M. Ferreira
Reginald Gammon
Arnold Gerstein
Gilda Greenberg
Richard Joyce
Dale H. Porter
Larry tenHarmsel

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 are interdisciplinary. Their emphasis is often on the arts, but always in relation to the ideas and conditions of particular cultures or historical periods. Questions of value also extend to the study of mass media and human communication. Science, technology, and social science may be used to illuminate the contexts in which ideas, values, and artistic images are expressed.

Course Descriptions

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

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.

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.

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 not a prerequisite.

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.

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.

315 Human Communication
4 hrs.
An investigation of the processes by which people use symbol systems, centrally concerned with both personal and cultural communication behavior. The course is intended to increase understanding of and sensitivity to communication processes and their limitations through increasing the student's consciousness of their own communication behavior and through exposure them to the ideas of various communication specialists.

316 Mass Media: Messages and Manipulation
4 hrs.
An examination of mass communication in general and of particular 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.

400 The Twenties
4 hrs.
A study of one of the creative and explosive decades in modern times. The growth of jazz and modern art, Prohibition, the New Woman, the Klan, the Red Scare, the moves this and more serve as a basis for comparison with our own times.

401 Depression and War: The Thirties
4 hrs.
This course will be an interdisciplinary examination of the 1930's, focusing on America during the Great Depression and the Second World War.

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 woman'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.

Science (GSCI)
Vishno Sharma, Chair
Shirley Bach
Franklin G. Fisk
Ronald Flaspohler
David Hargrave
Robert H. Poei
Kamlesh Sharma
Michael D. Swords
Joanne Ursprung

An important part of the general education of a person is an understanding of the science and technology that have had such a tremendous impact on our daily lives and on the shaping of our culture. The main emphasis of some Science Area courses is comprehension of the development of scientific thought and the relationship of science to other aspects of our cultural development.

Other courses consider recent discoveries and technological advances. Also considered are the possible environmental or social consequences of applying these advances. The scientific knowledge necessary to understand the new technology is presented and is followed by exploration of different points of view and the evolution of alternative solutions in terms of practical considerations and moral and ethical values.

Other courses are directed toward students in elementary education. Scientific concepts and processes are considered in the context of new elementary science programs that see science as a vital part of the general education of children.

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

107 Planetary Science in Elementary Education
4 hrs.
An interdisciplinary study of the earth, atmosphere, solar system and universe and the relationships and interactions among these. 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 three topics for five weeks with different instructors. Classes will be in size in order that instructors may use techniques which emphasize the relevancy of their discipline in elementary education and its significance in the present and future lives of children. (No prerequisite) Not recommended for science majors.

130 Social Issues in Physical Science 4 hrs.
A course designed to look at current science-related problems of society having their factual core of knowledge in the physical sciences. Sufficient understanding of this knowledge is acquired to give non-scientists an understanding of the trade-offs resulting from alternative attempts to solve a problem. Emphasis will be placed on understanding the scientific enterprise, how it relates to modern technology, and how both relate to people and to societal issues.

131 Physical Science in Elementary Education
4 hrs.
This course is designed to introduce students to some of the broad concepts of physical science and to the methods of inquiry that have been useful in developing these concepts. Student experiences are designed to further understanding of the interrelationships between the physical sciences and society, as well as those between the physical sciences and the elementary general education, and will be taught in laboratory groups of limited size. Because of its broad-based nature, this course is especially valuable for elementary education minors and is at the same time appropriate for majors and minors in all fields of endeavor.

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

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

134 Problem-Solving and Decision-Making 4 hrs.
This course helps students become more proficient in the essential skills of solving problems and making decisions at a professional as well as personal and social level. It accomplishes this through the study of many approaches and techniques, including those used with great success in science and technology. It also provides an understanding of "probabilities" as aids to problem-solving and decision-making.

231 Physical Science in Elementary Education II 4 hrs.
This course is a continuation of GSCI 131, Physical Science in Elementary Education, for those students who desire or need further study in the concepts and methods of the physical sciences. Instruction will be in laboratory sections of limited size, and a learning-by-doing inquiry approach will be utilized. This course will further elaborate on some concepts introduced in GSCI 131 and will also introduce additional important concepts in the physical sciences. (Prerequisite GSCI 131 or consent of instructor.)

432 Science and Parascience 4 hrs.
The goal of this course is to examine open-mindedly several "alternate visions" of the nature and origin of human life in the light of the attitudes and objectives associated with science. Topics examined: astrology, future-prediction, "harmonics" between entities, ESP, telepathy, the aura, PK, UFO's, extraterrestrial life, ancient astronauts, and others.
433 Science, Technology, and Society 4 hrs.
The course consists primarily of seminars and discussions centering on the impact of science and technology on contemporary society, viewed from a variety of perspectives. One objective will be to assist the student in acquiring knowledge about current scientific and technological problems.

434 Biomedical Ethics and Society 4 hrs.
The course concentrates on contemporary scientific and ethical issues in biomedicine. This range of issues discussed includes: new reproductive technologies and their appropriate use; experimentation on human subjects (the meaning of informed consent, risks and benefits); new technologies to extend life and the quality of the life extended; biological engineering, death, transplantation, and resource allocation; ethical aspects of biomedical innovation.

436 The Search for an Ecological Conscience 4 hrs.
This is a lecture/discussion course designed to explore the means whereby humans can develop a more responsible and compassionate relationship with their non-human fellow passengers on spaceship earth. The essential elements of an ecological awareness are developed, the relationship between awareness and conscience delineated, and the fusion of all into an ecologically sane lifestyle explored.

Social Science (GSSC)
Visho Sharma, Chair
Do Young Chang
Susha Datta-Sandhu
David DeShon
David Ede
Gilda Greenberg
Norman Greenberg
Francis Gross
Bruce Haight
Nita Hardie
Barbara Havira
Arthur Hebert
Lawrence Israel
Patricia Klein
George LeBonte
Minoru Mochizuki
Evan 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.

439 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.

256 Beyond Survival 4 hrs.
As Rene Dubos has suggested, the real issue is not "Will humanity survive?" but rather "What can be the quality of life available to the survivors?" This question will form the substance of the content of this course.

350 From the Twentieth to the Twenty-First Century 4 hrs.
This course will study the period in human history which is now being experienced by living generations and which will arrive, in differentiated patterns, during their lifetimes. The course will demonstrate how three factors - energy, natural resources and technology - are interrelated and central to the affluent way of life typifying modern industrial civilization and how the changing patterns of those interrelationships will lay the base for what is to come.

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.

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.

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.

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

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 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.

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.
Program Areas:
- Blind Rehabilitation
- Center for Human Services
- Gerontology Program
- Occupational Therapy
- Physician Assistant Program
- School of Social Work
- Specialty Program in Alcohol and Drug Abuse
- Specialty Program in Holistic Health Care
- Speech Pathology and Audiology

The College Faculty
Morton Wagenfeld

The College of Health and Human Services provides programs in Alcohol and Drug Abuse, a concentration in Health Care Administration, Holistic Health Care, and Blind Rehabilitation and Mobility (at the graduate level), Gerontology, Occupational Therapy, Physician Assistant, 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 Arts and Science in Occupational Therapy and Speech Pathology and Audiology, and Bachelor of Medical Science for Physician Assistant, Master of Arts in Blind Rehabilitation, Occupational Therapy, and Speech Pathology and Audiology, 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 western Michigan area, the State of Michigan, and the nation as a whole through degree and non-degree instructional programs, research, and community service activities. The mission includes a commitment to foster development of a comprehensive health and human services care system responsive to the citizens of the state and the nation and which contributes to enhancement of the overall quality of life in general.

Through the qualitative and innovative educational and professional service programs of the College, a commitment is being made to the integration of education—within the College, between the College and other colleges of the University, and between the College and 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.

Course Descriptions
Health and Human Services (HHS)

511 The Health System and Its Environment
3 hrs.
This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as behind the system and its environment.

512 Health Resources Administration
3 hrs.
This course is an introduction to principles and problems of health resources administration. The course focuses on two major areas. First, in a general introduction concerning the structures of the financing of health services, the course explores public and private mechanisms, insurance, and other financing plans. Second, the course examines the principles of financial administration for health services in the institutional and private practice setting. In this context, major current issues and problems such as cost containment in health financing are analyzed.

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.
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 and human services 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.

515 Administrative Functions in the Health Care Setting
3 hrs.
This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision making, personnel management, data processing, service design, and general principles of financial management.

530 Clinical Theory for Health and Human Services
1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundational knowledge for clinical practice. Theory of environmental health, systems theory for the health setting, theories of substance abuse for nursing and medical practice, and community health theory are among the possible areas of study. The specific topics are announced with each semester offering.

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 become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biotechnology, 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 education and public health practice are among the possible areas of study. The specific topics are announced with each semester.

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 become proficient with theoretical constructs and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem-solving in the health agency are among the topics covered. The specific topics to be discussed are announced with each semester offering.

570 Field Education in Health and Human Services
1-6 hrs.
This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. By permission of instructor.

Medical Technology (MDTC)

100 Orientation to Medical Technology
2 hrs. Fall
An introduction to the field of Medical Technology and all aspects relating to it. The course will include lecture and discussion, laboratory demonstrations, tours of various hospitals and research firms, as well as guest lectures presented by individuals working in the field of Medical Technology. Prerequisite: Admission to Pre-Medical Technology Curriculum or consent of instructor.

399 Independent Study—Medical Technology
Variable Credit (1-4 hours)
Students with good scholastic records may elect to pursue independently the study of some topic of special interest relative to Medical Technology. Topics are chosen and arrangements made to suit the needs of each particular student. Prerequisite: approved application required.

435 Clinical Chemistry
3 hrs. Summer
Basic theories and principles of clinical chemistry are presented through lecture and demonstration. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

436 Clinical Chemistry Laboratory
5 hrs. Fall
Laboratory techniques in clinical chemistry are presented. Familiarity with these techniques is acquired through lecture and demonstration. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

437 Clinical Hematology
2 hrs. Winter
Basic theories and principles of clinical hematology and coagulation are presented through lecture and demonstration. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

438 Clinical Hematology Laboratory
4 hrs. Fall
Laboratory techniques in clinical hematology and coagulation are presented. Familiarity with these techniques is acquired through demonstration and active participation at the respective benches. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

439 Clinical Immunohematology
2 hrs. Winter
Basic theories and principles of blood banking and serology are presented through lecture and demonstration. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

440 Clinical Immunohematology Laboratory
4 hrs. Winter
Laboratory techniques in blood banking and serology are presented. Familiarity with these techniques is acquired through demonstration and active participation at the respective benches. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

441 Clinical Microbiology
3 hrs. Spring
Basic theories and principles of clinical microbiology including bacteriology, mycology, and parasitology, are presented through lecture and demonstration. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

442 Clinical Microbiology Laboratory
4 hrs. Winter
Laboratory techniques in clinical microbiology are presented. Familiarity with these techniques is acquired through demonstration and active participation at the respective benches. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

443 Clinical Laboratory Techniques 1
1 hr. Fall
Basic theories and principles of microscopy, urinalysis, radiotopes, and miscellaneous disciplines are presented through lecture and demonstration. Laboratory education and management are also covered under this heading. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).

444 Clinical Laboratory Techniques 2
2 hrs. Winter
Laboratory techniques in microscopy (phase and fluorescent), urinalysis, radiotopes and miscellaneous disciplines are presented. Familiarity with these techniques is acquired through active participation at the respective benches. This course is taken in an approved hospital School of Medical Technology. Prerequisite: Acceptance in Medical Technology Curriculum (3 + 1 Option).
Gerontology Minor

Advisers: Billye Cheatham, Physical Education; Geraldine Richardson, Occupational Therapy; Ellen K. Page-Robin, Director, Gerontology

Gerontology, the study of the aging process and of old age, is offered as a multidisciplinary minor at Western Michigan University. Gerontology includes the study of aging through a disciplinary perspective, as well as the medical specialty known as geriatrics.

Interest in gerontology has burgeoned in the United States with the recognition that currently our population includes more than 25,500,000 persons beyond age 65—and that population segment is growing. Universities have responded through research and teaching to increase the understanding of the older portion of our population and to provide trained personnel to work with older persons.

The minor in gerontology is well designed to supplement formal training in other fields such as sociology, social work, occupational therapy, physical education and recreation, blind rehabilitation speech pathology, and others. It cannot, however, be used for teacher certification. Knowledge and understanding gained from formal courses in the gerontology minor are supplemented by direct work with older persons through field experience. Study of gerontology not only can lead to vocational interests in services to older persons but can also prepare one for graduate and professional work, can enrich awareness of the society in which one lives, and can allow the thoughtful and intelligent personal planning of one's own middle and later years.

The minor consists of twenty or more hours from the courses listed, of which four are required courses. Courses must be selected in consultation with one of the advisers. Exceptions to the program specified, such as the inclusion of independent studies through departmental readings courses, may be made with the approval of the advisor.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC 352</td>
<td>Introduction to Social Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>SWRK 565</td>
<td>Concepts in Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td>SOC 572</td>
<td>Community Agency Resources</td>
<td>2</td>
</tr>
<tr>
<td>SOC 112</td>
<td>Death, Dying and Bereavement</td>
<td>3</td>
</tr>
<tr>
<td>SOC 373</td>
<td>Sociology of Health and Illness</td>
<td>3</td>
</tr>
<tr>
<td>SOC 552</td>
<td>Sociology of Aging</td>
<td>4</td>
</tr>
<tr>
<td>SPPA 552</td>
<td>Communication Problems of the Aged</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives:**

- BMED 531 Biology of Aging 3
- BIS 290 Consumer Principles and Practices 3
- FCL 326 Investment Analysis 3
- ECON 313 Poverty and Economic Security 3
- ECON 318 Economics of Medical Care 3
- ECON 504 Adult Development and Learning 3
- GSCI 434 Biomedical Ethics 4
- CRT 260 Nutrition 3
- CRT 266 Food for Man 3
- CRT 413 Marriage and Family in Maturity 3

**Intermediate Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILAM/CAS 365</td>
<td>Oral Communication and the Early Elementary Child</td>
<td>4 hrs.</td>
</tr>
<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:

- ILAM/ED 460 Integrated Language Arts Seminar 4 hrs.

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

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**Integrated Language Arts Minor (ILAM)**

June Cottrell, Adviser 323 Sprau Tower (616) 383-4080

An interdisciplinary program of:

**COLLEGE OF ARTS AND SCIENCES**

Communication Arts and Sciences

English Languages and Linguistics

**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. This program satisfies the guidelines of the Michigan Department of Education for competency-based programs and provides opportunities for a wide variety of individual interests and alternative learning styles.

The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions and workshops together with opportunities for student-initiated learning. Students can enter the program in their sophomore year. In general Ed 250, Human Development and Learning, (or its equivalent), is a prerequisite for admission to the program. Program bulletin and application form are available in the Advising Offices of the College of Arts and Sciences or the Educational and Professional Development Department and from the Integrated Language Arts (ILAM) Adviser, June Cottrell, 323 Sprau Tower, 383-4080.

A minor slip is required. Students must see an adviser before they have completed 8 hours in the minor.

**Program**

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

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

- ILAM/SPPA 260 Linguistic Development of the Child 2 hrs.
Blind Rehabilitation (BLRH)

Ruth Kaarlela, Chair
Robert O. LaDuke
Steven J. LaGrow
Paul Ponchilla
Susan Ponchilla
Ivan Terzieff
Marvin Weesies

Adjunct Faculty
George Whitaker, M.D.

The Department of Blind Rehabilitation offers clinical educational services to students and services to clients who have severe visual impairments and works cooperatively with the Michigan Commission for the Blind. Operating in part on grants, primarily from the Department of Education, Special Education and Rehabilitative Services, the department offers graduate programs in orientation and mobility and rehabilitation teaching of the adult blind. Part of the department's function is to conduct workshops for professionals working in the field, provide consulting services, and initiate pertinent research.

Courses Open to Upperclass Students

588 The Dynamics of Blindness and Rehabilitation
2 hrs.
The development of the status of the blind and their integration into a sighted society. The relationship of the emotional and social correlates of blindness to the development of the blind individual as a contributing member of society.

589 Inter-Professional Seminar Regarding Blind Multihandicapped Persons
1 hr.
Interdisciplinary approach to the study of multihandicapped conditions in which blindness is a common denominator.

590 Physiology and Function of the Eye
2 hrs.
The anatomy, structure and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prostheses.

591 Braille and Other Communication Methods
2 hrs.
Provides students with a basic knowledge of the braille literary code—reading and writing, and an overview of other communication methods available to the visually impaired.

592 Education of the Visually Handicapped
2 hrs.
An overview of the education of visually handicapped children and adults. An introduction to the literature, history, principles, practices and problems in the field, including curricular and methodological adaptations of various educational programs.

594 Principles of Orientation and Mobility
2-3 hrs.
An examination and application of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

597 Introduction to Cecuitency
2 hrs.
Exploration of ways to assess the functional use of residual vision. Methods and means of increasing the functional use of residual vision and defining its limitations.

598 Gerontology
2 hrs.
The course offers an overview of the characteristics, circumstances and needs of the aging population of the United States, and explores the types of services available to meet their needs. The course will focus upon the demography of the aged, the physiological changes, and chronic diseases of aging, the social and economic aspects of aging, the psychological changes which come with age, and a review of the community resources which serve the aged.

Occupational Therapy (OT)

Claire Callan, Chair
Mary Ann Bush
Richard Cooper
Sandra Edwards
Lana Ford
Barbara Hemphill
Shirley Lukens
David Nelson
Cindee Peterson
Geraldine Richardson
Barbara Rider
Doris Smith
Dean Tyndall
Ellen Winter

The curriculum is designed to prepare students to treat clients in various disability areas and to complete requirements of accreditation established by the American Medical Association in cooperation with the American Occupational Therapy Association. It includes a minimum of six months of supervised field work experience in selected agencies providing experience with clients in both a medical and community model and with a wide range of dysfunctions.

Admission

The Occupational Therapy Department has established a maximum enrollment number for each admission period. Consequently, this department has established an admission selection procedure.

Minimum criteria for admission consideration includes the following:
1. Admission to Western Michigan University Pre-Occupational Therapy Curriculum.
2. Junior status (at least 40 hours at the time of application and 56 hours at the time of enrollment).
3. Satisfactory completion (or in progress) of basic course work:
   - Behavior Sciences (Psychology, and Sociology or Anthropology) 9 hrs.
   - Basic Course in Biology or Biomedical Science 3 hrs.
   - Normal Growth and Development 3 hrs.
   - English Composition 3 hrs.
   - Completion of all Basic Skills remediation requirements.
   - Completion of all above courses with a "C" or better.
4. Documentation of a minimum of 40 hours of service contact with handicapped individuals.
5. Documentation of a minimum of 3 hours of contact with one or more Occupational Therapists.
6. Completion of Department Application Form.
7. Completion of Allied Health Professions Admissions Test.

Specific criteria for selection are based upon:
1. Fifty percent weighting on rank-ordered scores from the Allied Health Professions Admissions Test (AHPAT). This test is administered through The Psychological Corporation and is offered four times per year. (Contact the Occupational Therapy Department for test dates and application procedures.)
2. Fifty percent weighting on cumulative grade point average.
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.

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
All graduate, undergraduate and transfer students, regardless of their admission date to the professional program, shall make application for the field work experience two semesters prior to the anticipated initiation of field work. To be eligible for enrollment in field work, the student must have a cumulative point hour ratio of 2.00 or above with no grades less than "C" in required and prerequisite courses. In addition, the student shall receive satisfactory recommendations from departmental faculty as to general competency in assuming professional responsibilities appropriate for field work experience. Each student is required to successfully complete two three-month field work experiences. Students will receive a "C" grade upon successful completion of the field work experience based on a passing grade on the FWPR (Field Work Performance Report). Students who withdraw or fail field work will receive "N/C," no credit.

Continuation Requirements
Any student who fails to meet the following criteria is in jeopardy of being dropped from the Occupational Therapy curriculum. 1. A student will complete all required departmental courses and required prerequisites with a grade of "C" or better. 2. A student can repeat only one department course or required prerequisite, and that course only once, to obtain a grade of "C" or better. Within two weeks of receipt of the second grade lower than "C" for a departmental course or required prerequisite, the student must request a hearing before a departmental committee to decide about continuance in the program. If a hearing is not requested, the student will be dropped from the curriculum. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed that the student will not be able to perform at a professional level.

Miscellaneous
The following courses are offered on a credit/no credit basis only: OT 236, 490, 491. Materials fees are required for some courses.

Program
Bachelor of Science Degree
Minimum hours required for this curriculum

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>OT 202 Orientation to Occupational Therapy</td>
<td>2</td>
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<td>OT 203 Professional Language and Interaction</td>
<td>2</td>
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<tr>
<td>OT 312 Adapted Activities</td>
<td>4</td>
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<tr>
<td>OT 321 Integrated Medical Sciences</td>
<td>6</td>
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<tr>
<td>OT 335 Assessment Principles and Instruments</td>
<td>3</td>
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<tr>
<td>OT 344 Disabling Conditions</td>
<td>4</td>
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<tr>
<td>OT 350 Life Skills Assessment and Treatment Process</td>
<td>2</td>
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<tr>
<td>OT 351 Introduction to Theory and Treatment Process</td>
<td>3</td>
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<tr>
<td>OT 352 Approaches to Client Intervention</td>
<td>2</td>
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<tr>
<td>OT 353 Occupational Therapy Practicum I</td>
<td>3</td>
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<tr>
<td>OT 354 Personal and Environmental Adaptations</td>
<td>2</td>
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<tr>
<td>OT 451 Applied Theory and Treatment Process</td>
<td>2</td>
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<tr>
<td>OT 452 Occupational Therapy</td>
<td>2</td>
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<tr>
<td>OT 453 Occupational Therapy Practicum II</td>
<td>3</td>
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<td>OT 460 Research Methodology</td>
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<td>OT 480 Administration-Supervision-Consultation</td>
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<td>OT 490 OT Fieldwork I</td>
<td>3</td>
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<tr>
<td>OT 491 OT Fieldwork II</td>
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</tbody>
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Course Descriptions
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.

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.

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.

236 Independent Practicum 2 hrs.
Participation in a health service or agency to provide experience with hospital procedures 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: Occupational therapy major.

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 enrollment or consent.

321 Integrated Medical Sciences 6 hrs.
An integrated study of human systems as they relate to normal and abnormal functional performance. Emphasis will be placed on the musculo-skeletal, neurological, and neuro-muscular systems. Prerequisite: Anatomy, Physiology and OT major.

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.

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.

350 Life Skills: Assessment and Treatment 2 hours
Examination of the role of occupational therapists in the education, evaluation, and training of life skills. Prerequisites: OT major and OT 344.

351 Introduction to Theory and Treatment Process 3 hrs.
Application of occupational therapy theory to treatment programs for clients with sensory motor integration and psycho-social problems. Emphasis is on the integrative approach to neurodevelopment and psycho-social theories and treatment. Prerequisite: OT 335 or concurrent and OT 344.

OCCUPATIONAL THERAPY 227
352 Approaches to Client Intervention
2 hours
This course will introduce the student to selected theories and concepts used in occupational therapy. The student will develop treatment plans appropriate to assigned cases to demonstrate the treatment process and the influence on this process. Prerequisite: OT 351 or concurrent.

353 Occupational Therapy Practicum I
3 hours
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 354 or concurrent and 351 and 352.

354 Personal and Environmental Adaptations
2 hours
The designing or restructuring of the physical environment to assist self-care, work, and play/leisure performance. This includes selecting, obtaining, fitting, and fabricating equipment. Categories of adaptations include orthotics, prosthetics, and assistive/adaptive devices. Prerequisite: OT 344, OT 351, and OT 352.

436 Independent Study in Occupational Therapy
2-4 hours
Designed to allow outstanding students to work independently under faculty supervision. Consent of department chair.

451 Applied Theory and Treatment Process
2 hours
This course is designed to provide the student with occupational therapy theory and principles related to community practice. The content will include group dynamics, social and work adjustment, and pre-vocational assessment. Prerequisite: OT 335.

452 Occupational Therapy Applications
2 hours
This course is designed to provide the student with the occupational therapy theories and principles that relate to the course content of OT 451, and will, through a problem-solving approach, apply these theories to treatment. Prerequisite: OT 351 or concurrent.

453 Occupational Therapy Practicum II
3 hours
This course is designed to provide clinical experience in community agencies in order to develop skill in the utilization of assessments, the development of treatment plans, the implementation of treatment plans, and the evaluation of the patient's growth related to the treatment plan. Emphasis is directly related to the content of OT 451. Prerequisites: OT 451.

460 Research Methodology
3 hours
A course designed to utilize methodologies of research and apply them to occupational therapy practice. Students will critically analyze research literature and will write a research proposal. Prerequisite: Senior status and OT 203.

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.

480 Administration-Supervision-Consultation
3 hours
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.

490 Field Work Level II
3 hours
A three-month affiliation in hospitals or 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.

491 Field Work Level II
3 hours
A three-month affiliation in hospitals or 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.

597 Studies in Occupational Therapy
3 hrs. Fall, Winter
Topics considered will vary from semester to semester May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.

Program Assistant
Program Assistant
Program Assistant

Physician Assistant Program (MDSC)

Program Staff
James B. Hammond, Director
Sherrill Busboom, Clinical Coordinator
Samuel G. Shorter, Clinical Coordinator
John Stanford, Administrative Assistant

The Physician Assistant Program at Western Michigan University educates assistants to primary care physicians. These assistants perform many of the routine tasks required in a medical practice and free the physician to spend more time on the difficult and complex matters of medicine. Through the appropriate use of a physician assistant, patients receive more individualized attention and physicians can reduce their work load per day.

Graduates of the program are awarded the Bachelor of Science in Medicine degree and are eligible to sit for the National Certifying Examination for Physician Assistant prepared by the National Board of Medical Examiners (NBME).

Western's Physician Assistant Program is and has been fully accredited by the Committee on Allied Health Education and Accreditation (CAHEA) (and its predecessor, the Council on Medical Education of the American Medical Association) since its inception. A major goal of the Program is to increase the availability of health care services to underserved areas.

As a member of the health care team, the physician assistant works under the supervision and direction of a licensed physician. Together they form a team to better meet the time constraints and needs of the patients in the physician's practice. It is for these reasons that students are provided a wide variety of opportunities and learn to (1) obtain a comprehensive health history; (2) perform a complete physical examination; (3) record the data; (4) perform uncomplicated diagnostic laboratory tests; (5) understand and use data received from all major diagnostic laboratory tests; (6) prepare a tentative diagnosis and treatment plan; (7) perform certain basic treatment procedures and (8) make an appropriate clinical response to commonly encountered emergency care situations.

Requirements
The PA Program has the following requirements for applicants 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 experiences (not including education). There are many vocations acceptable to the Program. The Program staff will answer questions about applicability of health care experiences. The health care experience requirement is not waverable and is the responsibility of every applicant to complete prior to application for entry into the professional portion of the Program.

2. A minimum of sixty (60) semester hours of college credits, including CHEM 101 and 120 or equivalents.

Recommended
1. Life science credits in the range of 15-20 semester hours, including the Chemistry requirements.
2. Humanities, social and behavioral sciences and the arts are positive selection factors.

Application and Admission

Admission to the professional curriculum of the PA Program requires separate application. Application forms may be obtained from the PA Office in Bigelow Annex. A rolling admissions process, allows candidates to determine their suitability for entry at an early point in time. Format for the evaluation process is available from the program office.

Selection Process

A 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-related achievements, evidence of good character, and the possession of those attitudes and aptitudes required for the effective health care professional.

The Curriculum

This upper-division curriculum is divided into two parts. The first part is devoted to the 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 enrolls in six required elective clerkships in any of the medical specialties.

Junior (Pre-Clinical Year)

<table>
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<tr>
<th>Fall Semester</th>
<th>Winter Semester</th>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>BMED 401 Principles and Techniques of Laboratory Diagnosis</td>
<td>MDSC 327 Emergency and Internal Medicine</td>
<td>MDSC 425 Surgery Clerkship</td>
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<td>CHEM 206 Integrated Chemistry for PAs</td>
<td>MDSC 304 Patient Evaluation I</td>
<td>MDSC 426 Community and Mental Health Clerkship</td>
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<tr>
<td>MDSC 301 Medical Terminology</td>
<td>MDSC 311 Gross Human Anatomy</td>
<td>MDSC 436 Community and Mental Health Seminar</td>
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<td>MDSC 303 PA History and Legislation</td>
<td>MDSC 317 Introduction to Medicine</td>
<td>MDSC 428 Elective Clerkship</td>
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<td>MDSC 304 Patient Evaluation II</td>
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<td>MDSC 438 Elective Seminar</td>
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<td>MDSC 410 Pharmacology I for PAs</td>
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Senior (Clinical Year)

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<th>Fall Semester</th>
<th>Winter Semester</th>
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<tbody>
<tr>
<td>MDSC 329 Family Medicine Seminar</td>
<td>MDSC 432 Pediatrics Clerkship</td>
<td>MDSC 302 General Surgery</td>
</tr>
<tr>
<td>MDSC 314 Patient Evaluation I</td>
<td>MDSC 433 Obstetrics and Gynecology Seminar</td>
<td>MDSC 435 Surgery Seminar</td>
</tr>
<tr>
<td>MDSC 423 Pathophysiology I</td>
<td>MDSC 307 Techniques of Patient Counseling</td>
<td>MDSC 426 Community and Mental Health Seminar</td>
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<tr>
<td>MDSC 324 Patient Evaluation III</td>
<td>MDSC 422 Pediatrics Seminar</td>
<td>MDSC 428 Elective Clerkship</td>
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<td>MDSC 436 Community and Mental Health Seminar</td>
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<td>MDSC 438 Elective Seminar</td>
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<tr>
<td>MDSC 334 Patient Evaluation IV</td>
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<tr>
<td>MDSC 347 Obstetrics and Gynecology</td>
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<td>MDSC 412 Pharmacology II for PAs</td>
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Course Descriptions

301 Medical Terminology 1 hr.

The language of medicine—through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions.

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. Prerequisites: MDSC 317 and PA curriculum.

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: impact of professional associations, hospital privileges, PA/physician agreements, and the process for interviewing, resume writing, and other preparation for employment.

304 Patient Evaluation I 3 hrs.

This first in a series of four courses is 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 insure 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.

306 Pathophysiology I 2 hrs.

These courses include the common diseases, how they present and some of the commonly accepted treatments. Emphasis is placed upon the significance of laboratory findings in diagnostic processes.

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.

308 Clinical and Diagnostic Skills 1 hr.

This course gives PA students experience in various clinical skills such as suturing, administration of injections, surgical gowning procedures and aseptic techniques. Also included is a series of lectures on common diagnostic laboratory procedures and their indications for, interpretation, and clinical significance of results. Students are given a basic knowledge of clinical radiology.

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, discussion and laboratory cadaver dissection. Topographical and regional anatomy as applied to clinical medicine are stressed.
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.

314 Patient Evaluation II 3 hrs.
Second in a series of courses beginning with 304.

316 Pathophysiology II 2 hrs.
Continuation of 306.

317 Introduction to Medicine 3 hrs.
This first in a series of courses which present the etiology, clinical presentation of signs and symptoms, diagnosis and treatment of common medical disorders, emphasizing socio-cultural factors, and patient needs while presenting systematic clinical problem solving and professional issues in the field of medicine as they relate to the Physician Assistant.

324 Patient Evaluation III 1 hr.
Third in a series of courses beginning with 304.

327 Emergency and Internal Medicine Lecture 6 hrs.
In this course, physician and PA lecturers explore the etiology, presentation, diagnosis and treatment of common medical disorders commonly encountered by adults, including emergent and nonemergent conditions in each body system, with emphasis on clinical problem solving. Prerequisite: MDSC 317 and PA curriculum.

334 Patient Evaluation IV 1 hr.
Fourth in a series of courses beginning with 304.

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.

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.

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.

410 Pharmacology I for PAs 4 hrs.
This course emphasizes the general principles of pharmacology as a basis for the rational clinical use of drugs. The course is comprehensive but pragmatic. Factors affecting drug action, such as rates of absorption, metabolism and excretion are discussed. Mechanism of action is covered. The principle thrust is to acquaint the student with drugs commonly used in therapy, their side affects and toxic manifestations.

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.

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.

422 Pediatric Rotation 4 hrs.
This six-week rotation is designed to provide an opportunity for the PA Student to develop proficiency in the special history taking and examination of the Ob/Gyn patient. While on the obstetric service, the management principles of pregnancy, labor and delivery, including prenatal and postnatal complications are taught. The gynecology emphasis is placed on exposing the students to methods and programs relating to cancer detection, venereal disease and birth control. Emphasis is on those obstetric and gynecologic disorders most commonly encountered by the primary care physician assistant.

424 Internal Medicine Rotation 4 hrs.
A six-week rotation during which the indications, limitations, and methods of performing the necessary diagnostic procedures and therapeutic measures used in the treatment of general medical disorders are reviewed. Patient problems and conditions as experienced in the out-patient clinic, emergency room, and the hospital are covered in this course. The student, through the collection and review of historical, physical and laboratory data, develops and understanding of patient evaluation and treatment.

425 General Surgery Rotation 4 hrs.
This six-week surgical rotation is designed to prepare the student to function as an assistant to the generalist. The student's time is divided between out-patient and in-patient surgical services. Students perform admission histories and physicals and participate in discussions regarding diagnostic tests necessary for proper patient care. The student then follows through preoperative preparations, assists in surgery and helps in post-operative care. In this way, the student learns to assist not only in the management of routine surgical cases, but also in the treatment of various complications.

426 Community and Mental Health Rotation 4 hrs.
This is a six week rotation which emphasizes common problems found in primary care settings which involve mental stresses and mental illness. The objectives center around proper data collection, problem recognition, basic counseling techniques and referral mechanisms. There is also emphasis on patient's legal rights and common treatment modalities. Experience is gained with both pediatric and adult patients and with both out-patient and in-patient situations.

The student becomes acquainted with the community and mental health framework including the major types of problems encountered by patients in the community and the services provided by agencies which care for clients' needs.

427 Family Medicine Preceptorship 6 hrs.
Family Medicine is an eight-week rotation during the last two months of the program prior to graduation. It provides an opportunity for students to bring the knowledge gained on the previous rotations to bear on primary care. Emphasis is on proper data collection through history and physical examination, formulation of accurate problem lists, accurate investigation and treatment plans. Students are evaluated on their professional manner. Specific objectives include recognition and treatment of problems encountered in family medicine. Emphasis is placed on acquaintance with available community resources such as child welfare, mental health, public health, welfare, drug and alcohol abuse crisis centers, etc. Students assist physicians in medical and surgical procedures. Emphasis is also placed on counseling patients and family members about medical problems and health problems. This includes areas of preventive medicine in health education.

428 Elective Rotation: Variable Title 2-6 hrs.
This six-week rotation is intended to cover the many sub-specialties of medicine to including emergency medicine, dermatology, otorhinolaryngology, 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.

432 Pediatrics Seminar 2 hrs.
During the six week clinical rotation in pediatrics, the student reviews selected readings which include major areas of pediatrics: newborn care, diseases of the newborn, infectious diseases of the newborn, musculoskeletal system, neurologic system, infectious diseases, poisonings, child neglect, psychological aspects of childhood, digestive system disorders. Within these topics emphasis is placed on etiology, signs and symptoms, clinical diagnosis and management, common pediatric problems. Emphasis is also placed on preventive medicine, care and assessment of well children, immunizations, patient and parent education.
433 Obstetrics and Gynecology Seminar 2 hrs.
This is a self directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete 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.

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.

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.

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.

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, endocrinology, neoplastic disorders, emergency problems, surgery, pediatrics, obstetrics and gynecology.

438 Elective Seminar: Variable Title 2 hrs.
This independent study seminar takes place during the elective rotation. Through readings and discussion with the precepting physician, emphasis is placed on academic knowledge of the elected area of medicine.
Prerequisite: PA curriculum

Social Work (SWRK)

Phil Kramer, Director
Thomas Blakely
William Burian
Donald Cooney
G.G. Dadlani
Betty Deshler
John Flynn
Judy Haith
Letheonee Jones
David Joslyn
Leslie Leighninger
Raymond Lish
Gary Mathews
Nathaniel McCaslin
Edward Pawlak
Delors J. Phillips
Linda Reeser
Kenneth E. Reid
Danny H. Thompson
Robert Wertkin
Marion Wynberg

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 offer a social welfare content as part of the student's Liberal Arts Education, to prepare students for beginning level social work practice, and to provide preparation for graduate training in social work. The graduate professional program is designed to educate students for direct service and leadership 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 curriculum. In addition, the School of Social Work participates in an University gerontology minor. Social work students should consult their curriculum adviser for program planning for the gerontology minor. Also available to social work majors is a concentration in corrections.

Offerings in the social work major cover four substantive components. The first component provides knowledge about social welfare systems and policies. The second deals with psychological and sociological theories concerned with individual, family, group, organization and social systems. The third component focuses on social work practice content. The fourth component provides 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) students must submit an application to the Director of Admissions of the School of Social Work for processing into the major. SWRK 210, "Social Work Services and Professional Roles," should be taken in the first semester of the sophomore year. Deadlines for submitting applications are January 15, October 15, and May 15 of each year.

A guided interdisciplinary minor of 22-24 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.

433 Obstetrics and Gynecology Seminar 2 hrs.
This is a self directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete 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.

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.

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.

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.

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, endocrinology, neoplastic disorders, emergency problems, surgery, pediatrics, obstetrics and gynecology.

438 Elective Seminar: Variable Title 2 hrs.
This independent study seminar takes place during the elective rotation. Through readings and discussion with the precepting physician, emphasis is placed on academic knowledge of the elected area of medicine.
Prerequisite: PA curriculum
201 Social Work Services and Professional Roles
3 hrs.
This course introduces students to the social work profession, its value base and code of ethics. The course provides an examination of professional social work roles and the profession's responsibilities in the delivery of social work services to minority and majority groups at various levels of government and within a variety of settings. Required for social work majors and minors. Prerequisite: Sophomore status or consent of instructor.

350 Social Welfare as a Social Institution
3 hrs.
Course objective is to enable the student to develop a perspective on the growth of welfare services and their relationship to welfare needs. It is a critical examination of the forces (e.g., social, economic, historical, political, and philosophical) that have led to the institutionalization of social welfare. Prerequisites: SWRK 210 and junior status.

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. Prerequisites: SWRK 210 and junior status.

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, 350, and junior status.

400 Social Work Practice: The Problem Solving Process
3 hrs.
This course provides the student with a basic understanding of human behavior, related to human developmental processes, ego, psychology, learning theory, and family social and cultural dynamics. 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. Prerequisites: SWRK 210 and junior status.

401 Social Work Practice: Intervention and Evaluation
3 hrs.
A study of social work interventions, their differential use at various system levels, recognizing 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, 350, and C-card.

410 Field Experience and Seminar II
4 hrs.
Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. Students engage in social work interventions and practice interventive behaviors in simulated and real situations. Prerequisites: Senior status, completion of SWRK 401, concurrent enrollment in SWRK 410, majors only.

411 Field Experience and Seminar III
4 hrs.
A continuation of SWRK 410. Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. Students engage in social work interventions and practice interventive behaviors in simulated and real situations. Prerequisites: Senior status, completion of SWRK 401 and 410 and concurrent enrollment in SWRK 411.

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 client racial/ethnic characteristics, group strengths and weaknesses, group priorities and experiences in the context of social welfare and social work with the extended implications of ethnic factors for social work practice, social planning, and social work education will be explored. Prerequisite: consent of instructor.
464 Problem Solving in Gerontology
3 hrs.
This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged population. The student is introduced to different approaches to service delivery and interventive problem solving techniques utilized by professional social workers in working with minority and majority aged population. Open to social work students and students from related professional disciplines with consent of instructor.

465 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.

512 Social Policy and Service Delivery in Selected Problem Areas
3 hrs.
Intensive study in selected field of service specialization and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. Prerequisite: consent of instructor.

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.

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.

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.

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.

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: permission of instructor.

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 within 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.)

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 role functions as correctional diagnostician, correctional counselor, program administrator, institutional parole officer, correctional officer, training school teacher, etc. The impact of custody, classification and prison programming will be examined in detail. Inadverant products of total institutions on incarcerated inmates will be evaluated in terms of the inmate culture, prisionization 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.

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.

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 court. Personal and organizational factors that are associated with or that determine offenders' passage through the juvenile court are examined. Prerequisite: Consent of Instructor.
Specialty Program in Alcohol and Drug Abuse

Adviser: Dennis Simpson
Room B-308, Elsworth 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 Biology and Biomedical Science, Counseling and Personnel, Psychology, Sociology, the School of Social Work, and the Center for Public Administration Programs provide a multidisciplinary and interdisciplinary basis to the specialty. Courses are planned and taught by faculty from the contributing disciplines.

Students receive preparation for dealing with various aspects of substance abuse, including prevention, community education, treatment and rehabilitation, program management, and evaluation. Program graduates are employed by many public and private organizations, including social agencies, psychological clinics, family counseling services, alcohol and drug councils, hospitals, schools, and industries. Students receive their 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.

Speech Pathology and Audiology (SPPA)

Robert L. Erickson, Chair
Harold L. Bate
Susan K. Boersma
Michael J. Clark
Paul Czuczna
John M. Hanley
D. Jeffrey Higginbotham
Susan D. Kielt
Gary D. Lawson
Frances E. Lohr
Nickola W. Nelson
Donna B. Oas
Karen S. Sando
Shirley N. Sparks
Courtney P. Stromsta
Candis Warner

Adjunct Faculty
Alvin J. Davis
William L. Dawson
Donald G. Hallas
Christian Helmus
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 mission of the Department of Speech Pathology and Audiology is to prepare professional personnel who will be maximally effective in the delivery of diagnostic, habilitative, and rehabilitative 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 Bulletin.

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 clinicians 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 Orientation and Advisement Office, 2305 Sangren Hall. Students must obtain an approved minor slip signed by an approved elementary education adviser.

Students who desire Elementary Provisional Certification also are required to complete selected College of Education undergraduate registrations as designated by the Department of Speech Pathology and Audiology, and a listing of these course requirements is available from the departmental undergraduate adviser. 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 graduate level directed teaching experience in speech/language/hearing therapy), will result in recommendation of the student for Elementary Provisional Teaching Certification. Simultaneously, the master’s degree recipient in this track is approved for employment in Michigan as a “Teacher of the Speech and Language Impaired” and typically also will have completed the academic and practicum experiences required for employment in other clinical settings as well. 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, integrated language arts, psychology, gerontology or other related discipline. Assistance in selecting an appropriate minor is available through the departmental undergraduate adviser.

Completion of the curricular requirements described below, together with 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 course work specified by the department. These additional requirements include coursework in general education, physical education, supporting courses outside the department and an academic minor. All the coursework can be completed within the minimum 122 credit hours required by the University for a bachelor's degree. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements.

Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses included in this major is critically important, students should seek academic advising from the department as soon as possible.

Speech and Hearing Processes Minor

The departmental minor in speech and hearing processes requires a minimum of fifteen (15) hours of credit in speech pathology and audiology coursework. In consultation with a departmental advisor, students may design a minor option in areas such as speech-language-hearing science, audiology, speech-language-hearing disorders or other individually tailored sequences complementary to the student's educational and vocational objectives. The only undergraduate courses specifically excluded from consideration in a minor would be SPPA 400 and 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.

Course Descriptions

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

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.

203 Normal Language Acquisition
3 hrs.
A study of normal language acquisition as a basis for investigating disordered language. The course involves a survey of the stages of language acquisition and a consideration of mechanisms of language acquisition. Prerequisite: Consent of instructor or LING 105 and PSY 194. Majors must take concurrently with SPPA 204 and 207.

204 Phonetics
3 hrs.
A study of human speech sounds as a basis for understanding speech production and speech perception. Means of symbolizing speech sounds are provided to prepare the student for accurate transcription of speech behavior. Prerequisite: Consent of instructor or LING 105 and BMED 112 or BIOL 101. Majors must take concurrently with SPPA 204 and 207.

205 Voice and Respiration
3 hrs.
A study of respiration and phonation, with emphasis on their function in speech production and speech perception. The course includes a detailed study of the structures involved, including neurology. Prerequisite: Consent of instructor or SPPA 203, SPPA 204, PHYS 106, MATH 110 or 116. Majors must take concurrently with SPPA 206.

206 The Auditory System
3 hrs.
A study of the structure and function of the hearing system, as related to communicative processes. The course includes a consideration of theories of speech perception. Prerequisites: SPPA 203, SPPA 204, PHYS 106, MATH 110 or 116, or by consent of instructor. Majors must take concurrently with SPPA 205.

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.

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.

351 Phonemic Disorders
2 hrs.
A detailed study of the nature of phonemic disorders; orientation to clinical management. Prerequisite: PHYS 106.

353 Fluency Disorders
2 hrs.
A detailed study of the nature of fluency disorders; orientation to clinical management. Prerequisite: SPPA 204 and 403.

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.

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.

359 Special Studies in Communication Disorders
2 hrs.
A survey of the various pathologies and structural deviations which result in communication disorders, including infantile cerebral palsy and cleft palate. Prerequisite: Consent of instructor.

400 Practicum in Speech Pathology and Audiology I
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders.

401 Practicum in Speech Pathology and Audiology II
2 hrs.
Clinical experience in the management of speech, language, and/or hearing problems. Prerequisite: 400.

403 Vocal Tract Kinetestics
3 hrs.
A study of vocal tract kinetics and the neurological basis 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.

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.

551 Neuropathologies of Speech
2 hrs.
This course is concerned primarily with surveying selected communication disorders associated with neuropathologies.

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 will be on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

554 Speech and Hearing Therapy in the Schools
2 hrs.
Study of clinical work with speech or hearing disordered children in the school setting.

555 Hearing Measurement
2 hrs.
This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the basis for clinical and audiometric procedures.

556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

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.
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 or audiology.

597 Topics in Speech Pathology and Audiology
1-4 hrs.
Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degree.

The University has fifty-six master's degree programs. Master of Arts degrees are awarded in seventeen programs in the following general categories within the College of Education: Counseling and Personnel, Curricula in Teaching: Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, Teaching in the Elementary School, and Teaching in the Middle or Junior High School.

Nineteen other programs at Western also lead to the Master of Arts degree: Anthropology, Art, Biology, Blind Rehabilitation, Chemistry, Communication Arts and Sciences, Economics, English, Geography, History, Home Economics, Mathematics, Medieval Studies, Orientation and Mobility, Physics, Political Science, Psychology, Sociology, and Speech Pathology and Audiology.

The University also offers the Master of Science degree in Accountancy, Applied Mathematics, Biomedical Sciences, Biostatistics, Business, Computer Science, Earth Science, Geology, Manufacturing Administration, Occupational Therapy, Operations Research, Paper Science and Engineering, and Statistics, as well as the Master of Business Administration, Master of Development Administration, Master of Fine Arts, Master of Music, Master of Public Administration, and Master of Social Work degrees.

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. Four of these programs—those in Mathematics, Science Education, Sociology, and Psychology—lead to the Doctor of Philosophy degree. The Doctor of Education degree is offered in Counseling and Personnel, Educational Leadership, and Special Education. The Doctor of Public Administration is also offered.

Please refer to The Graduate College Catalog for further information on these programs.

Inquiries about financial assistance should be directed to The Graduate College. Inquiries about research opportunities should be directed to the Division of Research and Sponsored Programs.
The Division of Continuing Education offers educational opportunities to qualified persons who wish to pursue their education on a part-time basis. Increasing numbers of men and women are becoming 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-one 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 Evening and Weekend Programs. 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.

Special programs offered by the Division include noncredit enrichment courses administered by the Center for Adult Education for adults and young people from the community. The Office of Conferences and Institutes develops and manages conferences and non-credit seminars in cooperation with university departments, professional groups, and community organizations.

International students and business people are taught how to converse and communicate competently in English by the staff of the Career English Language Center for International Students. The Division's central office is located in A-Wing of Ellsworth Hall on Western's main campus in Kalamazoo. Five additional regional centers are located as follows:

- **Southwest Regional Center**
  - Lake Michigan College
  - 1100 Yore Avenue
  - Benton Harbor, MI 49022

- **Grand Rapids Regional Center**
  - 60 N. Division Avenue
  - Grand Rapids, MI 49503

- **Muskegon Regional Center**
  - 2810 Glade Street
  - Muskegon Heights, MI 49444

- **South Central Regional Center**
  - Kellogg Community College
  - 450 North Avenue
  - Battle Creek, MI 49017

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

**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

Adviser: Lewis H. Carlson, College of General Studies

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 law.

The requirements for this 45-hour concentration are as follows:

1. A minimum of 25 credit hours, with at least two courses in each of four of the following subject matter fields:
   A. Anthropology, Philosophy, Religion
   B. Art, Music, Theatre
   C. English
   D. History
   E. Economics, Social Work, Sociology
   F. Political Science

2. An additional 9 hours in one of the four fields chosen above, thus bringing the total hours in that field to 15 hours.

3. A 3-hour introduction to interdisciplinary studies: either AS 501, Studies in American Culture, or adviser-approved substitutes.

4. An independent study project (3-8 hrs) on some aspect of the American experience designed to encourage imaginative and innovative application of previous study. This project may draw on local resources, as in the case of regional history and/or community arts, or it may deal with more general aspects of the American experience. Students may arrange for credit in a variety of ways, such as community workshops, independent study involving directed research, travel projects, and community service.

Criminal Justice

Adviser: Carol J. Rogers, Department of Sociology

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

   These courses are prerequisites to the criminal justice curriculum and do not count as a part of the 45 hours required in the area of concentration.

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 362 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 302 American Judicial Process
      PSCI 522 Civil Rights & Civil Liberties
      PSCI 525 Politics of Criminal Justice
      PSCI 590 Research Methodology
      SOC 314 Ethnic Relations
      SOC 330 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

Applied Liberal Studies

Adviser: David A. Ede, Department of Religion

This program, which leads to the Bachelor of Science degree, is available to those who have completed vocational training programs at a business school, community college, technical institute, or other specialized educational institution. This program will be of particular interest to those who, through previous formal study and practical experience, are eligible for promotion to positions of supervisory, managerial, or executive responsibility, but who lack the formal education qualifications necessary for such advancement.

The requirements for this 45-hour concentration are as follows:

1. A minimum of 18 credit hours, with at least 6 hours selected from three of the following topical areas:
   A. Community concerns
   B. Communication skills
   C. Environmental concerns
   D. Human relations
   E. International concerns
   F. Technical skills mastery

2. An additional 12 hours in the three areas chosen above

Health Studies

Advisers: Sterling Breed, Charles Spaniol, Moyra Ebling, Counseling Center

This program is intended for registered nurses (R.N.), dental hygienists, radiologic technologists, respiratory therapists, histotechnologists, cytotechnologists, and medical laboratory technicians who have achieved licensure or registry in their health profession and who wish to earn a bachelor's degree.

Areas of concentration in health studies require a minimum of 45 semester hours. This total consists of:

1. 15 semester hours from the credit transferred for registry or licensure;
2. 15 semester hours in the following core requirements: Health Science, 3 hours; Human Behavior and Interaction, 9 hours, and Planning, Organization and Leadership Skills, 3 hours; and
3. 15 semester hours of course work in the student's specialized interest area.

The area of concentration represents the student's opportunity to further develop individual objectives. Although requirements in the area of concentration are uniform for all students, there is considerable room to accommodate individual interests and objectives.

Social Science Studies

Adviser: David A. Ede, Department of Religion

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, policy, and social questions. A bachelor's degree is conferred upon those completing the program requirements.

The requirements for this 45-hour social science concentration are as follows:

1. A minimum of 12 semester hours of credit selected from the following: ANTH 220, Cultural Anthropology, or ANTH 240, Principles of Cultural Anthropology; ECON 201, Principles of Economics; GEOG 205, Our Human World; PSCI 100, Introduction to Political Science; PSY 150, Introduction to Human Behavior; SWRK 210, Social Work Services and Professional Roles; SOC 200, Principles of Sociology, or SOC 300, Sociological Theory

2. At least 33 semester hours of additional social science credit in anthropology, economics, geography, political science, psychology, social work, and/or sociology. These courses must be approved by the program's academic advisor, and may be interdisciplinary—drawn from a number of departments, disciplinary—drawn from a single social science discipline, or applied—identified with the needs of a particular area of
study, such as public administration, sociology of education, social science research techniques, or applied social service.

Technical-Scientific Studies

Adviser: Sandra F. Blanchard, College of Engineering and Applied Sciences

This program was designed for those interested in technical studies, including the study of aviation, automotive technology, electronics, manufacturing, supervision, and industrial vocational education. A student who has completed a two-year vocational-technical study program at a community college, or one who has achieved a comparable level of preparation through a combination of study and work experience, will find this program of interest. A career oriented program, particularly for those in manufacturing and industrial education, it leads to the Bachelor of Science degree. The requirements for his 45-hour concentration are as follows:

1. A minimum of 45 semester hours of credit from such areas as graphics, materials and processing, technical analysis, electrical engineering, transportation technology, manufacturing management and mechanical engineering. Students interested in industrial 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 unable to attend campus classes or needing a course not currently being taught. The Office of Self-Instructional Programs offers over seventy-five credit courses by correspondence, television, and magazine. All courses are developed by University faculty. Students may register for most courses at any time, in person or by mail, and are given up to one year to complete each course. Television courses require viewing weekly one-hour segments and attending several discussion groups each semester. Self-instructional courses may be taken for credit and 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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The Graduate College, Dean and Chief Research Officer
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Timothy Fitzpatrick

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Michael Weber

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Edwin A. Leak

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Dean Honsberger
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Employee Relations and Personnel, Director
Stanley W. Kelley

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Internal Audit, Director
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Handicapper Student Services, Director
Virginia Norton

Residence Hall Life, Director
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Student Activities, Director
Charles Stroup

Health Center, Director
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Health Education Coordinator
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Adams, David, Ed.D., Professor of Education and Professional Development, 1956-1984
Adams, Ethel G., M.A., Professor of Music, 1946-1973
Adams, Sam B., M.A., Associate Professor of Music, 1946-1973
Albert, Elaine, M.A., Assistant Professor of English, 1964-1979
Alvarez, Elsa, Ph.D., Associate Professor of Modern and Classical Languages, 1964-1980
Ansel, James O., Ed.D., Professor and Director, Rural Education, 1949-1974
Archer, Hugh G., M.A., Associate Professor of Teacher Education, 1939-1972
Baechtle, Marguerite, Ed.S., Associate Professor of Librarianship, 1967-1981
Bahler, Harold, Ph.D., Professor of Humanities, 1962-1981
Barlow, Robert, M.S.W., Professor of Social Work, 1965-1973
Bartoo, Harrlette V., M.A., Associate Professor of Teacher Education, 1944-1972
Beeler, Fred A., Ph.D., Professor of Mathematics, 1946-1968
Beeler, Isabel, M.A., Associate Professor of Counseling, 1946-1968
Beifuss, Elmer R., Ed.D., Professor of Music, 1946-1971
Beifuss, Margaret Falta, M.A., Professor of Music, 1946-1971
Berkay, Ade E., M.A., Associate Professor, University Libraries, 1947-1975
Bernhard, John T., Ph.D., President, 1974-1985
Bekukma, Henry J., M.S., Professor of Engineering Graphics, 1943-1977
Blazka, Irene S., M.S., Assistant Professor of Home Economics, 1965-1980
Black, Donald J., M.A., Assistant Professor of Engineering and Technology, 1952-1970
Blackburn, Jane A., M.A., Assistant Professor of Education, 1952-1970
Blagdon, Charles A., M.A., Assistant Professor of Business Education and Administrative Services, 1957-1976
Blasch, Donald, M.A., Professor of Blind Rehabilitation and Mobility, 1961-1984
Bodine, Gerald L., M.A., Assistant Professor of Teacher Education, 1957-1976
Boies, Harold, Ph.D., Professor of Educational Leadership, 1961-1984
Boll, Earl, M.A., Associate Professor of Education and Professional Development, 1967-1984
Bosma, Ruth L., M.A., Assistant Professor, Campus School, 1953-1968
Bottke, Mary, M.A., Associate Professor of Physical Education, Women, 1925-1956
Boucher, Joan, Ph.D., Associate Professor of Music, 1966-1984
Bouska, Donald H., Ph.D., Professor of Sociology, 1962-1985
Bowers, Robert S., Ph.D., Professor of Economics, 1937-1979
Braill, Frederick R., M.A., Associate Professor of Education and Professional Development, 1964-1982
Brennan, Margaret Jane, Ed.D., Professor of Home Economics, 1965-1975
Breton, Beatrice, Ph.D., Associate Professor of Education and Professional Development, 1969-1985
Brink, Lawrence J., M.A., Associate Professor of Industrial Education, 1940-1980
Brown, Charles T., Ph.D., Distinguished University Professor, 1948-1981
Brown, Helen, M.A., Associate Professor of Dance, 1949-1981
Bruno, Elmer J., M.A., Associate Professor of Industrial Engineering, 1956-1979
Bryan, Roy C., Ph.D., Professor of School Services, 1937-1947
Bueke, John A., Ed.D., Professor of Teacher Education, 1949-1974
Burdick, William, Ph.D., Professor of Finance and Commercial Law, 1949-1984
Burns, Mary, Ph.D., Professor of Social Work, 1969-1979
Buys, William E., Ph.D., Professor of Communication Arts and Sciences, 1964-1981

Callan, Edward T., D.Litt. et Phil. Distinguished University Professor, 1967-1983
Cerdasen, Mercedes, Ph.D., Associate Professor of Modern and Classical Languages, 1964-1980
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Crane, Isabel, M.A., Assistant Professor of Counseling, 1923-1963
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Davidson, Robert, Assistant Professor of Music, 1966-1983
Derby, Stanley, Ph.D., Professor of Physics, 1955-1964
Douglas, Roscoe, M.A., Associate Professor of Mechanical Engineering, 1965-1984
Douglas, Eleanor, M.A., Associate Professor of Health: Physical Education and Recreation, 1948-1979
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Elser, Edward, Ph.D., Professor of History, 1955-1983
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Faile, Wayne, M.A., Assistant Professor of Education, 1949-1963
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France, June, M.A., Assistant Professor of Education and Professional Development, 1957-1984
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Gill, Joseph, M.S.M.E., Associate Professor of Mechanical Engineering, 1965-1985

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Nelson, John, 1970, Associate Professor and Chairman, Department of Computer Science
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Nelson, Nickolaus, 1981, Associate Professor of Speech Pathology and Audiology
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Nelson, Nina M., 1982, Assistant Professor of Dance
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Nelson-Holmes, Jane, 1983, Adjunct Assistant Professor, Specialty Program in Alcohol and Drug Abuse
Neaclich, Richard, 1964, Associate Professor of Consumer Resources and Technology
B.S., Wayne; B.A., Western Michigan
Netz, David J., 1979, Assistant Professor, Library
A.B., Dordt College; M.L.S., Western Michigan
Neu, Mary E., 1966, Associate Professor of Art
B.F.A., M.F.A., Drake
Nesvig, Robert D., 1967, Professor of Accountancy
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Newell, Gail E., 1966, Professor of Accountancy
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C.M.A
 Nicolosou, Abraham W., 1970, Professor of Special Education
B.A., Ph.D., Michigan
Nodel, Emanuel, 1980, Professor of History
B.A., Brooklyn College; M.A., Ph.D., Indiana
Nolley, David, 1980, Adjunct Professor of Psychology
B.A., San Francisco; M.A., Western Michigan; Ph.D. Syracuse
Northouse, Philip G., 1974, Associate Professor of Communication Arts and Sciences
B.A., M.A., Michigan State; Ph.D., Denver
Novak, Ervin, 1983, Adjunct Clinical Professor, Physician Assistant Program
M.D., Ph.D., Karl's University (Czechoslovakia)
Oas, Donna, 1965, Associate Professor of Speech Pathology and Audiology
B.A., Michigan; M.A., Western Michigan
Obrig, Richard D., 1983, Adjunct Professor of Management
B.A. Kalamaizo College; M.B.A. Western Michigan
O&Hearn, Richard, 1964, Assistant Professor of Music
B.S., Morehead State; M.S., Ph.D., Wisconsin
Ohren, Michael, 1984, Adjunct Assistant Professor of Social Work
B.S., Grand Valley State; M.S.W., Michigan
O'Leary, Ray C., 1976, Adjunct Assistant Professor, Specialty Program in Alcohol and Drug Abuse
B.A., Med. Delaware, Ed.D., Western Michigan
Olaon, Jenis, 1982, Adjunct Clinical Assistant Professor of Medical Technology
B.S., Central Michigan
Olton, Roy, 1937, Professor of Political Science
B.A. Ohio Wesleyan; M.A., Ph.D., Fletcher School of Law and Diplomacy
Oppinger, Larry D., 1963, Professor of Physics
B.S., School of Mines and Metallurgy (Missouri); M.S., Ph.D., Wisconsin
Orionel, Cheryl, 1981, Adjunct Clinical Assistant Professor of Occupational Therapy
B.S., St. Mary College
Orlofsky, Fred C., 1967, Associate Professor of Health, Physical Education and Recreation
B.S., M.S., Southern Illinois
Osborne, Charles E., 1957, Professor of Music
B.M., M.M., Ph.D., Michigan State
Osmun, George F., 1964, Professor of Classics
B.A., Lafayette; M.A., Columbia; Ph.D. Michigan
Oswood, Robert M., 1971, Professor of Counseling and Personnel
B.A., Temple; M.S., Ph.D., North Texas State
O'Toole, John J., 1977, Adjunct Clinical Professor, Physician Assistant Program
M.D. Marquette
Otteson, Connor P., 1964, Professor of Marketing
B.B.A., M.S.A., Hawai'i, D.B.A.
Overbeck, Ann L., 1980, Associate Professor of Social Work
A.B., Cornell; M.S.S., D.S.W., Smith College
Oxhander, Richard M., 1978, Associate Professor, Counseling Center
B.A., Harcour College; M.S., Ed.D., Western Michigan
Page-Robin, Ellen, 1966, Professor of Sociology and Director, Gerontology Program
B.A., M.A., Ohio State; Ph.D. Purdue
Peele, Thomas F., 1970, Associate Professor of Communication Arts and Sciences
B.A., Wayne State; M.A.C., Pennsylvania; Ph.D., Denver
Pelmatier, Robert A., 1955, Professor and Chairman, Department of Languages and Linguistics
B.A., M.A., Western Michigan; Ph.D. Michigan
Perd, Donald, 1972, Associate Professor of Music
B.M., M.M., Western Michigan; Ph.D., Michigan State
Person, Janet, 1983, Adjunct Assistant Professor, Specialty Program in Alcohol and Drug Abuse
B.A. Michigan State; M.A. Siena Heights College
Pescia, Thomas, 1983, Adjunct Clinical Assistant Professor, Specialty Program in Alcohol and Drug Abuse
M.D.
Peterson, Richard, 1986, Professor of Geology
B.A., M.S., Ph.D., Indiana
Peterson, Elizabeth A. Lawrence, 1972, Professor of Special Education
B.S., SUNY (Buffalo); M.A., Columbia; Ph.D., Syracuse
Peterson, Dale P., 1963, Associate Professor of History
B.A. Western Michigan; M.A. Phil., Ph.D., Chicago
Peterson, Eugene D., 1967, Assistant Professor of Education and Professional Development, and Director, Muskegon Regional Office
B.S., M.A., Western Michigan
Pewik, Edward J., 1978, Professor of Social Work
B.P., Detroit; M.S.W., Wayne State; Ph.D., Michigan
Payne, Michael R., 1979, Associate Professor of Economics
B.S., Missouri (St. Louis); M.A., Ph.D. Syracuse
Penke, Dennis D., 1984, Assistant Professor of Mathematics
B.S., M.S., Ph.D., Purdue
Penkula, Janis E., 1981, Adjunct Associate Professor of Political Science
B.A., M.S., Madison; Ph.D. Wisconsin
Perez-Stable, Maria A., 1991, Adjunct Associate Professor of Health, Physical Education and Recreation
B.S., M.S., Southern Illinois
Peterson, James C., 1974, Associate Professor of Sociology
B.A., M.A., Northern Iowa; Ph.D., Iowa
Peterson, John C., 1983, Assistant Professor of Occupational Therapy
B.A., M.S., Western Michigan
Peterson, David K., 1977, Associate Professor of Paper Science and Engineering
B.S., M.S. Michigan State; Ph.D., Denver
Petersen, Lance, 1983, Instructor in Accounting
B.B.A., M.S.A., Western Michigan
BUILDING AND GROUNDS

East Campus
Brink Printing Services—University print shop and mimeographing service.
East Hall—Classrooms and offices for the Departments of Accountancy, Management, and Art. Locker facilities, offices, and a gymnasium for the Department of Health, Physical Education and Recreation.
H.O.I. Building—Central Stores and Department of Transportation.
Montague House—Building is unassigned.
North Hall—Offices and classrooms for the Departments of Finance and Commercial Law and Marketing. Business library and offices of the dean, College of Business.
Oakland Recital Hall—Office and classroom space, and a 300-seat auditorium. Building is unassigned.
Physical Plant—Trades maintenance shops, grounds crews and University garage, physical plant department.
Richards Building—Department of Corrections.
Van Riper Language, Speech and Hearing Clinic—The Department of Speech Pathology and Audiology.
Waldo Hall—Snack bar and meeting rooms. Classrooms and offices for College of Business.
West Hall—The Departments of Business Information Systems and Agriculture.

West Campus
Brown Hall—Classrooms for the Departments of Communication Arts and Sciences, English, and Languages and Linguistics.
Dalton Center—Dean, College of Fine Arts. Departments of Music and Dance. Music library and classrooms.
Dunbar Hall—Classrooms for the Departments of History, Economics, Philosophy, Religion, and Political Science. College of General Studies and Division of Instructional Communications.
Ellsworth Hall—Offices for Continuing Education. Faculty Senate, Foreign Student Affairs, Minority Student Services, Pupil Transportation, Purchasing, Research Services, Public Information, News Services, Sports Information, Placement Services, University Publications, and Women's Services.
Everett Tower—Faculty offices for Departments of Physics, Geology, and Mathematics.
L. Dale Faunce Student Services Building—Offices for counseling, financial aid, scholarships, housing, student activities, and orientation. Offices for major student organizations, WIDR, and Western Herald.
Fetzer Business Development Center—A professional environment for management-oriented conferences, seminars, workshops, and development programs.
Friedmann Hall—Offices for dean of College of Arts and Sciences, dean of College of General Studies. Faculty offices for Departments of Computer Science, Economics, History, Philosophy, and Political Science. WMUK-FM studios.
Hillside West—Honors College. Testing Services, Cistercian Studies and Library, and Medieval Studies.
Kanley Memorial Chapel—The campus religious center, made possible through a gift from the estate of the late William Kanley, an alumnus. Opened in 1951.
Knauss Hall—Instructional facility with four lecture halls and exhibit space.
Knollwood Building—Department of Art ceramic and sculpture studios.
Knollwood Metal Building—Department of Art foundry and kins.
Maybee Hall—Computer Science.
McCleary Hall—Departments of Chemistry, Paper Science and Engineering, and Biology and Biomedical Sciences.
Miller Auditorium—Cultural center for the performing arts of music, opera, drama, and dance. The auditorium has a capacity of 3,550, with seating arranged on three levels in continental style.
Moore Hall—Offices and classrooms for the School of Social Work and offices for College of General Studies, the Department of Anthropology, and the Intellectual Skills Development Program.
Oaklands—Home of two former University presidents. Currently used for receptions and official gatherings.
Sangren Hall—College of Education. The Departments of Art and Sociology, the Educational Resources Center, and the Reading Center and Clinic.
Selbert Administration Building—University administration offices.
Shaw Theatre—The University Theatre presents productions in this 600-seat theatre.
Sprau Tower—Offices of the Departments of Communication Arts and Sciences, English, and Languages and Linguistics. Black Americana Studies Program.
Tripe Distributive Education Building—Classroom and office space for vocational and distributive education.
University Health Center—75-bed student health service building. Opened in 1969.
University Student Center—Social and recreational facilities are provided for students and are available for other educational ventures as schedules permit. The building includes a snack bar, cafeteria, bowling alley, game room, Western's Campus Bookstore, U.S. Postal substation, lounges, ballroom, music room, faculty lounge and dining room, and the Board of Trustees meeting room.
Waldo Library—The library's total collection numbers more than two million bibliographic items, including books, bound periodicals, recordings, maps, documents, and materials in microform. Also located in the building are the University Archives, the Audiovisual Film Library, and Visually Handicapped Reading Services.
Wood Hall—Departments of Biology and Biomedical Sciences, Psychology, Occupational Therapy, and Geology, and the University greenhouse.
Off-Campus

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

Athletic Facilities

Bowling Alley—Twenty bowling lanes available in the University Student Center for physical education classes and recreation.

Gary Physical Education Center

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

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

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

Western Michigan University

Key to Building Numbers

**A bullet in front of a building name denotes that the building has been made physically accessible to the handicapped.**

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<td>53o</td>
<td>Shilling Hall—Goldsworth Valley #2</td>
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</tbody>
</table>

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.

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