Western Michigan University Undergraduate Catalog 1989-1991

Western Michigan University

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

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

Undergraduate Catalog
Kalamazoo, Michigan
1989 • 1991

Western Michigan University is located in Kalamazoo, midway between Chicago and Detroit. Three major highways, Amtrak, commercial airlines, and numerous bus routes connect the city with other midwestern cities. The population of Kalamazoo is 77,230. Kalamazoo County has a population of 218,500.

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

Western Michigan University requires that all students demonstrate appropriate skills in reading, writing, mathematics, and computer literacy before the awarding of any degree. These requirements may be met, at the discretion of the University, through regular courses of study or special testing.

Western Michigan University retains the right to rescind any WMU degree which was improperly obtained. Before taking any such formal action, however, the University will provide appropriate due process rights to the degree holder.

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

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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Department/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>179</td>
<td>Department of Special Education</td>
</tr>
<tr>
<td>181</td>
<td>College of Engineering and Applied Sciences</td>
</tr>
<tr>
<td>184</td>
<td>Department of Aircraft and Automotive Engineering</td>
</tr>
<tr>
<td>186</td>
<td>Department of Consumer Resources and Technology</td>
</tr>
<tr>
<td>194</td>
<td>Department of Electrical Engineering</td>
</tr>
<tr>
<td>196</td>
<td>Department of Engineering Technology</td>
</tr>
<tr>
<td>206</td>
<td>Department of Industrial Engineering</td>
</tr>
<tr>
<td>209</td>
<td>Department of Mechanical Engineering</td>
</tr>
<tr>
<td>212</td>
<td>Department of Paper and Printing Science and Engineering</td>
</tr>
<tr>
<td>216</td>
<td>Vocational Education</td>
</tr>
<tr>
<td>218</td>
<td>College of Fine Arts</td>
</tr>
<tr>
<td>219</td>
<td>Department of Art</td>
</tr>
<tr>
<td>224</td>
<td>Department of Dance</td>
</tr>
<tr>
<td>227</td>
<td>School of Music</td>
</tr>
<tr>
<td>236</td>
<td>Department of Theatre</td>
</tr>
<tr>
<td>241</td>
<td>College of General Studies</td>
</tr>
<tr>
<td>244</td>
<td>College of Health and Human Services</td>
</tr>
<tr>
<td>245</td>
<td>Interdisciplinary Programs</td>
</tr>
<tr>
<td>246</td>
<td>Department of Blind Rehabilitation and Mobility</td>
</tr>
<tr>
<td>247</td>
<td>School of Community Health Systems</td>
</tr>
<tr>
<td>247</td>
<td>Gerontology Minor</td>
</tr>
<tr>
<td>247</td>
<td>Physician Assistant Program</td>
</tr>
<tr>
<td>249</td>
<td>Specialty Program in Alcohol and Drug Abuse</td>
</tr>
<tr>
<td>250</td>
<td>Department of Occupational Therapy</td>
</tr>
<tr>
<td>252</td>
<td>School of Social Work</td>
</tr>
<tr>
<td>254</td>
<td>Department of Speech Pathology and Audiology</td>
</tr>
<tr>
<td>257</td>
<td>The Graduate College</td>
</tr>
<tr>
<td>258</td>
<td>Division of Continuing Education</td>
</tr>
<tr>
<td>258</td>
<td>General University Studies</td>
</tr>
<tr>
<td>260</td>
<td>Self-Instructional Courses</td>
</tr>
<tr>
<td>261</td>
<td>The Directories</td>
</tr>
<tr>
<td>261</td>
<td>Board of Trustees</td>
</tr>
<tr>
<td>261</td>
<td>Administration</td>
</tr>
<tr>
<td>264</td>
<td>Emeriti Faculty</td>
</tr>
<tr>
<td>267</td>
<td>Faculty</td>
</tr>
<tr>
<td>279</td>
<td>The Index</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Course/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>151</td>
<td>Accountancy (ACTY)</td>
</tr>
<tr>
<td>185</td>
<td>Aircraft and Automotive Engineering (AAE)</td>
</tr>
<tr>
<td>77</td>
<td>Anthropology (ANTH)</td>
</tr>
<tr>
<td>220</td>
<td>Art (ART)</td>
</tr>
<tr>
<td>62, 68</td>
<td>Arts and Sciences (A-S)</td>
</tr>
<tr>
<td>82</td>
<td>Biological Sciences (BIOS)</td>
</tr>
<tr>
<td>69</td>
<td>Black Americana Studies (BAS)</td>
</tr>
<tr>
<td>245</td>
<td>Blind Rehabilitation and Mobility (BLRH)</td>
</tr>
<tr>
<td>150</td>
<td>Business (Haworth College of) (BUS)</td>
</tr>
<tr>
<td>152</td>
<td>Business Information Systems (BIS)</td>
</tr>
<tr>
<td>85</td>
<td>Chemistry (CHEM)</td>
</tr>
<tr>
<td>88</td>
<td>Communication (COM)</td>
</tr>
<tr>
<td>92</td>
<td>Computer Science (CS)</td>
</tr>
<tr>
<td>190</td>
<td>Consumer Resources and Technology (CRT)</td>
</tr>
<tr>
<td>167</td>
<td>Counselor Education and Counseling Psychology (CECP)</td>
</tr>
<tr>
<td>225</td>
<td>Dance (DANC)</td>
</tr>
<tr>
<td>95</td>
<td>Economics (ECON)</td>
</tr>
<tr>
<td>168</td>
<td>Education and Professional Development (ED)</td>
</tr>
<tr>
<td>195</td>
<td>Electrical Engineering (EE)</td>
</tr>
<tr>
<td>184</td>
<td>Engineering and Applied Sciences (College of) (AAS)</td>
</tr>
<tr>
<td>201</td>
<td>Engineering Technology (ET)</td>
</tr>
<tr>
<td>99</td>
<td>English (ENGL)</td>
</tr>
<tr>
<td>70</td>
<td>Environmental Studies (ENVS)</td>
</tr>
<tr>
<td>153</td>
<td>Finance and Commercial Law (FCL)</td>
</tr>
<tr>
<td>114</td>
<td>French (FREN)</td>
</tr>
<tr>
<td>241</td>
<td>General Purpose (GENL)</td>
</tr>
<tr>
<td>102</td>
<td>Geography (GEOG)</td>
</tr>
<tr>
<td>107</td>
<td>Geology (GEOL)</td>
</tr>
<tr>
<td>115</td>
<td>German (GER)</td>
</tr>
<tr>
<td>115</td>
<td>Greek (GREEK)</td>
</tr>
<tr>
<td>246</td>
<td>Health and Human Services (HHS)</td>
</tr>
<tr>
<td>110</td>
<td>History (HIST)</td>
</tr>
<tr>
<td>63</td>
<td>Honors (H-HNS)</td>
</tr>
<tr>
<td>242</td>
<td>Humanities (General) (GHUM)</td>
</tr>
<tr>
<td>207</td>
<td>Industrial Engineering (IE)</td>
</tr>
<tr>
<td>113</td>
<td>Language (LANG)</td>
</tr>
<tr>
<td>115</td>
<td>Latin (LAT)</td>
</tr>
<tr>
<td>116</td>
<td>Latvian (LATV)</td>
</tr>
<tr>
<td>118</td>
<td>Linguistics (LING)</td>
</tr>
<tr>
<td>155</td>
<td>Management (MGM)</td>
</tr>
<tr>
<td>157</td>
<td>Marketing (MKTG)</td>
</tr>
<tr>
<td>121</td>
<td>Mathematics and Statistics (MATH)</td>
</tr>
<tr>
<td>210</td>
<td>Mechanical Engineering (ME)</td>
</tr>
<tr>
<td>75</td>
<td>Medieval (MDVL)</td>
</tr>
<tr>
<td>61</td>
<td>Military Science (MLSC)</td>
</tr>
<tr>
<td>231</td>
<td>Music (MUS)</td>
</tr>
<tr>
<td>251</td>
<td>Occupational Therapy (OT)</td>
</tr>
<tr>
<td>214</td>
<td>Paper and Printing Science and Engineering (PAPR)</td>
</tr>
<tr>
<td>125</td>
<td>Philosophy (PHIL)</td>
</tr>
<tr>
<td>177</td>
<td>Physical Education, General (PEGN)</td>
</tr>
<tr>
<td>248</td>
<td>Physician Assistant (MDSC)</td>
</tr>
<tr>
<td>128</td>
<td>Physics (PHYS)</td>
</tr>
<tr>
<td>131</td>
<td>Political Science (PSCI)</td>
</tr>
<tr>
<td>175</td>
<td>Professional Health, Physical Education and/or Recreation (500 level) (PEGR)</td>
</tr>
<tr>
<td>175</td>
<td>Professional Health, Physical Education and/or Recreation (Undergraduate) (PEPR)</td>
</tr>
<tr>
<td>135</td>
<td>Psychology (PSY)</td>
</tr>
<tr>
<td>137</td>
<td>Public Administration (PADM)</td>
</tr>
<tr>
<td>138</td>
<td>Religion (REL)</td>
</tr>
<tr>
<td>116</td>
<td>Russian (RUSS)</td>
</tr>
<tr>
<td>242</td>
<td>Science (General) (GSCI)</td>
</tr>
<tr>
<td>76</td>
<td>Social Science (SSCI)</td>
</tr>
<tr>
<td>243</td>
<td>Social Science (General) (GSSC)</td>
</tr>
<tr>
<td>252</td>
<td>Social Work (SWRK)</td>
</tr>
<tr>
<td>142</td>
<td>Sociology (SOC)</td>
</tr>
<tr>
<td>116</td>
<td>Spanish (SPAN)</td>
</tr>
<tr>
<td>179</td>
<td>Special Education (SPED)</td>
</tr>
<tr>
<td>255</td>
<td>Speech Pathology and Audiology (SPPA)</td>
</tr>
<tr>
<td>239</td>
<td>Theatre (THEA)</td>
</tr>
<tr>
<td>119</td>
<td>Translation (TRAN)</td>
</tr>
<tr>
<td>62</td>
<td>University (UNV)</td>
</tr>
<tr>
<td>217</td>
<td>Vocational Education (VE)</td>
</tr>
</tbody>
</table>
Glossary of Terms

Academic adviser
A faculty or professional staff member trained to help students select courses and plan programs.

Academic dismissal
Dismissal from a college or program for not maintaining the required grade point average (GPA). Dismissal indicates that a student is no longer a member of the University community.

Advanced placement
Credit granted for examination programs or for transfer work.

Audit
Registering for and attending classes regularly without being held responsible for the work required for credit. Not eligible to sit for examinations. No credit hours are earned and full tuition must be paid. The grade "AU" appears on the record.

Baccalaureate-level writing requirement
An upper-division requirement for all students. Each academic department designates courses to fulfill this requirement.

Bachelor's degree
A degree granted after completing a specified amount of academic study beyond the completion of high school and fulfilling all graduation requirements.

Board
A term used for the meal plan (as in, room and board) at the University.

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

Class standing
A classification based on the number of credit hours earned which indicates the level of a student.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Elective
A course which will count as credit toward a degree but is not a specific program requirement.

Emphasis
A designated group of courses within a major program.

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

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

The above definitions are Western Michigan University regulations and may or may not be accepted by other agencies.
Good standing
A designation that signifies that a student is eligible to continue, to return, or to transfer elsewhere. It implies good academic standing; that is, an overall GPA of 2.0 or better.

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

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

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

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

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

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

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

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

Incomplete
The grade "I"; granted only if a student is temporarily unable to complete course requirements because of unusual circumstances. Student must be passing the course to be eligible for an "I" grade.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Readmission
An appeal procedure for a student who has been dismissed or suspended. Consult the Office of Admissions to begin the procedure. Readmission must be sought in the area of intended study.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Upper division
Classification of students with 56 or more hours of credit earned towards a bachelor's degree.

Withdrawal
An official procedure for withdrawing from a course or from the University. Deadlines for the last day to withdraw from a course without academic penalty (grade of "W" is on the transcript) is noted each semester or session in the Schedule of Classes. Students who do not follow the official procedure when withdrawing from a class will earn the grade of "X" for that course; the "X" grade carries no honor points and affects the GPA in the same manner as an "E" or failing grade.
1989-90 Calendar

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

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

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

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

1990-91 Calendar

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

Winter Semester, 1991
January 7, Monday
Classes Begin
March 1, Friday
Last Day to Withdraw Without Academic Penalty
March 4, Monday
Semester Recess
March 11, Monday
Classes Resume
March 29, Friday
Recess—All Day
April 22-26, Monday-Friday
Final Examination Week
April 27, Saturday
Semester Ends
Commencement
<table>
<thead>
<tr>
<th>AUGUST</th>
<th>SEPTEMBER</th>
<th>OCTOBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>6 7 8 9 10 11 12</td>
<td>3 4 5 6 7 8 9</td>
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</tr>
<tr>
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<td>10 11 12 13 14 15 16</td>
<td>15 16 17 18 19 20 21</td>
</tr>
<tr>
<td>20 21 22 23 24 25 26</td>
<td>17 18 19 20 21 22 23</td>
<td>22 23 24 25 26 27 28</td>
</tr>
<tr>
<td>27 28 29 30 31</td>
<td>24 25 26 27 28 29 30</td>
<td>29 30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOVEMBER</th>
<th>DECEMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4</td>
<td>1 2</td>
</tr>
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<td>3 4 5 6 7 8 9</td>
</tr>
<tr>
<td>12 13 14 15 16 17 18</td>
<td>10 11 12 13 14 15 16</td>
</tr>
<tr>
<td>19 20 21 22 23 24 25</td>
<td>17 18 19 20 21 22 23</td>
</tr>
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**Spring Session, 1991**
- May 6, Monday: Classes Begin
- May 27, Monday: Memorial Day Recess
- May 31, Friday: Last Day to Withdraw Without Academic Penalty
- June 26, Wednesday: Session Ends
- June 29, Saturday: Commencement

**Summer Session, 1991**
- July 8, Monday: Classes Begin
- August 3, Saturday: Last Day to Withdraw Without Academic Penalty
- August 23, Saturday: Session Ends

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About Western Michigan University

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

Programs in the Department of Art are accredited by the National Association of Schools of Art and Design.

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

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

The computer science-theory and analysis major in the Department of Computer Science is accredited by the Computing Sciences Accreditation Board, Inc.

The baccalaureate programs in computer systems engineering, electrical engineering, industrial engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Programs in the Department of Counselor Education and Counseling Psychology are accredited by the Council for Accreditation of Counseling and Related Educational Programs.

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

Programs in the Department of Health, Physical Education and Recreation are accredited by the American Alliance for Health, Physical Education, Recreation and Dance and the National Athletic Training Association.

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

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

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

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

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

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.

Copies of accreditation documents are available for review upon request in the Office of the Provost and Vice President for Academic Affairs.
Physical Facilities and Campus Map

EAST CAMPUS
Brink Printing Services—University print shop and duplicating service.
Campus Services Building—Offices for Campus Planning, Freight, Postal, and Delivery; Interior Design; Purchasing, and University Stores.
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—Landscape Services.
Montague House—Offices of American Association of University Professors offices.
North Hall—Offices and classrooms for the Departments of Finance and Commercial Law and Marketing. Business library and offices of the dean, Haworth College of Business.
Oakland Recital Hall—Custodial Services, and Permanent Art Collection Storage.
Physical Plant—Trades maintenance shops, grounds crew and University garage, Transportation Services, Physical Plant Department
Richards Building—Department of Corrections.
Van Riper Speech and Hearing Clinic—The Department of Speech Pathology and Audiology.
Walwood Hall—Art Gallery, Art Studios, Telecommunications.
West Hall—The Department of Business Information Systems.

WEST CAMPUS
Bernhard 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.
Brown Hall—Classrooms for the Departments of Communication, 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 Career Planning and Placement Services, Continuing Education, Faculty Senate, Foreign Student Affairs, Minority Student Services, Pupil Transportation, Purchasing, Research and Sponsored Programs, Public Information, News Services, Sports Information, University Publications, and Women’s Services.
Everett Tower—Faculty offices for Departments of Physics, Geology, and Mathematics.
L. Dale Faunce Student Services Building—Office 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.
Henry Hall—College of Health and Human Services, Recreation Hall.
Hillside East—Alumni Center, Aural Press, and Public Administration Program.
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.
Knohlwood Building—Department of Art, ceramic and sculpture studios.
Knohlwood Metal Building—Department of Art foundry and kilns.
McCracken 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 the 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 special occasions.
Sangren Hall—College of Education. The Departments of Art and Sociology, the Educational Resources Center, and the Reading Center and Clinic.
Seibert Administration Building—University administration offices.
Shaw Theatre—The University Theatre presents productions in this 600-seat theatre.
Spraw Tower—Offices of Communications, English, and Languages and Linguistics.
Black Americana Studies Program.
Kurtz Distributive Education Building—Classroom and office space for vocational and distributive education.
Waldo Library—The library’s total collection numbers more than half a million, 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 Bernhard Student Center for physical education classes and recreation.
Ebert Softball Field—A collegiate softball field immediately adjacent to Hyames Field.
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 resilient indoor track.

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

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

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

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

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

Tennis Courts—Twenty asphalt courts in the Ellsworth Hall-Goldsworth Valley area accommodate physical education classes, intramural and recreational sports, and the intercollegiate tennis program.

Davis courts are located on Davis Street below East Hall.

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

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

Waldo Stadium—An intercollegiate football stadium with artificial turf and 25,000 seats. It is used for recreation, intramural activities, and instruction, in addition to competitive athletics.
ADMISSION POLICIES
AND PROCEDURES

Admission Policies

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

Offers of admission made to students still in high school are conditional pending graduation from high school and the University’s review of final senior year grades. Poor performance may result in a change of admission status or withdrawal of the admission offer.

In reviewing applications from prospective transfer students, the University will make decisions on the basis of previous college work (and high school grades if fewer than twenty-six semester hours will be transferred). At least a “C” average in transferable work would be required.

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

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

Admission to Western Michigan University is non-discriminatory.

ADVANCED PLACEMENT PROGRAM (APP)

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

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

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

Admission Procedures

Regular Procedures

FRESHMEN

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

1. Submit an application (available from high school counselors or the WMU Office of Admissions and Orientation) with a nonrefundable $20 application fee;
2. Have their high school send an official copy of their transcript directly to the Office of Admissions and Orientation (transcripts brought or sent by students cannot be accepted). Students still in high school should have a six semester transcript sent;
3. Make arrangements to take the examinations of the American College Testing (ACT) Program with results sent directly to Western Michigan University (ACT College Code 2066). (Note: Students with superior ACT scores may apply through a simplified process. Details will be sent to those who are eligible); and
4. For those who have completed a General Educational Development (GED) Test, submit official GED scores as well as a high school transcript.

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

When to apply

Students should submit applications for fall semester during the fall preceding their enrollment (high school students may apply for freshmen admission after completion of the junior year). Application by January 1 ensures full consideration for scholarships, financial aid, Honors College admission, housing, and orientation. Qualified applicants for fall semester cannot be guaranteed admission after June 1.

Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring session, and June 1 for summer session.

Admission interviews

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

Campus visits

The University recommends that every student make a campus visit to help with college decision making.

The Office of Admissions and Orientation offers four visit options: an early fall Saturday program called Brown and Gold Day which offers sessions on financial aid, Honors College, housing, as well as campus tours, individual departmental advisers, activities representatives, admissions information, and a Bronco football game; on selected dates throughout the academic year, WestFridays, each with a general session, meetings with college advisers, a campus tour, and lunch in a residence hall; Saturday Visits on selected dates during the academic year with a general session, tour of campus, and lunch in a residence hall; and daily campus tours. Students are encouraged to make an appointment with an admissions counselor and/or an adviser during any of these visit options. Students should arrange campus visits with the Campus Visit Coordinator at least ten days in advance.

Notification of status

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

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

Orientation

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

Transfers

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

1. Submit an application (available from community college counseling offices or the WMU Office of Admissions and Orientation) with a $20 nonrefundable application fee;
2. Request that each college attended send an official transcript directly to the Office of Admissions and Orientation at Western (transcripts brought or sent by the student cannot be accepted as official); Applicants currently enrolled at another institution should have a partial transcript sent to Western. A tentative admission decision and partial credit evaluation can be made to
allow for advising and registration. A final transcript showing acceptable grades must be received within ten days of enrollment at Western; and

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

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

When to apply
Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid opportunities. Qualified applicants for fall semester cannot be guaranteed admission after June 1. Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring semester, and June 1 for summer session.

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

Campus visits
Transfer students are encouraged to take advantage of the visit opportunities noted in the freshmen section above.

Notification of status
The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, an admissions decision will be received in writing. The decision may be to admit, to hold for further consideration, or to deny admission.

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

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

Orientation
Transfer students are encouraged to participate in programs just prior to the start of each semester or session that provide an orientation to facilities, general requirements, and services. These programs have been developed with input from past transfer students to meet the needs of students making a successful transfer to a new institution. These sessions do not provide advising.

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

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

The University requires either the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB) for all prospective students whose native language is not English. To qualify for undergraduate enrollment, a prospective student must present a TOEFL “total score” of at least 550 or MELAB “adjusted score” of at least 85 percent. Within certain limits, a prospective student who has achieved less than the minimum score required for unrestricted enrollment will be allowed to register for courses on a restricted basis. The Office of International Student Services will establish and apply the limits and restrictions.

Admission interviews
Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid opportunities. Qualified applicants for fall semester cannot be guaranteed admission after June 1. Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring semester, and June 1 for summer session.

When to apply
Transfer students applying for fall semester should apply before March 1 for fullest advising/registration and financial aid opportunities. Qualified applicants for fall semester cannot be guaranteed admission after June 1. Applicants for other terms should submit all materials no later than December 1 for winter semester, April 1 for spring semester, and June 1 for summer session.

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

Campus visits
Transfer students are encouraged to take advantage of the visit opportunities noted in the freshmen section above.

Notification of status
The University notifies transfers of their admission status on a rolling basis. When all materials are on file and the Admissions Committee acts, an admissions decision will be received in writing. The decision may be to admit, to hold for further consideration, or to deny admission.

Credit Evaluation
Students accepted for transfer to Western will receive an evaluation of their previous college work, showing courses transferred with WMU equivalencies. Course equivalencies for Michigan's public community colleges and other accredited U.S. institutions may be exempted from this requirement, at the discretion of the University's Office of Admissions and Orientation. The Alpha Program is a limited admission program that seeks to provide the opportunity for college level work with academic assistance and support. The program provides academic advising and counseling, alerts students to tutoring services, and ensures attendance at skill building workshops.

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

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

Before the end of each semester, students' grades and progress are reviewed by an Alpha/UNV adviser. All students who have met the contract conditions will be permitted to continue in the program.

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

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

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

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

Before the end of each semester, students' grades and progress are reviewed by an Alpha/UNV adviser. All students who have met the contract conditions will be permitted to continue in the program.

Those who complete the terms of the probationary year will be eligible to continue their college work in good standing.

THE MARTIN LUTHER KING, JR., PROGRAM
The Martin Luther King, Jr., Program is a probationary student development program that has been in existence at WMU since 1968. Named in honor of the late Dr. King, this particular program has the distinction of being the forerunner of similar programs throughout the United States.

Originally designed to encourage "marginal" minority students to pursue a college education, the program provided scholarships and remedial help through a Kellogg Foundation grant. In its present form it is a year-round program, beginning in the freshman year, which seeks to:

1. Encourage students who would not otherwise pursue a higher education to do so.
2. Provide supportive services—such as academic advising, vocational and personal counseling, tutoring, and testing—to meet each individual's needs; and
3. Support students through completion of thirty-six credit hours at the University. Interested students should apply through the regular University admission process for freshman students (a counselor, caseworker, minister, or other person familiar with the family's circumstances may request an application fee waiver). The Office of Admissions and Orientation will notify students eligible for consideration and the program will arrange a personal, on campus testing/screening session to help in making admission decisions.

Students selected for admission, and their parents/guardians, must

1. Sign and return a contract accepting terms of the program, and
2. Complete and mail all financial aid forms.

Program students begin during the WMU seven and one half week summer session. Summer session enrollment allows students to make better adjustments to college and improves the transition from high school. Each student is assigned a peer counselor, a graduate or upperclass student who functions as friend, student evaluator, liaison, and resource person. The counselors and the full time administrative staff work in conjunction with other University departments to provide personal attention and supportive services. The MLK Program does not offer any direct financial assistance to its participants. All WMU students interested in financial assistance must apply through the Office of Student Financial Aid and Scholarships. Awards are made on the basis of need as determined through the applications.

Nontraditional Admission Programs

PERMISSION TO TAKE CLASSES

Students whose education has been interrupted for five years or more may wish to apply for nondegree Permission to Take Classes (PTC) status. Students applying for this status

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

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

Students who have attended another school or college within the past five years may apply for this PTC status, but must also submit transcripts from all colleges and universities attended (and high school if they have completed fewer than 26 transferable college credits or have not attended any college). Admission to PTC status would be determined by review under the same standards used for degree admission. Students admitted through this review would be eligible to enroll in courses for which prerequisites had been met and could enroll in courses for up to a total of 26 hours, providing they remain in good academic standing. Students admitted in this way would also be able to change to degree status at any time, providing they were in good standing at Western. Certain University courses and financial aid may not be available to PTC students. Acceptance to PTC status does not constitute admission to a degree program at Western Michigan University.

QUEST STUDENTS

Students who are currently in attendance and in good academic standing at another college or university may apply to Western Michigan University to take classes as a guest student. Guests should work with their home institution in advance to determine the appropriate classes to be taken at Western. Guest admission does not constitute degree admission. Guest applications are available from the Office of Admissions and Orientation or the Office of the Registrar at all Michigan colleges and universities.

HIGH SCHOOL GUESTS

Students who wish to take courses at the University while still in high school should submit a regular application and a High School Guest Request Form (available from the Office of Admissions and Orientation). Seniors with at least a 3.25 high school grade point average will normally be admitted. Younger students with an outstanding record will be considered for enrollment on a case by case basis. In either instance, admission is as a guest student and does not constitute degree admission. Students who wish to apply for degree admission must be considered under regular admission standards.

PROJECT SCOPE (Senior Citizens' Opportunity Program In Education)

Persons 62 years of age and older may enroll in University classes on a seats available basis without charge. To apply for admission, please follow these guidelines:

1. Students should apply as a Senior Citizen under the regular admission process on the day before classes begin (the application fee will be waived). No student is required to declare himself or herself a Senior Citizen student unless seeking enrollment without charge;
2. As soon as the application is processed, students may complete regular registration, without charge;
3. Students must register their vehicles and pay a student parking sticker or use metered parking; and
4. Students will be eligible to use University libraries and other academic facilities necessary for their academic program; but non academic facilities, such as the Sindecuse Health Center, will not be available.

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

FEES

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

APPLICATION FEE
A non-refundable payment of $15 must accompany each new application for admission as an undergraduate student or for admission to The Graduate College.

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

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

FLIGHT INSTRUCTION
Based on the courses taken, fees range from $250 to $2,000 per course. For specific course fee information, consult the Department of Aircraft and Automotive Engineering.

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

HEALTH FEE
All students* enrolled for:
- 7 or more credit hours per semester, $36.00
- 4 or more credit hours per session, $18.00
- Plus a $15.00 visit fee for each clinician visit.
- Students enrolled for less than 7 hours per semester (4 hours per session) may buy in at $36.00 or be seen on a fee-for-service basis ($15.00 per clinician visit). Students will be assessed $1.00 per credit hour. This fee is included within the hourly tuition rate as described under "Tuition and Fees."

* Not applicable to extension and continuing education students. Student fees are subject to change by action of the Board of Trustees. Partial payments will not be accepted.

LATE REGISTRATION FEE
A late registration fee of $20.00 will be assessed each student who registers after the final day of registration established by the Director of Registration. This fee does not apply to those students completing drop-add procedures, only to students who did not register prior to the first day of classes. This fee is a charge for the special handling required. It is not refundable.

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

ROOM AND BOARD
Cost of room and board in 1989-90 is $1,565* for fall semester and $1,595* for winter semester, per student. The rate for room only in those residence halls that do not provide board is $644* for both fall semester and winter semester, per student. A first payment of $175 to be applied toward room and board payment will be required with the signed contract before a housing assignment is made. Note: *Includes $25 deferred maintenance fee and $6 program development fee.

All prices quoted are on the basis of two or more students per room. Due to the unsettled condition of prices for food, labor, and utilities, the University reserves the right to increase the charge during the year if, in its opinion, such an increase is necessary.

Newly admitted undergraduate students are automatically sent information about residence hall offerings for the semester they anticipate coming to the University. Individuals returning to the University as re-entries, and newly admitted graduate students, will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building. Residence hall accommodations are not automatically made as a result of admission to the University.

STUDENT ASSESSMENT
A student assessment of $4.00 per semester and $2.00 per session will be collected from all students registered for on-campus courses as follows:
- Fall and Winter, $50.00
- Spring and Summer, $25.00

Complete Withdrawal
From All Courses
Students completely withdrawing from all classes must enter this information into the touchtone registration system or by going to the Registrar's office during the official drop/add days in order to process their withdrawal and assure a 100 percent refund.

Students who find it impossible to be on campus to process a complete withdrawal and do not have access to touchtone phones may write to the Registrar's office, Room 3210 Seibert Administration Building, for aid in processing their withdrawal. All written requests for complete withdrawal must bear the appropriate postmark date for consideration of the 100 or 50 percent refund (see Refund Policies).

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

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

Fee Revisions
Fees and costs pertain to the 1988-89 academic year, except as noted, and are subject to change by action of the Board of Trustees. Questions concerning current fee schedules should be directed to the Office of the Controller.
Refund Schedule

FOR COMPLETE WITHDRAWAL OF ALL COURSES

100 percent of the student fees will be refunded through the end of the final day for adding a course.

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

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

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

Refunds

STUDENT FEES
Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund will be granted, in full, for any net reduction in the credit hour load.

After the final day for adding a course, there is no reassessment or refund for reduction in credit hour load. An increase in credit hour load will result in an upward adjustment of the fee assessment.

Residency

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

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

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

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

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

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

6. An alien lawfully admitted for permanent residence in the United States, who has obtained a permanent visa, and the spouse and minor children, who have met the other requirements herein for residence, may register as residents of this state. Please note that the deadline for applying for a change in resident classification is 20 days after the first day of classes for each semester or session. Any questions concerning residency classification should be directed to the Controller's Office, 3082 Seibert Administration Building. Telephone: 387-2366.

Full-Time Student Status

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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall/Winter 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.
FINANCIAL ASSISTANCE AND SCHOLARSHIPS

Western's Student Financial Aid Office administers the Michigan Competitive Scholarship and University scholarship programs, as well as the Pell Grant, Supplemental Educational Opportunity Grant, Michigan Educational Opportunity Grant, Supplemental Western Assistance Grant, federal and state College Work-Study, and long- and short-term loan programs.

The information in this section describes scholarship and financial assistance programs and criteria for the 1989-90 awards. Should state and federal regulations require changes in these programs for the 1989-90 and subsequent award years, the University will be responsible for administering these programs according to updated descriptions and criteria.

The scholarship program at Western Michigan University rewards academic excellence. Beginning freshmen who take part in the annual Medallion Scholarship Competition receive scholarships of $750 to $5,500 a year. A $500 scholarship for beginning freshmen and transfer students is based on grade point average and an associate's degree is automatically considered for an annual $3,000 University scholarship.

University and sponsored scholarships are also available for current students. Application forms for most of these scholarships are available at the Student Financial Aid Office. Students at Western may also apply for scholarships in their field of interest through their academic department. These scholarships are offered by individuals and by local and national industries in recognition of Western's unique contribution to many fields of study.

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

Employment opportunities, both on and off campus, are available to students at Western. On-campus opportunities include regular University employment and College Work-Study employment. Internships provide career-related work experience and may offer summer or part-time employment or may stipulate that the student alternate a semester of work with a semester of school attendance. Information is available from the WMU Student Employment Referral Service and from Western Michigan University departments.

Several kinds of loans are available at Western, including the following long-term loan programs: Perkins Loan, Stafford Loan (formerly Guaranteed Student Loan), Michigan State Direct Student Loan, United Student Aid Fund, Parent Loan, and Supplemental Loan for Students.

The Office of Student Financial Aid and Scholarships also administers the Western Michigan University Short-term Loan Program, which provides emergency funds for WMU students enrolled at least part time.

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

Eligibility for Financial Assistance

The family's ability to contribute to the cost of education affects the amount of aid a student can receive. In determining the amount of the family's expected contribution, the following are taken into account: the parents' adjusted gross income and/or the student's income, Social Security benefits, Aid to Dependent Children benefits, Veterans Administration benefits, social services benefits, the number of family members, the number of family members in college, family debts, and family assets.

Federal Assistance Programs

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

Eligible applicants for federal assistance are:

1. United States citizens or permanent residents who are Michigan residents.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours each academic semester. For the Pell Grant program, students enrolled less than half time should contact Student Financial Aid regarding possible eligibility.
3. Undergraduate students (for the Pell Grant and the Supplemental Educational Opportunity Grant).
4. Undergraduate students (for the Stafford Loan, Perkins Loan, and College Work-Study programs), both undergraduate and graduate students.
5. Students enrolled in a degree-granting curriculum (not under the Permission to Take Classes — PTC — designation).
6. For the Stafford Loan, students enrolled under the Permission to Take Classes (PTC) designation for a one year maximum.

State of Michigan Assistance Programs


Eligible applicants for State of Michigan assistance are:

1. United States citizens or permanent residents who are Michigan residents.
2. Students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours each academic semester.
3. Undergraduate students. For the Michigan Adult Part-Time Grant program, students enrolled for three to eleven hours a semester.
4. Students who are enrolled in a degree-granting curriculum (not under the Permission to Take Classes — PTC — designation).

Western Michigan University Assistance Programs

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

Eligible applicants for University assistance are:

1. For the Supplemental Western Assistance Grant and the Educational Opportunity Program grant, U.S. citizens or permanent residents. For the Nontraditional Student Scholarship, U.S. citizens or permanent residents who are Michigan residents.
2. For the Supplemental Western Assistance Grant, students enrolled full time, carrying a minimum of twelve undergraduate or nine graduate credit hours each academic semester.
3. For the Educational Opportunity Program grant, students enrolled full time, carrying twelve undergraduate or nine graduate credit hours each academic semester.
4. students enrolled part time for three to eleven undergraduate credit hours or two to six graduate credit hours during the fall and
**FINANCIAL ASSISTANCE AND SCHOLARSHIPS**

winter semesters; and students enrolled part time for two to five undergraduate hours or one to three graduate hours during the spring and summer sessions.

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

4. For the Educational Opportunity Program, minority students.

Guidelines also require that students applying for federal, state, or University financial assistance programs make satisfactory academic progress at the institution where they will receive the aid.

**Financial Assistance Procedures**

To apply for a:

- Pell Grant, Supplemental Educational Opportunity Grant, Stafford Loan (formerly Guaranteed Student Loan), Perkins Loan, College Work-Study Program, Michigan Educational Opportunity Grant, Michigan Competitive Scholarship, Michigan Adult Part-time Grant, Michigan College Work-Study Program, Supplemental Western Assistance Grant, or Educational Opportunity Program Grant, students must submit the Family Financial Statement to the American College Testing (ACT) service. This form is available from high school principals and counselors, from Western's Student Financial Aid Office, or from any other higher education institution.

- Students who submit the Family Financial Statement to the ACT processor by March 1 of the year preceding the award year will receive priority consideration for campus-based funds, which include:
  - Supplemental Educational Opportunity Grant (SEOG), Michigan Educational Opportunity Grant (MEOG), Educational Opportunity Program Grant (EOP), Supplemental Western Assistance Grant (SWAG), federal and state work-study programs, and the Perkins Loan.

- Pell Grant—Students who authorize their Family Financial Statement to be forwarded to the Pell Grant processor will receive, within four to six weeks, the Student Aid Report. Students need to submit their Student Aid Report to the Student Financial Aid Office as soon as possible.

- Stafford Loan (formerly Guaranteed Student Loan)—Students who authorize their Family Financial Statement to be forwarded to the Michigan Guaranteed Student Loan Authority and who complete the Stafford Loan questions on the Family Financial Statement need not secure a Stafford Loan application from a lender.

- They should, however, complete a Stafford Loan-Guaranteed Student Loan Request Form, available from the Student Financial Aid Office.

- Michigan Competitive Scholarship—Students who authorize their Family Financial Statement to be forwarded to the Michigan Competitive Scholarship program and who meet the eligibility criteria will be notified of their scholarship award by the Michigan Competitive Scholarship program.

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

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

To complete their files, applicants must submit:

1. The application form for the grant, loan, employment, or scholarship program listed above.

2. The WMU Certification Form available from the Student Financial Aid Office.

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

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

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

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

On March 1 of each year, the Student Financial Aid Office will begin awarding funds to students whose Family Financial Statement is postmarked to ACT, Iowa City, Iowa, by March 1 of the year preceding the award year.

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

**Financial Assistance Programs**

**Pell Grant**

This program entitles eligible undergraduate students to grants of $200 to $2,300 for each academic year.

The student’s Pell Grant Student Aid Index (SAI) number, the cost of education figure, and the number of hours for which the student registers (half time, three-quarter time, or full time) determine the amount of the student’s Pell Grant.

Students whose financial situation has recently changed for the worse because of illness, death, divorce, separation, or loss of income should file an appeal with Western’s Student Financial Aid Appeals Committee. The student should write a letter to the appeals committee stating the situation and should attach documentation such as proof of costs and letters of verification from counselors, doctors, clergy, instructors, or family members.

**Supplemental Educational Opportunity Grant**

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

**Michigan Educational Opportunity Grant**

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

**Michigan Competitive Scholarship Program**

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

**Michigan Adult Part-time Grant**

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

**Supplemental Western Assistance Grant**

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

**Educational Opportunity Program**

This Western Michigan Undergraduate grant provides up to $800 for the fall and winter semesters to exceptionally needy undergraduate and graduate students. Recipients must be minority students.

**College Work-Study**

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

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

Students work from eight to twelve hours a week while attending school and may earn up to $1,800 for the academic year.

**Michigan College Work-Study**

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

The WMU Student Employment Referral Service places students awarded Michigan College Work-Study in jobs across the
University. When possible, students select jobs related to their degree programs or interests. Students work from eight to twelve hours a week while attending school and may earn up to $1,800 for the academic year.

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

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

Note that:
1. Fifteen percent of the loan (principal and interest) may be canceled for each year that the student teaches full-time in the Headstart Program, up to the whole loan amount.
2. The student's loan can be canceled at the rate of 12 1/2 percent for each complete year of service in the Armed Forces of the United States (in an area of hostility that qualifies for special pay) up to 50 percent of the loan amount.
3. The student's total disability or death cancels the loan.
4. The student may defer payment up to three years for service:
   - In the Armed Forces (Army, Navy, Air Force, Marine Corps, or Coast Guard),
   - As an officer on full-time duty in the commissioned corps of the U.S. Public Health Service,
   - As a volunteer under the Peace Corps Act,
   - As a volunteer under the Domestic Volunteer Service Act of 1973, and
   - As a full-time volunteer in a tax-exempt organization performing service comparable to service performed in the Peace Corps, and when temporarily totally disabled or unable to secure employment because of providing care required by a spouse who is disabled.

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

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

The Michigan State Direct Student Loan is, in effect, a guaranteed student loan from the State of Michigan. The application process and form are the same as for the Stafford Loan; the difference is that instead of hometown lenders, the state issues the funds. The Michigan guarantee agency has also provided to Michigan schools a list of lenders who are participating as Lenders of Last Resort for the Stafford Loan and for the loan programs not based on need (the Parent Loan and the Supplemetnal Loan for Students programs). Application forms/promissory notes, which include the names and lender code numbers of the Michigan Lenders of Last Resort, have been provided to Michigan schools. Students may contact the Student Financial Aid Office for further information.

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

Refund Policy
If the University has granted a student a refund for withdrawing from classes or moving off campus, and if financial assistance has been applied against the student's University charges:
1. The amount of the refund will first be applied against any outstanding balance the student owes to the University.
2. Should any funds remain, the Student Financial Aid Office will first determine whether those funds must be used to repay financial assistance already applied to the student's University account or refunded to the student. The office will also determine whether the student will owe additional repayment of the financial assistance programs.
3. If funds still remain, the student will receive a refund.

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

Federal and WMU Loan and Employment Opportunities Not Based on Need
Federal opportunities include: Parent Loan (PLUS), Supplemental Loan for Students (SLS), and Paul Douglas Teacher Scholarship programs.

Eligible applicants for federal opportunities include:
1. U.S. citizens or permanent residents.
2. Students who are not in default on student loan payments and who do not owe grant refunds.
3. For the Parent Loan (PLUS) and the Supplemental Loan for Students (SLS) programs, students enrolled at least half time, carrying a minimum of six undergraduate or four graduate credit hours a semester (fall/winter), and three undergraduate or graduate credit hours a session (spring/summer).
4. For the Paul Douglas Teacher Scholarship program, students who are enrolled full time, and students who have graduated or who will graduate in the top ten percent of their high school class. (Students who have earned a GED may also apply.) Applicants must be U.S. citizens or permanent residents who are Michigan residents.
5. For women and men who are members of the Armed Forces a variety of educational assistance programs is available.

WMU opportunities include: Student Employment Reference Service, Professional Practice Services, the Academic Management Services Plan, and the WMU Short-Term Loan Program.

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

Non-Need Based Opportunities

Loans

Supplemental Loan for Students

- Self-supporting graduate and undergraduate students who are not eligible for a Stafford Loan (formerly Guaranteed Student Loan) or for a Supplemental Loan for Students. Also, dependent students whose parents are unable to provide sufficient information for a Stafford Loan.

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

Students must also submit a Family Financial Statement and complete their financial aid file at Western Michigan University.

Parent Loan

- Parents of dependent undergraduate and graduate students who do not qualify for the Stafford Loan (formerly Guaranteed Student Loan) or the Michigan State Direct Student Loan may apply for a Parent Loan.

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

Payment Plan

The Academic Management Services Plan allows parents and students to pay tuition, fees, and on-campus housing costs on a monthly basis. The plan is designed for parents interested in payment plans and may be renewed annually for $45. Contact AMS toll free at 1-800-556-6684 or write: Academic Management Services, incorporated, 1110 Central Avenue, P.O. Box 1000, Pawtucket, Rhode Island 02862-1000.

Manufacturers Hanover Educational Finance Programs offers two plans which provide funds that parents must repay on a monthly basis.

The annual percentage rate is 15.95. There are no other charges.

For information on the Tuition Plan call 1-800-258-3640. For information on the Educational Line of Credit, call 1-800-MHT-GRAD. Or write Manufacturers Hanover, 100 Duffy Avenue, Hicksville, New York 11801.

WMU Short-Term Loan Program

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

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

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

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

- A.A.U.W. Graduate Social Work Fund
- A.A.U.W. Nursing Student Loan Fund
- Alpha Epsilon Pi Chapter, Loan Fund
- Alumni Short-Term Loan Fund
- A. Robert Anderson Memorial Loan Fund
- Associated Women Students Loan Fund
- AUSCO Loan Fund
- Fannie Hallam Loan Fund
- Robert H. Harr Loan Fund
- John L. Baxdell Memorial Loan Fund
- Amelia Biscoe Memorial Loan Fund
- William R. and Emma Wales Brown Student Loan Fund
- Ernest Burnharn Rural Loan Fund
- Chapman Student Loan Fund
- Class of 1936 Loan Fund
- College of Applied Sciences Loan Fund
- Communications, Arts and Sciences Loan Fund
- Dorothy Dalton Loan Fund
- Delta Kappa Gamma Alpha Pi Loan Fund
- Delta Sigma Theta Loan Fund
- Vlada and Irene Dimara Loan Fund
- The Gordon and Ferne Elferdink Loan Fund
- Frank Fritzinger Memorial Loan Fund
- Michael Finley 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. Herold Home Economics Loan Fund
- Deldee M. Herman Debate Loan Fund
- HiLites Buyers Guide Loan Fund
- John C. Hoekje Loan Fund
- Honors College Loan Fund
- Home Economics Memorial Loan Fund
- Donald Huizenga Memorial Loan Fund
- Inter-Fraternity Council Loan Fund
- Frank Fritzinger Memorial Loan Fund
- Frewin W. James Loan Fund
- Rev. B. Moses James Memorial Loan Fund
- John Jenkins Memorial Loan Fund
- Walter Larry Jenkins Memorial Loan Fund
- Gordon O. Johnson Loan Fund
- Kalamazoo Areas 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
- Kiwanis Educational Aid Fund
- The Dr. Radford Kuykendall Memorial Loan Fund
- Alice Louise Leefve Memorial Fund
- Elizabeth E. Lichy Loan Fund
- Marvef P. Liddy Student Loan Fund
- David E. Ling Memorial Loan Fund
- Larry G. Lochter Memorial Fund
- M. Deyena Loutzenhiser Short Term Loan Fund
- Rayth W. Lower Loan Fund
- Charles H. Maher Loan Fund
- R. G. Maboy Loan Fund
- Mildred Maloney Memorial Loan Fund
- Jean G. Mainstock Loan Fund
- Mathematics Faculty Memorial Loan Fund
- William McClellan Memorial Loan Fund
- Chemistry
- Mexican-American Loan Fund
- Migrant Student Loan Fund
- Frederick W. Memorial Loan Fund
- Frederick W. Miholch Memorial Fund

For information on the Tuition Plan call 1-800-258-3640. For information on the Educational Line of Credit, call 1-800-MHT-GRAD. Or write Manufacturers Hanover, 100 Duffy Avenue, Hicksville, New York 11801.

WMU Short-Term Loan Program

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

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

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

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

- A.A.U.W. Graduate Social Work Fund
- A.A.U.W. Nursing Student Loan Fund
- Alpha Epsilon Pi Chapter, Loan Fund
- Alumni Short-Term Loan Fund
- A. Robert Anderson Memorial Loan Fund
- Associated Women Students Loan Fund
- AUSCO Loan Fund
- Fannie Hallam Loan Fund
- Robert H. Harr Loan Fund
- John L. Baxdell Memorial Loan Fund
- Amelia Biscoe Memorial Loan Fund
- William R. and Emma Wales Brown Student Loan Fund
- Ernest Burnharn Rural Loan Fund
- Chapman Student Loan Fund
- Class of 1936 Loan Fund
- College of Applied Sciences Loan Fund
- Communications, Arts and Sciences Loan Fund
- Dorothy Dalton Loan Fund
- Delta Kappa Gamma Alpha Pi Loan Fund
- Delta Sigma Theta Loan Fund
- Vlada and Irene Dimara Loan Fund
- The Gordon and Ferne Elferdink Loan Fund
- Frank Fritzinger Memorial Loan Fund
- Michael Finley 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. Herold Home Economics Loan Fund
- Deldee M. Herman Debate Loan Fund
- HiLites Buyers Guide Loan Fund
- John C. Hoekje Loan Fund
- Honors College Loan Fund
- Home Economics Memorial Loan Fund
- Donald Huizenga Memorial Loan Fund
- Inter-Fraternity Council Loan Fund
- Frank Fritzinger Memorial Loan Fund
- Frewin W. James Loan Fund
- Rev. B. Moses James Memorial Loan Fund
- John Jenkins Memorial Loan Fund
- Walter Larry Jenkins Memorial Loan Fund
- Gordon O. Johnson Loan Fund
- Kalamazoo Aeras 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
- Kiwanis Educational Aid Fund
- The Dr. Radford Kuykendall Memorial Loan Fund
- Alice Louise Leefve Memorial Fund
- Elizabeth E. Lichy Loan Fund
- Marvef P. Liddy Student Loan Fund
- David E. Ling Memorial Loan Fund
- Larry G. Lochter Memorial Fund
- M. Deyena Loutzenhiser Short Term Loan Fund
- Rayth W. Lower Loan Fund
- Charles H. Maher Loan Fund
- R. G. Maboy Loan Fund
- Mildred Maloney Memorial Loan Fund
- Jean G. Mainstock Loan Fund
- Mathematics Faculty Memorial Loan Fund
- William McClellan Memorial Loan Fund
- Chemistry
- Mexican-American Loan Fund
- Migrant Student Loan Fund
- Frederick W. Memorial Loan Fund
- Frederick W. Miholch Memorial Fund

Muskegon County Retired Teachers Association Loan Fund
- Charles S. Nichols Memorial Loan Fund
- Occupational Therapy Fund
- Omnibus Loan Fund
- Dr. Gerald Osborn Memorial Loan Fund
- Panhellenic (Grand Rapids) Loan Fund
- Panhellenic (Detroit) Loan Fund
- Panhellenic WMU Council Loan Fund
- Truman A. Pascoe Memorial Fund
- Ray C. Pellet Memorial Loan Fund
- PIMA (Michigan Division) Loan Fund
- Archie S. Potter Memorial Fund
- Douglas V. Ratcliffe Memorial Loan Fund
- Nellie R. Reid Memorial Loan Fund
- Raleigh A. and Vivianne C. Robinson Memorial Loan Fund
- Evalyn Underwood Rogers Loan Fund
- Dr. Mike L. Sebay Short Term Loan Fund
- Rotary Student Loan Fund
- Marian L. Siegel Memorial Loan Fund
- Marion J. Sherwood Memorial Fund
- Katherine Shuer Loan Fund
- Sigma Phi Omega Bob Hamilton Memorial Fund
- Sigma Tau Gamma Memorial Loan Fund
- James N. Sleep Memorial Loan Fund
- Dorotha Sage Snyder Loan Fund
- J. Towner Smith Loan Fund
- R. Franklin Smith Memorial Loan Fund
- Southwestern State Employees' Credit Union Loan Fund
- Marion R. Spear Occupational Therapy Fund
- George Sprau Loan Fund
- Kenneth S. Squires Memorial Loan Fund
- Mr. and Mrs. J. Fred Staley Fund State D.A.R. Scholarship Loan Fund
- Helen Statler Fund
- Elaine Louise Stevenson Student Loan Fund
- Stone D.A.R. Student Loan Fund
- Ron Strawser Memorial Student Loan Fund
- Student Loan Fund
- Student Service Emergency Loan Fund
- Marion Tamin Memorial French Loan Fund
- TAPPI (Kalamazoo Valley Section) Loan Fund
- Adrian Trimple Distributive Education Loan Fund
- C.N. Van Deventer Loan Fund
- University Davies of WMU Loan Fund
- Dr. Partes Van Riper Speech Pathology and Audiology Loan Fund
- Waldo-Feather-Frazier Loan Fund
- Dwight B. Waldo Memorial Fund
- Walter Wegerly Scholarship Fund
- James A. Welch Foundation Loan Fund
- Mary Howe Watt Student Loan Fund
- Helen and Bernard Wesberg Loan Fund
- WMU Language Department Loan Fund
- WMU Paper Technology Alumni Association Loan Fund
- WMU Parents Association Loan Fund
- WMU Southern California Alumni Loan Fund
- Howard Wolpe Loan Fund
- W. Dean Worden Loan Fund
- Crystal Womer Memorial Fund

Paul Douglas Teacher Scholarship Program

This federally funded program provides college scholarships to outstanding high school graduates to enable and encourage them to pursue teaching careers at the pre-school, elementary, or secondary school level. The maximum award is $5,000 a year, not to exceed the cost of attendance. The college budgets established for determining eligibility in the Michigan Competitive Scholarship Program will be used to determine the maximum award. Preference for awards will be given to students who demonstrate need, but the amount of the award will not be restricted to need. Awards are limited to four years of undergraduate eligibility.

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

Employment

WMU Student Employment Referral Service

The WMU Student Employment Referral Service actively recruits both on- and off-campus employment opportunities. Students may review the jobs listed with the service in room A-100, Ellsworth Hall. Openings include food service and clerical positions of all levels, retail sales positions, and technical positions requiring computer science skills.

Regular University Employment

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

Residence Hall Adviser Positions

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

Residence Hall Assistant Director Positions

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

Professional Practice Services

This service offers a variety of career-related employment opportunities. The service helps students find an existing co-op/internship program or design a program on their own and contact prospective employers. Internships may offer summer or part-time employment or may stipulate that the student attend a seminar with a semester of school attendance. Professional Practice Services offers both paid and unpaid internships.

Students may request help from Professional Practice Services by visiting the WMU Student Employment Referral Service in A-100, Ellsworth Hall.

Some University departments offer co-op/internship programs similar to those offered through Professional Practice Services; interested students may contact their department advisers and chairpersons.

U.S. Armed Forces Programs

The United States Armed Forces offers women and men a variety of educational assistance programs:

- The Split Training Option allows eligible high school students to attend basic training the summer after their junior year and to return for advanced individual training the summer after high school graduation. The student may then become a member of the Reserve/National Guard and while attending college receive $140 a month in addition to reserve/guard pay.
- The G.I. Bill for Reservists/National Guardsmen provides $5,040 over thirty-six months.
- The Unit Enrollment Reserve Bonus pays up to $2,000 to those who will take certain critical skills jobs upon enlistment.
- The Student Loan Repayment Program repays the student's Stafford Loans (formerly Guaranteed Student Loans).
- The Tuition Assistance Program repays 75 percent for individual classes.

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

WMU Scholarship Programs

Prestigious University Scholarships

Western Michigan University awards scholarships on the basis of academic achievement. Financial need is not a criterion. Prestigious University scholarships include: the Medallion Scholarship, the WMU Board of Trustees Scholarship, and the WMU Academic Scholarship for Beginning Freshmen, all of which are awarded through the Medallion Scholarship Competition. Other prestigious scholarships are: the WMU Award for National Merit Winners, the Higher Education Incentive Scholarship, the WMU Academic Achievers Award, the WMU Distinguished Community College Scholars Award, the WMU Community College Presidential Scholarship, the WMU Academic Scholarship for Transfer Students, the WMU Academic Scholarship for Currently Enrolled Students, and the WMU Underground Research and Creative Activities Award.

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

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

WMU Scholarships for Beginning Freshmen

Medallion Scholarship Competition Program

Through the Medallion Scholarship Competition, the Scholarship Committee selects recipients of the Medallion Scholarship, the WMU Board of Trustees Scholarship, the WMU Tuition Scholarship, and the WMU Academic Scholarship. WMU invites high school seniors who have earned a grade point average of 3.70 as computed by Western to participate in the competition. High school seniors who have a grade point average of 3.5 as computed by Western and an ACT score of 30 or above may also be selected to participate. The Scholarship Committee also considers extracurricular activities, employment history, and volunteer work.

Competition participants must apply for admission to WMU by January 10 of their senior year of high school. Each competition participant receives either the Medallion Scholarship, the WMU Board of Trustees Scholarship, the WMU Tuition Scholarship, or the WMU Academic Scholarship.

Medallion Scholarship

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

Medallion scholars receive $22,000, awarded $5,500 each year of a four-year degree program at Western Michigan University. For 1989-90, Western awarded thirteen Medallion Scholarships.

Some Medallions carry the name of the donor and are awarded to students entering programs designated by the donor; others are open to students in all degree programs.

WMU Board of Trustees Scholarship

Western Michigan University awards ten Board of Trustees Scholarships each year to beginning freshmen who have not previously enrolled in a post-secondary institution. This scholarship has a current value of $12,000; $3,000 is awarded each academic year.

WMU Tuition Scholarship

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

WMU Academic Scholarship

Recipients of this $3,000 scholarship receive $750 for each academic year.

Additional Scholarships for Entering Freshmen

WMU Award for National Merit Scholarship Winners

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

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

Higher Education Incentive Scholarship

Western Michigan University awards ten Higher Education Incentive Scholarships each year to beginning freshmen who have not previously enrolled in a post-secondary institution.

This special scholarship for minority students has a current value of $12,000; $3,000 is awarded each academic year. To be eligible, students must have a high school grade point average of 3.5 or above. The HEIS Scholarship Committee also
22 FINANCIAL ASSISTANCE AND SCHOLARSHIPS

considers the student’s extracurricular activities, employment history, and volunteer work.

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

WMU Academic Achievers Award

This one-year freshman award of $500 honors outstanding academic achievement in high school. Criteria include a high school grade point average of 3.5 or above as computed by Western Michigan University, Michigan residency, and graduation from a Michigan high school. To be eligible, students must be admitted to Western. The high school transcript, which the student submits to the Office of Admissions and Orientation during the admissions process, provides the basis for selection.

Sponsored Scholarship for Beginning Freshmen

Edwin and Adelaide Steffen Scholarship

funds are provided from an endowment which the Steffens established to recognize students who have graduated at Saginaw, Arthur Hill, Decatur, and La’Anre high schools. Entering freshmen may apply for this $500 one-year award after being admitted to Western. The scholarship is based on financial need and a minimum high school grade point average of 3.00.

WMU Scholarships For Currently Enrolled Students

WMU Undergraduate Research and Creative Activities Award

The University Undergraduate Research and Creative Activities Award Program, administered by the Honors College, is designed to encourage and nurture research and creative activities by outstanding students at Western Michigan University. An essential feature of the Undergraduate Research and Creative Activities Award Program is the apprentice/mentor relationship established between a student and faculty member. A suitable project can come from any area of academic endeavor at the University. It could include, but would not be limited to, research, development, design, field study, a creative project or performance. Normally the project should require approximately 150 hours (or ten hours per week) of the student’s time over one semester. Additional funds are available for a second semester renewal application. The applicant must be a Western Michigan University undergraduate, should have a grade point average of at least 3.3, and typically have accumulated at least 60 credit hours at the time the project will begin. The program awards a $1,200 stipend for the fall semester. An award may be renewed once if there is sufficient justification. While the program is administered by the Honors College, the student does not need to be a member of the Honors College in order to qualify for an award. The selection of awardees will be based on the past academic performance of the student, the experience and expertise of the sponsoring faculty member, and the merits of the proposed project.

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, occupational experiences, financial need, and social and cultural interests. The dean of each college must recommend applicants for this scholarship.

David and Priscilla Morris Scholarship

This scholarship pays WMU tuition and fees for extremely needy undergraduate students. For application details, students may write the scholarship area of Student Financial Aid or may make an appointment to see a Student Financial Aid counselor.

WMU Academic Scholarship

Currently enrolled Western students whose University grade point average is 3.25 or above are eligible to apply for this $500 fall/winter semester award. Western awards 4.0 grade point averages and continues awarding down to 2.5. Grade point average as long as funds are available.

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

Elizabeth Durand Hebben Scholarship

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

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

Clifford and Ella Chapman Distinguished Senior Scholarship

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

WMU students who have achieved senior classification and have a grade point average of 3.5 or above may apply for a $200 winter semester award. The selection committee also weighs extracurricular and community service activities, and the honors and awards the student has earned while enrolled at Western. Students whose extracurricular activities have been limited because of employment while attending WMU should also include their work history.

Applicants must be United States citizens or permanent residents.

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

WMU College and Departmental Scholarships

Military Science

Military Science R.O.T.C. Scholarships—Three- and two-year scholarships are available to qualified male and female students. Each scholarship provides full tuition, student and lab fees, a flat rate for books, and a subsistence allowance of $100 a month (up to $1,000) while school is in session. It is not a requirement to be enrolled in ROTC to apply for a scholarship.

General qualifications are as follows: The student must be a U.S. citizen, be enrolled as a regularly matriculated student in any major course of study leading to a baccalaureate degree, meet medical requirements, be at least seventeen years of age by October 1 of the year of enrollment as a scholarship cadet and be under twenty-five years of age on June 30 of the calendar year in which the individual is eligible for appointment in the regular Army (there are extensions to this age if granted to veterans), be of good moral character, and have a favorable National Agency check.

Scholarship boards begin in January of each year and are normally closed on February for two-year scholarships, and around mid-April for three-year scholarships. Contact the Department of Military Science at 387-8120.
Military Science Grants—All advanced-course R.O.T.C. cadets receive $100 a month while school is in session (up to $1,000).

Military Science Awards—The University President's Award is presented annually to the Cadet Corps Commander. Academic and Military Achievement Awards are presented to outstanding cadets in each class year group. The outstanding Summer Camp Award is presented to the Western Michigan University cadet achieving the highest score at the annual R.O.T.C. Summer Camp.

College of Arts and Sciences

College of Arts and Sciences Merit Scholarships—The College of Arts and Sciences, from gifts to the Annual Fund of the University, offers merit scholarships for outstanding undergraduate students. Merit scholarships recognize and honor extraordinary students with unique abilities, exceptional aptitudes, unusual talents, and achievements beyond their grade point average. Three annual awards of $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 be enrolled in a curriculum and major in the college, have at least sophomore standing (twenty-six credit hours) at the time of application (transfer students must have completed a minimum of twenty-one hours at WMU at time of application) and no more than ninety-eight hourstoward their degree at the time of application. No other WMU scholarship will be considered. These awards are one-year awards. Announcements of the scholarships and application dates will be made in January of each year.

Biological Sciences

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

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

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

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

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

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

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

Chemistry

The Willian McCracken Award—Named in honor of the first head of the chemistry department, is given to a senior who, in the opinion of the chemistry staff, has shown the greatest aptitude in the field of basic chemistry. The American Institute of Chemists Award—This award is given to a senior majoring in chemistry who has demonstrated scholastic achievement, leadership, and character. The Merck Index Award—This award is given to an outstanding senior in chemistry who has a good record in the laboratory. The Analytical Award—Sponsored by the American Chemical Society, is given to a junior who is outstanding in chemical laboratory. The Adh Kanai I Award— Named in memory of a former faculty member, is given to an outstanding junior in physical chemistry, who has a high cumulative GPA in chemistry courses. The Jensen Award—This award is drawn from contributions from the Jensen family, is given to a sophomore or junior majoring in chemistry with the basis of academic merit and active involvement in the activities of the department. The CRC Press Freshman Chemistry Achievement Award—This award is given to a freshman for outstanding academic achievement in general chemistry.

Economics

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

English

The George Sprau Award in English—This award is given to the senior English major with the highest grade point average. The Frederick J. Rogers Memorial Shakespeare Award—The award will normally be given at the end of the academic year in April. The award is available to any student in good standing who has been enrolled in any class studying Shakespeare's work offered by the Department of English that semester or the preceding spring or summer sessions. The award may be given for an essay written on some aspect of Shakespeare's work and is presently valued at $100. Students or others with questions regarding the award may contact the chair of the English Department.

Environmental Studies

The Environmental Studies Scholarship—This $300 annual award, made possible by WMU recycling efforts, is open to environmental studies majors who have completed Environmental Studies 110 and at least two required classes in the concepts component. Applicants must exhibit 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 geophysics are available in variable amounts. Senior Honor Awards in geology, earth science, and 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 or senior status who plans to enroll in a 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 history department 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.

FINANCIAL ASSISTANCE AND SCHOLARSHIPS 23
Section in order to be considered for this scholarship:

- Travel/Study Abroad Award—To encourage more foreign language students to travel and study abroad, and all students of $500 each will be granted annually by the Department of Languages and Linguistics.

Requirements to receive the award:

- Must have completed at least two of these courses.
- Must have an academic record of 3.25 or better.
- Must be a declared major or minor in the department.
- Must have submitted an acceptable individual project to be pursued during the travel and study abroad.

Departmental section awards—The following awards are presented annually by the individual sections of the Department of Languages and Linguistics:

- French—the Prix d’Honneur, for the best work in the French course in France (given by the French Embassy to the outstanding student of French in the graduating class);
- Spanish—the Herb B. Jones Award for Excellence in Spanish;
- Latin or Greek, as selected by the faculty of the classics section of the department.

Mathematics and Statistics

- The Senior Award is given to the senior major judged by the Department of Mathematics and Statistics to have exhibited the highest proficiency and promise in mathematics and statistics.
- The Grover Bartho Memorial Scholarship—This scholarship is awarded annually to the outstanding junior major.
- The Dr. John P. and Nora Everett Award—Annual prizes are awarded to seniors showing outstanding promise as teachers of secondary school mathematics.
- Annual prizes are awarded to freshmen and sophomore students scoring the highest on a competitive examination in mathematics and statistics.
- Freshman Scholarship Award—A scholarship presented to any freshman or sophomore in the Department of Mathematics or Statistics.
- The Robert F. Friedmann Philosophy Prize—This award was established in memory of Dr. Robert F. Friedmann by the faculty member in the Department of Political Science who died in 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. 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. His teaching and research focused on international relations and the Soviet Union and Eastern Europe.

Academic performance and contributions to German-American understanding will be considered in the selection of the student to receive the award.

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

- The Charles J. Wilcox Memorial Award—This award, made possible by family and friends of a physics graduate student, is given to outstanding graduating seniors majoring in physics.
- Copies of A Handbook of Chemistry and Physics are awarded annually to the best students completing the sequence of calculus-based introductory physics courses.

Political Science

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

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

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

Mark Dennenfeld Memorial Endowed Scholarship—An endowed scholarship in memory of Mark Dennenfeld, a graduate of the Department of Political Science, who died in 1985.

Howard Wolpe Associate Professorship or Scholarship—An annual award available to seniors majoring in political science who have met the basic requirements of, and demonstrated superior academic performance at, WMU, and compiled a record of community service and service to others. The fund that supports the scholarship award was established in memory of Dr. Howard Wolpe, a United States citizen and, preferably, residents of the State of Michigan. Students must have demonstrated overall academic excellence at Western Michigan University and a general interest in political science. The award was established by Congressman Howard Wolpe, who endowed the Howard Wolpe Fund for the Study of Politics, which supports the award.

Psychology

- Departmental apprenticeships and assistantships—The Department of Psychology offers undergraduate teaching apprenticeships and undergraduate practicum assistantships to advanced undergraduate students demonstrating academic excellence and
Haworth College of Business

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

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

Crowe, Chizek & Company Scholarship—To be awarded to a junior or senior majoring in accounting, with a grade point average of at least 3.5. Application forms can be obtained from the Department of Accountancy.

The Gamma Tau Chapter of Alpha Kappa Psi—A scholarship awarded annually to a student majoring in accounting who has demonstrated leadership ability within the Department of Accountancy. The recipient is a member of Alpha Kappa Psi.

The Ann C. Mountjoy Memorial Scholarship—A scholarship awarded annually to an outstanding minority student majoring in accounting.

GPA. The Gamma Tau Chapter of Alpha Kappa Psi—A scholarship awarded to the individual who has been enrolled in any curriculum in the Haworth College of Business for at least one year. The recipient must have a grade point average of at least 3.0 and a minimum of 30 hours of college work.

The Jeffrey Robideau Award for Meritorious Achievement in Management—This scholarship is given to a student majoring in management who has demonstrated outstanding achievement in management. The recipient must have a grade point average of at least 3.5.

The Jeff Robideau Award for Meritorious Achievement in Management—This scholarship is given to a student majoring in management who has demonstrated outstanding achievement in management. The recipient must have a grade point average of at least 3.5.

The Zonta Scholarship—A scholarship awarded annually to a student majoring in accounting who has demonstrated outstanding leadership ability within the Department of Accountancy. The recipient must have a grade point average of at least 3.5.

The Distinguished Service Award for the Department of Management—This award, funded by an endowment, is given annually to a student majoring in management who has demonstrated outstanding leadership ability within the Department of Management. The recipient must have a grade point average of at least 3.5.

The William J. Maze, Jr., Beta Alpha Psi Award—To be awarded to a student majoring in accounting who has demonstrated outstanding leadership ability within the Department of Accountancy. The recipient must have a grade point average of at least 3.5.

The Zonta Scholarship—A scholarship awarded annually to a student majoring in accounting who has demonstrated outstanding leadership ability within the Department of Accountancy. The recipient must have a grade point average of at least 3.5.

The Gamma Tau Chapter of Alpha Kappa Psi—A scholarship awarded annually to a student majoring in accounting who has demonstrated outstanding leadership ability within the Department of Accountancy. The recipient must have a grade point average of at least 3.5.

The Zonta Scholarship—A scholarship awarded annually to a student majoring in accounting who has demonstrated outstanding leadership ability within the Department of Accountancy. The recipient must have a grade point average of at least 3.5.
Marketing, Haworth College of Business by January 31. Final selection will be made by the board of directors of the Southwestern Michigan Association of Purchasing Management.

Four Advertising scholarships are awarded annually during the winter semester for the following academic year to a declared advertising major who has completed fifteen 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. Marketing/Advertising Round Table (MART) Scholarship—The Marketing/Advertising Round Table (American Advertising Federation) offers a $500 award.

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

GFV Communications Scholarships—One or more scholarships at $1,000 each. Criteria: Majors in Advertising, General Marketing, Industrial Marketing, or Retailing at Western Michigan University; demonstrated dedication and proficiency in the chosen field; two recommendations from Marketing Department faculty, college transcript, written narrative on the reasons for pursuing this career path, career objectives, and a brief autobiography; proven leadership skills; and an interview by a GFV Communications representative.

Robert B. Trader Marketing Scholarship—One scholarship of at least $200 per year. Criteria: Majors in Advertising, General Marketing, Industrial Marketing, or Retailing; completion of 55 semester hours; minimum course load of 12 semester hours; cumulative GPA of 3.0; participation in University and community activities; related work experience.

College of Engineering and Applied Sciences

College of Engineering and Applied Sciences Scholarship—A limited number of scholarships are 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 available through donations of alumni and friends of the University. Apply to the College of Engineering and Applied Sciences.

The George E. Kohrman Scholarship—The George E. Kohrman Scholarship is designed to recognize a full-time student who is majoring in one of the curriculums in the College of Engineering and Applied Sciences and who is completing the final year of his or her bachelor’s degree. Eligible candidates must have at least a 3.25 grade point average in all course work approved to reach senior status. Other factors which will be considered are special aptitudes in one of the technological areas of the College, financial need of the candidate, demonstrated leadership ability and participation in school or community activities. One-half of the $1,500 scholarship shall be awarded at the beginning of the fall semester and the balance at the beginning of the winter semester. Application for this scholarship award should be made to the College Scholarship Committee.

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

Agriculture

Lee O. Baker Scholarships—Named to honor the former chairman of Western’s agriculture department, these scholarships are available to agriculture majors selected on the basis of academic record, financial need, leadership, work experience, and participation in school and community activities. Stipend amounts will vary. Information and application materials may be obtained from the Department of Consumer Resources and Technology.

Additional scholarships are made available in agriculture through the Department of Consumer Resources and Technology. Application is made in this department through the agriculture adviser.

Automotive Engineering

Lubrizol Foundation Scholarship—An award of $500 is given annually to a junior or senior in automotive engineering who has demonstrated academic excellence. Apply to the Department of Aircraft and Automotive Engineering.

College of Education

Scholarships—Four Education—One for Undergraduates in Elementary Education—Two (2) awards of $1,000 each. Katherine Pratt Burrell Education Scholarship—Two (2) awards of $500 each. Robert and Irene (Smith) Davies Education Scholarship—One (1) award of $500. Lucille Haines Scholarship—One (1) award of $500.

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

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Distributive Teacher Education

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.

Engineering Technology

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

The Saginaw—Saginaw Chapter Scholarship—This award is limited to students from the Saginaw, Bay City, Flint, and Midland, Michigan, areas who have junior standing or less and are majoring in industrial arts and who plan to enter an industrial education or technology program. The award is $1,000 the first year and is renewable for an additional three years, for a total of $4,000. Apply to the Department of Engineering Technology.

Robert B. Day Memorial Award—Each spring, the department presents an award to an outstanding student involved in the cast metals, automotive parts, or metal foundry programs. The award is $400 and is designed for students majoring in automotive parts, cast metals, or metal foundry programs, who have demonstrated purpose and commitment to one of the above three areas. These awards are given in honor of the late Dr. Day, who actively supported the metallurgical programs during his tenure as a professor at WMU. Applications are due by March 1. The award is $200 the first year and is renewable for an additional three years, for a total of $4,000. 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 cast metals industry. A student must have FEF registration completed by November 1 each year to qualify. Apply to the Department of Engineering Technology.

Duke Harrish Memorial Scholarship—Four awards of at least $500 each are made each year to students in a foundry-related curriculum. Application is made through the department office.

H. H. Harris Foundation Scholarship—The foundation has made funds available to students in technical programs with an interest in the cast metals industry. Awards range from $300 to $2,000. Apply to the Department of Engineering Technology.

Lloyd Hurt Memorial Scholarship—This is given to an outstanding graduating senior in the Grand Rapids Public Schools who has demonstrated ability in the field of industrial arts. The award is $500, divided equally between fall and winter semesters, and may be renewable, based on the student’s achievement and the recommendation of the scholarship committee.

Iron and Steel Society-Detroit Section Scholarship—This $1,000, one-year
FINANCIAL ASSISTANCE AND SCHOLARSHIPS 27

Scholarship—open to second semester
freshmen and above who are seeking a career in the ferrous metals or related fields. Apply to the Department of Manufacturing Technology. Kalamazoo Antique Auto Restorers Club Scholarship—Each year, a $500 scholarship is made available to a student majoring in either Automotive Engineering or Automotive Technology and Management. To qualify, the student must be a U.S. citizen, junior or senior, with preference to Kalamazoo and adjoining counties, and maintain good academic standing. Apply to the Department of Engineering Technology.

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

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

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

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

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

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

Society of Manufacturing Engineers Scholarship—A renewable award of $1,000 is awarded to a student who has completed two years in Manufacturing Engineering Technology or who transfers into that curriculum. Sponsored by the national Society of Manufacturing Engineers. Apply to the Department of Engineering Technology.

Society of Manufacturing Engineers Scholarship—A renewable award of $1,000 is made available to students who are members of the student chapter of SME. Applicants must be carrying twelve semester hours to qualify. Apply to the Department of Engineering Technology.

Society of Plastics Engineers Scholarship—The Society of Plastics Engineers offers one grant each year, in the amount of $100, to a WMU student enrolled in the College of Engineering and Applied Sciences and pursuing course work in plastics. Apply to the Department of Engineering Technology.

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

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

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

Paper and Printing Science and Engineering
Paper Science and Engineering Merit Scholarships—These scholarships are available for American and Canadian citizens majoring in the paper science and paper engineering. Grants are made to cover tuition costs within the paper programs. Beginning students interested in physical science, engineering and/or environmental engineering may write the department directly to request additional scholarship and curriculum information and to obtain scholarship applications. College students already in the department or majoring in science or engineering and transferring to the department are also eligible to apply. These scholarships are awarded on a semester-to-semester basis, on the basis of superior academic achievement or promise. Conditions for renewal of the scholarships include the maintenance of at least a 2.7 cumulative grade point average and continued enrollment in one of the paper curricula of the Department of Paper and Printing Science and Engineering.

The scholarship program is supported through the Paper Technology Foundation. Incorporated, which includes 70 corporate members.

Paper Technology Foundation Scholarship Funds


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

Greave Education Foundation Fellowship—One fellowship of $1,800 plus travel is awarded to a junior for one academic year. Kalamazoo Valley Printing House Craftsmen Club—Three scholarships of $600 each are available to entering freshmen based on need and academic achievement and are renewable.

Della C. Mayes Memorial Scholarship Foundation for Minority Students—One scholarship of $500 is available to a minority student and is renewable.

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

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

Quimby Walstrom Paper Company—One scholarship of $1,500 is available to a student with a freshman through senior standing. It is awarded on the basis of financial need and is renewable.

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

Ann Arbor Graphic Arts Memorial Foundation—Six to ten scholarships of $100 to $1,000 are available to entering freshmen. They are awarded on basis of need and academic achievement and are renewable.
College of Fine Arts
The Cornelius Loew Young Artist Scholarship—One $600 scholarship is awarded annually to an outstanding young artist in art, dance, music, or theatre. This scholarship is awarded on a semester basis, to remain eligible for the scholarship, a student must maintain a grade point average of 3.0 or above.

In addition, scholarships, including the Hearrom/Sommerfield Music Theatre Scholarship, are available to full-time students in the Music Theatre Performer curriculum. These scholarships are based on talent and need and are renewable upon application to students maintaining a 3.0 or above average.

Art
WMU Art Excellence Scholarship for Freshmen—The Department of Art annually offers several $500 scholarships for entering freshmen who demonstrate exceptional promise. Portfolios and applications for the fall/winter academic year are due by April 1. Application forms and portfolio guidelines are available from the Art Advising Office, 1406 Sangren Hall, Western Michigan University, Kalamazoo, MI 49008 or call (616) 387-2440.

Several music scholarships are awarded in the name of special persons or designated funds: Dorothy U. Dalton, 1980-1981, a charter member of the WMU Board of Trustees and a long-time Kalamazoo patron of the arts and humanities. Mae Arnold Thacker Scholarships come from an endowment established by Nelle M. Thacker (class of 1920) to honor the memory of her mother, Mae Arnold Thacker. Harper Maybee Scholarships are awarded to seniors in honor of the first head of WMU’s School of Music. Funds are contributed by music alumni and friends in memory of Julius Stubbs, a member of Western’s music faculty, 1945-1972. Herbert G. Butler Scholarships recognize cellists who demonstrate high achievement in musical studies. Funds come from an endowment fund established in the name of Herbert Butler, professor of music (1960-1983), and conductor of the University Symphony Orchestra (1968-1983).

Julius Stubbs Scholarships for violinists are funded by donations of music alumni and friends in memory of Julius Stubbs, a member of Western’s music faculty, 1945-1972. The College of Fine Arts Scholarship is made possible by the College of Fine Arts for each of
its four academic units every other year. The recipient must show outstanding ability in the particular field of fine arts study and be nominated to receive a senior award by the music faculty. A minimum grade point average of 3.0 is necessary.

The Leonard Meretta Band Scholarship recognizes a senior in the School of Music who is pursuing a career in trombonist Russell Brown, a member of the voice faculty from 1951-86. Funds come from an endowment established by family and friends.

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

The Donald C. Housman Memorial Vocal Endowed Scholarship is awarded to an outstanding vocal music major who is selected by the vocal music faculty. Funds come from an endowment honoring Sam Adams, a member of the voice faculty from 1946 to 1973.

Questions may be directed to: Music Student Adviser, School of Music, Western Michigan University, Kalamazoo, Michigan 49008-3811.

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

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

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

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

College of Health and Human Services

College of Health and Human Services Scholarship Program—Several awards in varying amounts are made on a departmental rotational basis to outstanding students who are enrolled in the College of Health and Human Services. Funds for this program are made available through donations by alumni and friends of the University. Apply directly to the school, department, or program office in the major field of study.

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

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

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

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

Kalamazoo AMBUCS (American Business Clubs)—A varying number of scholarships are awarded each year in amounts ranging from $300 to $1200. Awards are based upon need and leadership potential. A minimum grade point average of 3.0 is necessary.

Michigan Occupational Therapy Association-Scholarship—An award has been established by the Michigan Occupational Therapy Association for the purpose of aiding worthy students in occupational therapy. Applicants must exhibit a 3.0 grade point average, show a definite need, be Michigan residents, and be juniors or seniors in occupational therapy. Apply directly to the Department of Occupational Therapy.

Southwestern District Occupational Therapy Association—An award has been established for the purpose of aiding worthy students in occupational therapy. Applicants must meet the requirements of the Association. Scholarship will be considered also. Apply to the Department of Occupational Therapy.

Physician Assistant

John Josten Scholarships—These scholarships for physician assistant students were established in honor of the founder of the Physician Assistant Program. Cash awards are made to outstanding students who have demonstrated academic excellence (minimum 3.2 grade point average) and who have a definite need. Apply directly to the scholarship committee of the Physician Assistant Program.

School of Social Work

Whitney Young Scholar's Program—This competitive program is open to minority seniors and first-year minority graduate students. Applicants must demonstrate excellence in the areas of "scholarship" and "community service". Winners are selected by a panel of judges. There are usually two final awardees of up to $200 each. Apply to the School of Social Work.

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

Speech Pathology and Audiology

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

Intercollegiate Athletics

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

International Education and Programs

Study Abroad Scholarships—International exchange scholarships are awarded annually to qualified students for study in foreign universities in Europe and Asia. These scholarships are awarded on an annual basis in a competitive process including written applications and interviews. Contact the Office of International Education and Programs, 2060 Friedmann Hall, for information and application forms.

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

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

Nankai University Exchange Scholarship—This scholarship enables one WMU student to study Chinese language at Nankai University in Tianjin, People’s Republic of China, for an academic year beginning in August. Includes tuition and housing.
30 FINANCIAL ASSISTANCE AND SCHOLARSHIPS

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

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

Japan Center for Michigan Universities Scholarships—The Japan Center for Michigan Universities was established in Shiga, Japan in 1988 by Shiga Prefecture and the State of Michigan to mark twenty years of formal sister-state relationship. Educational programs at the Center include credit courses of Michigan universities in Japanese language and culture. Contingent upon State of Michigan funding, a limited number of partial scholarships, worth a maximum of $7,500 each for two semesters of study at the Center, are available to students recommended by WMU.

International Education and Programs Partial Scholarships—Jointly funded by the Provost and the Office of International Education and Programs, a limited number of $500 to $1,000 scholarships are available to assist students to participate in WMU-sponsored overseas programs such as the Oxford Seminar and field courses.
ACADEMIC POLICIES
AND PROCEDURES

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

University Requirements
1. Courses must be selected so that the requirements in at least one of the curricula are fulfilled before graduation.
2. The student must complete a major with a minimum of twenty-four hours and, if required by the curriculum, a minor with a minimum of fifteen hours. A thirty-hour subject major or thirty-six-hour group major is required of students in Elementary and Secondary Education, with a minor or minors of at least twenty semester hours. For further details see Curricula for Teachers. Some students may be excused from the requirement of declaring a regular major and/or minor field if they satisfy the requirements of their curriculum as set forth in the catalog, or that curriculum as modified by substitutions approved through normal channels.
3. Each student must complete thirty-five hours of work in approved General Education courses. Beginning with the Fall Semester, 1973, students graduating with an Associate of Science degree from Michigan two-year colleges, which are signatory to the Michigan Association of Collegiate Registrars and Admissions Officers General Education Agreement, will automatically have fulfilled the first and second-year General Education requirements. General Education requirements of two courses at the junior and senior levels will continue to be required.
4. A minimum grade point average of 2.0 must be attained in any major or minor(s) presented for graduation.
5. A student must have an overall grade point average of 2.00 or higher to be graduated in any curriculum. If a student goes on academic probation or is dismissed as a result of the work taken in his/her final semester, he/she will be required to remove the low scholarship status before being granted a degree or certificate.
6. Each student will fulfill all the requirements of the Intellectual Skills Development Program as outlined in this section.
7. Each student must satisfy the University computer literacy requirement as outlined in this section.
8. Each student must complete two semester hours of general physical education activity classes. First-year students are urged to arrange their schedules so that they complete their two-hour physical education requirement no later than their sophomore year. Persons thirty years of age or older at the time of graduation are not bound by this requirement. Such a waiver applies only to general physical education and not to specific curricular requirements nor to total hours required for graduation. Veterans of military service (minimum of one year continuous active duty) shall, upon request, be granted two hours of general physical education credit. A student limited in physical activity may receive counseling for courses suited to his/her limitation through the Medical Recommendation Procedure. (See "General Physical Education.") Exceptions, #5) A maximum of eight hours of general physical education may be counted toward graduation.
9. Minimum residence requirements: All candidates must present a minimum of thirty hours through Western Michigan University. Ten of the last thirty hours must be taken through Western Michigan University. Correspondence credit and credit by examination may not be used to satisfy any of the minimum requirements. Individual colleges and departments may have additional residency requirements.
10. A maximum of fourteen 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.
11. Students transferring from a two-year community or junior college must complete a minimum of one-half of the academic work required in their curriculum at an accredited four-year, degree-granting institution (exclusive of the general physical education requirement).
12. A student may graduate under the WMU catalog in effect at the time of the initial registration at WMU or any succeeding catalog, except that no student may graduate under the requirements of a catalog which is more than ten years old. (For exception see "Special Policy..." under "Graduate Requirements for a Bachelor of Science in Engineering" listed in the College of Engineering and Applied Sciences.)
13. In cooperation with two-year institutions of higher education in the State of Michigan, a student who transfers directly to Western Michigan University from a two-year Michigan institution may elect to graduate under the WMU catalog in effect at the time of the initial registration at the two-year institution. The student must, however, meet the requirements of the above ten-year rule.

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

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

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

The college-level writing course options are:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 100</td>
<td>Effective College Reading</td>
</tr>
<tr>
<td>ENGL 104</td>
<td>Business Writing</td>
</tr>
<tr>
<td>HIST 106</td>
<td>Historical Writing</td>
</tr>
<tr>
<td>REL 107</td>
<td>Religious Writing</td>
</tr>
<tr>
<td>PHIL 100</td>
<td>Philosophical Writing</td>
</tr>
</tbody>
</table>

Remedial writing course options are:

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 105</td>
<td>Preparatory Writing (for high school)</td>
</tr>
<tr>
<td>BIS 100</td>
<td>Preparatory Writing (for community)</td>
</tr>
</tbody>
</table>

In addition to the writing requirement above, each student must also demonstrate upper-level writing proficiency by successfully meeting a baccalaureate-level writing requirement as designated by the student's major department or program. It is recommended that students complete this requirement after attaining junior standing. Existing guidelines regarding repeating a course will apply. Credit for course work from two-year institutions will not fulfill this requirement. Implementation begins for students entering under the 1988 Undergraduate Catalog Supplement except for students gaining a second baccalaureate degree.

READING
On the basis of standardized test scores, certain students are required to pass ED 104, Effective College Reading. This course is designed to improve comprehension, vocabulary, and study skills, and thus prepare students for further college work.
QUANTIFICATION
On the basis of scores on a test of computational skills, certain students are required to pass MATH 109. Students who wish to proceed to other mathematics courses must earn a C or better in MATH 109.

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

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

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

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

Intellectual Skills Development Program for International Students

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

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

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

QUANTIFICATION
International students will fulfill all Intellectual Skills requirements in quantification.

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

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

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

Intellectual Skills Development Program for Transfer Students

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

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

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 skills and need not take the computational skills assessment test upon entry. Further coursework in mathematics is not needed 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 Michigan University has in place an assessment program which provides intake information to various policy making groups on the quality of programs and services provided to students. University Assessment functions in three general areas: Liberal Education and Skill Development Assessment, Majors Assessment and Environmental Scanning. A number of different tests and procedures are used in the collection of information.

Students participate in the assessment program throughout their college careers on a sampling basis. When a student participates in procedures which are not mandatory, individual results are provided to each student during the term after testing. Individual results of assessment are not used for placement in classes or curricula, withholding earned academic credentials, granting academic credit, or released to anyone other than the student. Policy making groups within the University use only aggregate information to assess the quality of programs and services.

As a requirement for graduation, all seniors must participate in assessment. Seniors typically participate in the Liberal Education Assessment as soon as they become eligible with 88 total hours and in the Majors Assessment during their last term on campus. Schedules of test administration and reservations for the Liberal Education Assessment are available from the Office of University Assessment, while departments coordinate the administration of Majors Assessment.

General Education Requirements

Western Michigan University requires a minimum of thirty-five semester hours of General Education courses in order for a student to graduate. These requirements are applied to all students in the University and are substantially the same for all curricula. The General Education program is designed to

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General Education Requirements

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

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

**THE DISTRIBUTION PROGRAM**

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

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

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

**REQUIREMENTS FOR THE DISTRIBUTION PROGRAM**

There are five stipulations:

1. Coursework must total a minimum of thirty-five hour credit.

2. At least six hours of appropriate coursework 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) count toward the total of thirty-five hours.

**General Education Distribution Program**

**AREA I** Humanities and Fine Arts

<table>
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<th>370</th>
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<td>ART</td>
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<tr>
<td>LAT</td>
<td>100, 101</td>
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</tbody>
</table>

**General Education Requirement for Transfer Students**

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

   Colleges listed below have signed the MACRAO Articulation Agreement. Transfer students from these schools whose transcripts have been appropriately identified and certified as having fulfilled the requirements of the MACRAO agreement by their respective community/junior college will receive thirty hours of General Education credit. The distribution of this credit is as follows: eight hours in each of Area I, II, III and six hours in Area IV. Such students need only satisfy Western’s requirement of six hours of 300-400 level General Education coursework, including one course from Area IV unless a substitute was transferred.

   Students who transfer from these community colleges and who have not fulfilled the requirements of the MACRAO Articulation Agreement will have their General Education coursework evaluated according to the General Education Distribution requirements as described in #5 below and in Western’s General Education Transfer Guides available at individual community colleges. In order to determine remaining General Education requirements, students should consult their curriculum adviser.

**Michigan Community College**

MACRAO Agreement Signators:

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

2. Transfer Students from other Michigan Community Colleges.

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

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

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

4. Waiver of junior-senior requirement for transfer students with advanced standing.

   A student transferring ninety or more semester hours may be eligible to have the junior-senior General Education requirement waived, provided that a minimum of thirty semester hours are from a four-year college or university.
5. General Education Distribution Requirements for Transfer Students. Students not covered by the MACRAO Articulation Agreement described in #1 above must meet the following Western Michigan University General Education Distribution requirements: A minimum of thirty-five semester hours is required: two courses must be at the 300-400 level.

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

B. Social and Behavioral Sciences—A minimum of six semester credits from the following fields:
   - Anthropology (cultural general, archeology)
   - Economics (principles, problems, and consumer education)
   - General Business (social issues or consumer education)
   - General Social Science
   - History

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

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

E. Optional Electives—credits from the following areas may be used as General Education elective credits towards the thirty-five hour credit minimum:
   - Agriculture (introduction)
   - Composition (freshman rhetoric, expository writing, informational writing, technical communication, etc.)

Computer Science (computer literacy, introduction)
Environmental Studies (fundamentals)
Health (general)
History (introduction to the study of history, historiography)
Military Science (military aspects of national power)
Social Work (introduction)
Speech Pathology (introduction to communication disorders)

Major and Minor Requirements

A major is a sequence of related courses totaling a minimum of twenty-four hours. A minor is a sequence of related courses totaling a minimum of fifteen hours.

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

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

3. Only approved majors and minors listed in the catalog will be posted to the student's record.

Academic Advising

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

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

A listing of curriculum advisers may be found in the Schedule of Classes, which is published each semester and session. Students not certain of their curriculum or advisor should contact the Advising Office of the College to which they have been admitted. (See list below.) Students should refer to their Admission Certificates to find out which curriculum and College they have been admitted.

ACADEMIC ADVISING FOR TRANSFER STUDENTS

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

COLLEGE ADVISING OFFICES

- College of Arts and Sciences, 2060 Friedmann Hall, 387-4366
- Haworth College of Business, 250 North Hall, 387-7115
- College of Education, 2305 Sangren Hall, 387-3874
- College of Engineering and Applied Sciences, 2038 Kohrman Hall, 387-4033
- College of Fine Arts, 2146 Dalton Center, 387-5840
- College of General Studies, 2090 Friedmann Hall, 387-5439
- College of Health and Human Services, B-124 Henry Hall, 387-2660
- General University Studies Curriculum, B-103 Elwes Hall, 387-4167
- Honors College, D-1 Hillside West, 387-3230
- University Curriculum, 201 Moore Hall, 387-4410

ACADEMIC ADVISING FOR FRESHMEN STUDENTS

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

Advance Registration

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

Late Registration Fee

See Student Fees.

Changing Courses (Drop/Add)

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

Students who withdraw from classes without academic penalty through the first 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 from courses only if they have a class that is not officially scheduled to meet during the three day drop/add period. Students who withdraw (drop) on the 5th day of classes will not receive a refund (unless it is a complete withdrawal) nor will the class show on the student’s official transcript.

Students may withdraw from courses without academic penalty through the first Friday past mid-semester at the Registrar’s Office. The final date for dropping is published in the Schedule of Classes. Students may not withdraw from any class after this date without academic penalty.

Withdrawal From Classes After the Official Date to Drop

1. The final date to withdraw officially from classes without academic penalty is the first Friday past midsemester. The specific date is published in the Schedule of Classes each semester or session. (Each student is encouraged to confer with the instructor before withdrawing from class.)

2. Students who wish to withdraw from class officially after the first Friday past mid-point of the semester because of genuine hardship (i.e., illness, death in the immediate family) must file a written appeal on forms which may be secured at the Registrar’s Office.

3. An Appeals Committee to review late withdrawals will be appointed by the Provost and Vice President for Academic Affairs. Its membership will include the University Registrar as chairperson, five faculty members, and two students.

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

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

Examinations

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

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

Independent Study

Independent Study refers to enrollment in an appropriately designated, variable-credit course for a specific plan of study, authorized and supervised by a designated, consenting faculty member.

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

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

PROPOSALS FOR INDEPENDENT STUDY

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

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

APPROVAL PROCESS

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

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

Academic Regulations

Class Attendance

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

Independent Study is basically a tutorial process, necessarily involving substantial faculty participation. In that respect, it should be distinguished from “credit by examination,” a different option in which the role of the faculty member is primarily evaluative. A student is on his/her own in Independent Study in that it involves no class meetings or formal lectures, but the faculty member is the responsible custodian of the project, obliged to provide guidance, assistance, criticism, suggestion, and evaluation.

Interinstitutional Study

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

Grading

Grading System

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional, Extraordinary</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Very Good, High Pass</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>Satisfactory, Acceptable, Adequate</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Poor, Failure</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>Failure (Unsatisfactory Withdrawal)</td>
<td>2.0</td>
</tr>
<tr>
<td>DC</td>
<td>Official Withdrawal</td>
<td>1.5</td>
</tr>
<tr>
<td>D</td>
<td>Incomplete</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td>0.0</td>
</tr>
<tr>
<td>AUD</td>
<td>Audit (non-credit enrollment)</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Credit/No Credit System

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

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

4. A student may change only during the drop/add period from Credit/No Credit to grade or from grade to Credit/No Credit.
5. All undergraduate students, regardless of classification or probationary status, will be allowed to enroll Credit/No Credit.
6. Credit/No Credit courses, while counting toward a degree, will not be used to determine the overall grade point average (GPA) of the individual student.

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

“I” Incomplete

This is a temporary grade which the instructor may give to an undergraduate student when illness, necessary absence, or other reasons beyond the control of the student prevent completion of course requirements by the end of the semester or session. The grade may not be given as a substitute for a failing grade. A grade of “I” must be removed by the instructor who gave it, or in exceptional circumstances, by the department chairperson. If the unfinished work is not completed and the “I” grade removed within one calendar year of the assignment of the “I,” the grade shall be converted to an “E” (failure). Students who receive an incomplete grade in a course must not reregister for the course in order to remove the “I.”

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

Grade Changes

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

Honor Points

The number of honor points earned in a course is the number of semester hour credits given by the course, multiplied by the number of honor points per hour of credit corresponding to the letter grade received, as shown in the preceding table. For example, a grade of B in a 4-hour course gives 4 x 3, or 12 honor points.

Grade Point Average

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

Dean’s List

To gain a place on the Dean’s List for a semester, a student must:
1. Have completed at least fourteen semester hours of work during the semester for letter grade.
2. Have a grade point average of at least 3.50 for the semester.

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

Honors

Honors are conferred upon graduating students who have displayed a high level of performance during their university career. Recipients of honors receive their degrees:
Cum laude—when their grade point average is 3.50 to 3.69, inclusive
Magna cum laude—when their grade point average is 3.70 to 3.89, inclusive
Summa cum laude—when their grade point average is 3.90 to 4.00, inclusive

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

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

Academic Standards

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

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

Students who have been dismissed from Western are expected to remain out at least one full fifteen-week semester. Exceptions may be granted at the discretion of College Admission Committees if the increase has been substantial but still falls fractionally short of the minimum 2.0 requirement.

Students may apply for re-admission through their college advising office. College committees are concerned with the extent to which the dismissed student has resolved the causes of past academic difficulty. It is required, therefore, that the student include a written statement with the re-admission application.

Credit By Examination

Advanced Placement Program (APP)

Western Michigan University participates in the Advanced Placement Program (APP) of the College Board. Students with scores of at least 3 (4 in the case of Physics) on any APP exam will receive college credit in the appropriate subject. Students should have College Grade Reports of their test scores sent to the Office of Admissions and Orientation at Western Michigan University (college code 1902).

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

College Level Examination Program (CLEP)

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

General Examinations

1. The general CLEP examination is available only to nontraditional students at WMU.
2. A nontraditional student is defined as a person who has spent a minimum of four years in non-school occupations since attending an educational institution on a full-time basis (minimum of twelve semester hours).
3. Nontraditional students may take the general CLEP examinations only before completing forty 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 college 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 transferable courses, cannot receive credit for the respective examinations.

5. The following guidelines shall apply in earning CLEP credit:
   - A student passes the humanities examination with a score of 540 or above, three hours of credit will be awarded in Area I (humanities and fine arts) of the General Education Distribution Program.
   - A student passes the social sciences-examination with a score of 520 or above, six hours of credit will be awarded. Three hours will be applied to Area II (social and behavioral sciences), and three hours to Area V (optional electives) of the General Education Distribution Program.
   - A student passes the natural sciences-examination with a score of 498 or above, three hours of credit will be awarded in Area III (natural sciences and mathematics) of the General Education Distribution Program. *
   - A student passes the mathematics examination with a score of 497 or above, three hours of credit will be awarded in Area V (optional electives) of the General Education Distribution Program. *

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

Subject Examinations

CLEP Subject Examinations test specific knowledge areas; and, unlike the General Examinations, any Western student may take them and receive credit with appropriate scores. The University awards credit to students based on a scale of the CLEP Subject Examinations. Students may not receive CLEP subject credit if they have already received college credit for an equivalent course. Interested persons may contact the Office of Admissions or Testing Services for information on Western's score requirements and course credit.

Comprehensive Examinations

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

All credit by examination is subject to the following requirements:
1. All credit will be posted as credit only, without grade or honor points. Students who do not achieve a sufficient score for credit will have no entry made.
2. Credit by comprehensive examination in courses numbered 300 or higher can be used to meet the requirement that one-half of all academic work must be completed at a four-year degree-granting institution.
3. Credit by comprehensive examination can be used to meet all other University graduation requirements, except the minimum residence requirements.
4. Credit by comprehensive examination can be posted only for admitted students who have either previous or current enrollment.
5. All credit by comprehensive examination is normally considered undergraduate credit. Examination fees are assessed on a credit hour basis and are the same for all students. The current fee schedule: less than four credit hours, $25.00. Four credit hours to eight credit hours, $50.00.

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

Graduation

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

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

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

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

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

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

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

I.D. Validation Regulations
Each student on campus is required to have an identification card, which includes photo, name, social security number and student signature. Dates, time, and place of I.D. photography and validation are published in the Schedule of Classes prior to each semester or session. At other times, business may be conducted at the Registrar's Office. Each new student is eligible for an I.D. card free of charge. This card should be validated each semester and used throughout the student's entire enrollment at Western. There will be a $5.00 charge for a lost or mutilated I.D. card. Lending this card to anyone, or failure to present it when requested by University officials, is a violation of University regulations and subjects the holder to disciplinary action. Each student is personally liable for all obligations incurred by use of this card. Protect it.

Name Change
Students may maintain academic records under the name used at the time of admission. However, if an active student desires to make an official name change they must report to the Registrar’s Office, third floor Seibert Administration Building to record the change. Legal proof may be required and the student will be required to sign a notarized affidavit swearing to the fact the name change is not requested for any fraudulent purposes.
SERVICES FOR STUDENTS

The Academic Skills Center
The Academic Skills Center, located in room 1044 Moore Hall, is designed to offer students the opportunity to strengthen their learning skills and improve their academic performance. Programs are offered within the following framework:
1. All undergraduates are eligible to register for services; graduate students may register for specific workshops on a space available basis.
2. Programs and workshops carry no academic credit.
3. There is no charge for services.
   Telephone: 387-4442

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

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

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

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

CRITICAL READING WORKSHOP
The Critical Reading Workshop introduces reading strategies to help students develop the ability to read critically. Students learn how to develop a set of questions to focus attention on what the author is saying.

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

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

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

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

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

The office is specifically responsible for the academic advising of General University Studies-Health Studies students and for the maintenance of their records. It also offers counseling to nontraditional students seeking to attend Western for the first time on a re-entry basis. Telephone 387-4167 for further information.

Career Education
All students are urged to make use of the career education facilities of the University for assistance in deciding upon a major and minor, planning for realistic entry-level jobs, and visualizing a career path for the future.

Career counseling and advising are available in the offices of Testing and Evaluation Services, the University Counseling Center, Career Planning and Placement, the Women's Center, and curriculum and departmental advisers. Two courses directly related to career education are offered. They are: A-S 100, Career Exploration and Development, and COM 373, Communication Skills and Career Planning. The Office of Career Planning and Placement offers seminars and workshops to assist students in their transition from college to the world of work.

A suggested schedule of career education activities follows:

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

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

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

4. Explore various academic and career areas. Take classes that will introduce you to a discipline, talk with the faculty, research careers that might logically be associated with the discipline, talk to people currently employed in those careers that interest you. This kind of information does not come automatically as a result of physically being on campus or attending classes. It is each student's responsibility to seek it out. The choice of an educational direction or the reinforcement of a previous choice will be a natural result of these activities.

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

1. Research various careers for which your educational background would be appropriate, or which interest you but do not require a specific educational background. Read about them, talk to people who are actually working in them, attend meetings and join professional organizations related to them, read publications written by and for these people, and volunteer to work in areas that interest you.

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

3. Get involved in campus activities and/or classes that will help you develop the skills you have identified as being necessary to excel in a career which interests you.

4. Start getting familiar with the office of Career Planning and Placement. Talk to the placement counselors, find out how they can help you negotiate the job market.

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 Hills
387-3905

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

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

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

Women’s Center,
A-328 Ellsworth Hall
387-8097

College Advising Offices
Departmental Advising Offices

Career Planning and Placement Services
Assistance in total job search planning is offered at no charge by the Career Planning and Placement Services to students of Western Michigan University. These services include: job counseling, a career resource center, an on-campus interviewing schedule, a weekly employment opportunities bulletin, job vacancy postings, direct referrals to employers, maintenance and distribution of credentials, assistance with career search correspondence such as resumes and letters of application, interviewing videotapes, career workshops and seminars, annual career fairs and referral to other campus agencies providing career planning services.

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

Counseling Center
Many important decisions and situations will confront students while they are at Western Michigan University. They will need to make decisions regarding courses, curricula, and career interests. 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 Counseling Center is staffed with professionally trained counselors and psychologists and is accredited by the International Association of Counseling Services

Among Counseling Center Services are the following:

- Personal Counseling to assist individuals in better understanding themselves and the emotional conflicts 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 and group activities are offered to (1) increase self-understanding, including insights into one’s interests, values, abilities, and skills; (2) learn how to acquire information about careers; (3) review choices, make decisions, and establish plans of action; and (4) test the feasibility of individual plans by experiencing the reality of the working world.

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

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

- The Counseling Center is thoroughly committed to the need for confidentiality in client/counselor communications. Therefore, confidentiality of client information is maintained in a manner consistent with professional standards of ethical practice and conduct.

Copies of the Counseling Center Policy on Confidentiality may be obtained at the Center’s reception desk.

Appointments may be made by telephone (387-1850) or by stopping at the Counseling Center reception desk between 8 a.m. and 5 p.m., Monday through Friday. Students unable to utilize the Center’s services during regular hours may make arrangements for evening appointments.

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

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

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

All other residence halls close between semesters and sessions, and residents who must remain in Kalamazoo may arrange alternative housing arrangements during these periods. Residents are permitted to remain in their assigned rooms during the Thanksgiving and spring break recess periods.

Each residence hall varies slightly in its construction. The following services are available in most halls: reception desk with mail and message services, formal lounges; all purpose rooms for meetings, study, recreation, and television viewing areas (some 42" screens); exercise areas; rental refrigerators; paint-your-own-room opportunities; study rooms; and academic computer terminals. Most students creatively enhance their room with personal items which supplement the University-supplied beds, desks, and study chairs.

The award winning Residence Hall Dining Service has an excellent reputation with an extensive menu developed in consultation with residents and professional dietsit. Residence halls providing dining service are available during the fall and winter semesters and the spring session. During these periods meals usually begin on the day before classes start and stop on the day the halls close for the semester/session. Meals are not served during the Thanksgiving period. Most residents select the Continuous Dining Plan covering all meals except Sunday evening. For persons leaving campus every weekend, the Continuous Dining Plan, providing meals Monday through Friday, is available. Dining rooms are open from 7 a.m. to 6:15 p.m. six days a week and from 8 a.m. until 1 p.m. on Sunday. Serving hours are subject to change. Each year hundreds of Western Michigan University students discover more about the world they live in, their colleagues, and themselves through living in a residence hall. Opportunities for group participation and leadership await those interested. As you know, education takes place both in and out of the classroom; a well-rounded education includes a variety of experiences. Making new friends, meeting new people from a variety of backgrounds, developing leadership skills, and becoming quickly acquainted with the total University environment are only a few of the advantages of living in a residence hall.

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

Any student enrolled at Western for at least one credit hour may reside in the hall. Newly admitted students are automatically assigned residence hall space. Information covering all residence halls available for the semester or session they anticipate coming to the University.
International Student Services

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

OFFICE OF INTERNATIONAL STUDENT SERVICES

The Office of International Services handles the special needs of international students, by processing applications for admission, conducting an orientation program for new foreign students, assisting with housing arrangements, community programs involving international students, providing immigration advising, serving as a liaison between students' sponsors, and offering personal and social counseling. While at the University, international students are encouraged to participate in academic and social activities as their interests and time allow. International students interested in seeking admission to Western should contact the Office of International Student Services for an application form and instructions. To qualify for admission, a prospective student must demonstrate to the University that he/she is academically, financially, and linguistically capable of undertaking the academic program being proposed. Before a student can be admitted and the Certificate of Eligibility for a visa (Form I-20 or IAP-66) issued, educational records documenting all previous secondary and post-secondary education must be on file, along with a financial statement that has been signed and returned from a sponsor showing that adequate funds are available to cover the student's educational and living expenses for the duration of studies.

ENGLISH COMPETENCY OF STUDENTS FROM NON-ENGLISH SPEAKING BACKGROUNDS

Prospective students from non-English speaking countries must submit the 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 preferred by the University are the Test of English as a Foreign Language (TOEFL) and the Michigan English Language Assessment Battery (MELAB). To qualify for unrestricted full-time enrollment, a prospective student must present a TOEFL "total score" of at least 550 or MELAB "adjusted score" of at least 85 percent.

Within certain limits, a prospective student who has achieved less than the required minimum score may be admitted, but only 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 Services. (See Student Health Insurance for the University's policy on health and accident insurance for foreign students.)

ENGLISH LANGUAGE INSTRUCTION FOR INTERNATIONAL STUDENTS

The Career English Language Center for International Students (CELCIS) provides intensive English language instruction for those prospective students who need further training in English in order to qualify for regular admission to the University. F-1 students in the CELCIS program must be enrolled full-time, twenty hours of classroom instruction per week. Resident aliens and F-2 students may attend CELCIS part-time. Classes at various levels include:

- Speaking and Listening Comprehension
- Grammar
- Academic Reading and Vocabulary Building
- Academic Writing
- Research Paper Writing

Extra-curricular activities include weekly English table, conversation partners, home visits and a drama program.

There are four CELCIS terms per year, two 15-week terms (fall and winter) and two eight-week terms (spring and summer). The University Testing and Evaluation Services offers the institutional TOEFL at the end of each term. The Certificate of Eligibility for a visa (Form I-20 or IAP-66) 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.

The Martin Luther King, Jr. Program

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

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

The primary purpose of the MLK Program is:

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

Application is made through the Office of Admissions and Orientation. The standard WMU application is used. 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 with a request to the high school counselor, caseworker, or minister—someone who is familiar with the family circumstances.)
The activities of the Division are designed to define and positively react to minority students' needs and impact their environment. By doing so, students are given the greatest opportunity for a successful and relevant educational experience.

Off-Campus Life

The Office of Off-Campus Life at Western Michigan University is a service center for the 13,000 students who live off campus and commute to classes from many distances and locations. It is located in Room 3510 of the Dale Faunce Student Services Building. Its primary function is to administer a complete rental program for students in need of off-campus housing. Car pools, share-a-ride, roommate listings, tenant/landlord mediation, transportation information, and communication are just some of the other on-going programs carried out by Off-Campus Life. The success or failure of a student's academic life can often be traced to the living environment. Don't minimize the importance of good housing. Telephone: 387-2306.

Religious Activities

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

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

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

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

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

In addition to Kanley Memorial Chapel, there are five student centers operated by specific denominations on or near campus. Specific information regarding the religious groups on or near campus is available in the Office of Religious Activities. Telephone: 383-4986.

Minority Affairs, The Division of

The Division of Minority Affairs facilitates the development and continuance of a supportive environment for our ethnic minority student population. As a result, the Division assists the University in its objective to increase the minority presence and participation in the institution. Specifically, the Division:

1. Provides information to the University community on the importance and value of diversity in this educational process.
2. Offers programs and services in response to ethnically specific student needs and concerns, including cultural awareness and student organizational support aimed at increasing minority student retention.
3. Monitors student impressions and satisfaction with delivery of services from other areas to which they have been referred. Provides feedback to these areas on student perceptions.
4. Serves as advocate in presenting concerns that affect the quality of life for minority students on the campus of Western Michigan University, and works with students to identify concerns and to develop solutions.
5. Supports programs targeted at pre-college youth in order to increase the participation of minority students in higher education.
6. Provides information and on-campus program assistance to the Office of Admissions and Orientation to help increase the recruitment and enrollment of minority students.
SERVICES FOR STUDENTS

LABORATORY SERVICES
The Center’s full-service laboratory performs most standard diagnostic tests. These are often evaluated while you wait, so that you receive prompt treatment, saving you both time and money. Electrocardiograms, interpreted by a cardiologist, are also available.

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

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

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

If you have an appointment, you’re encouraged to go directly to your clinician’s office without waiting. You should arrive ten minutes early for your appointment and plan on your visit lasting at least an hour. If you have prescription drug coverage through outside insurance, you should bring that identification card and information with you.

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

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

IMMUNIZATIONS
Several serious diseases, including measles, mumps, rubella, hepatitis B and diphtheria, are all vaccine preventable. You should be immunized to protect yourself and the University community. The Sindecuse Health Center offers all immunization updates and immunizations required for overseas travel.

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

SINDECUSE HEALTH CENTER HOURS
Appointments
8 a.m. to noon and 1 p.m. to 4:30 p.m. Monday through Friday.

Urgent Care Clinic
8 a.m. to 5 p.m. Monday through Friday and 9 a.m. to 11:30 a.m. Saturday (Closed Saturdays during summer session).

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

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

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

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

The Student Health Fee complements your hospital and medical insurance. Many students have health insurance that protects them from the costs of hospitalization. Your fee protects you against the majority of costs you face outside the hospital, which are not covered by most insurance plans. Your fee does not cover the costs of hospitalization. Eligibility extends from the first day of the applicable semester for which the fee has been paid, to the first day of the next semester or session.

UNCOVERED COSTS
Visits to medical specialists outside the Sindecuse Health Center, or to hospital emergency rooms or immediate care centers, and transportation to and from the Sindecuse Health Center by ambulance are not covered by the fee. Services provided by Sindecuse Health Center personnel, requested by clinicians outside the University, can be provided by the Sindecuse Health Center, but will be charged to you according to the current fee schedule.

Charges that are not covered by the Student Health Fee or your insurance may be paid in cash, by charge card from American Express, MasterCard, or Visa credit cards. However, we request that all fees under $1 be paid in cash. You may also charge your health care costs against your student account, but this must be done in full prior to registering for the following semester or session. The University assesses a service charge for any costs that are not paid within sixty days.

OPTIONAL HOSPITAL, MEDICAL, AND SURGICAL INSURANCE
All students are urged to carry some form of medical and accident insurance that covers medical, surgical, and hospitalization expenses not covered by the Student Health Fee. Some insurance companies offer coverage for expenses only if you are hospitalized. Other companies pay for diagnostic procedures performed by specialists outside the Sindecuse Health Center, as well as hospitalization. It’s important to verify the services included in any insurance policy you purchase. If you are covered by your parent’s insurance, you should know the name and address of their company and all policy numbers as they appear on the insurance identification card. Be sure to carry this information with you at all times.

If you are not presently covered by a major medical insurance program, consider the student plan for hospitalization insurance offered through Western. This plan is provided at reduced rates to students and their dependents.

Mandatory Hospital, Medical, and Surgical Insurance
All international students are required to carry health insurance for the semester or session they are enrolled if health care coverage is not provided by their sponsor. These students will be automatically enrolled in the University-sponsored policy unless an approved alternate policy is chosen.

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

The Insurance Coordinator at the Sindecuse Health Center is available to assist students between 8:30 a.m. and 4 p.m., Monday through Friday, or can be reached at 387-3287.

STUDENT HEALTH ADVISORY COMMITTEE
The Student Health Advisory Committee gives you the chance to plan ways in which the Sindecuse Health Center can offer high-quality health services at the lowest possible price for students. The committee participates in policy formation, program review, and program development for the Sindecuse Health Center. Seven undergraduate and two graduate students (selected by committee interview), and five faculty and staff members serve on the committee. Membership in the group, which meets throughout the calendar year, is open to any interested student. For more information regarding meeting times or application for committee membership, contact the committee’s recording secretary in the Sindecuse Health Center director’s office.

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

- A Wellness Resource Center, located in the front lobby of the Sindecuse Health Center, containing written information on a variety of health promotion and disease prevention topics.
- Staff Care Cold Centers, located in the Sindecuse Health Center front lobby and in all Residence Halls.
- Total Fitness—A comprehensive aerobic exercise program, designed to help you achieve fitness using exercises set to music. This program focuses on flexibility, muscle tone and strength, development as well as cardiovascular endurance. In addition to improving fitness, it provides a healthy outlet for reducing stress and tension.
- The Zest for Life Fitness Room, located in the Gary Center, contains a full line of weight equipment, exercise bicycles, rowing machines, hand weights, a nordic skier, and exercise mats. Evening fitness room hours for students are scheduled through the Office of Campus Recreational Activities.
- Computerized Nutrition Assessment—Optimal nutrition can be a key to improved physical and intellectual performance. What you eat has a definite impact on how you look, how well you feel, your resistance to illness, and prevention of heart disease, cancer, and osteoporosis. The Sindecuse Health Center can help you analyze your diet and suggest food.
44 SERVICES FOR STUDENTS

Speech, Language, and Hearing Services

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

Student Activities and Organizations

Classes, professors, and term papers are an ever present part of one's college experience, but the University recognizes that classroom activities alone do not constitute the total education today's college students are seeking.

Students can enrich and broaden their collegiate life by becoming involved in any number of the more than 200 organizations coordinated and sanctioned by the Office of Student Life, located in the Student Services Building.

To develop leadership skills, acquire valuable vocational training, gain new friends, get to know faculty members and administrators, serve the campus and the community—a student need only become involved in the extracurricular activities on campus.

Organizations are divided into these interest areas:
- Departmental and Professional
- Honorary
- Publications and Communications
- Religious
- Student Volunteer Services
- Service Organizations
- Twenty Fraternities
- Thirteen Sororities
- Special Interests
- Student Government

Student Directory

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

Individual listings in the WMU Student Directory contain the following information:
1. Name
2. Curriculum, class
3. Local address and telephone number
4. Home address

Students wishing to exclude any or all of the above information from the WMU Student Directory must fill out a Directory Exclusion Form in Room 3210, Seibert Administration Building, during the first three days of classes.

Testing and Evaluation Services

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

Student Testing and Evaluation Services also offers assistance in planning research projects and papers. Scanning sheets are available through academic department offices for data collecting and 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, percentiles, frequency distribution, and item analyses.

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

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

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

University Ombudsman

The University Ombudsman is an intervention agent and impartial person who helps students, faculty and staff resolve academic and non-academic concerns. The Ombudsman listens to you and discusses your question or concern; provides you with information that answers your question or helps you locate someone who can assist you; explains the University's policies and procedures and how they may affect you; follows up with you and others at the University to make sure your concern is resolved; and recommends changes in the institution that will make it more responsive to every member of the community. The basic principles of the University Ombudsman are independence, impartiality, and confidentiality.

The Ombudsman is authorized to make thorough investigations and has access to all University offices and records, reports and other documents in the University. No person shall suffer any penalty because they seek assistance from the Ombudsman. The Ombudsman is appointed by and reports directly to the President. The office is located in 218 Bernhard Center. Telephone: 387-3300.

Veterans’ Assistance

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

Changes in enrollment or current address must be reported immediately to the Office of the Registrar.

Proof of a change in dependents should be sent directly to the V.A. Regional Office in Detroit. Forms may be obtained at the Office of the Registrar.

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

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

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

Students are certified on the basis of attendance and academic progress toward degree goals. Serious overpayment problems can be eliminated by prompt notification to the Office of the Registrar of changes in these areas. Each student receiving benefits is required to sign a statement once a year outlining plans for enrollment for the coming year and declaring personal responsibility for regular attendance during that year.

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

Through programs, workshops, seminars and conferences the Women's Center:
- Clarifies issues of women's equity for administrators, faculty, staff and students.
- Promotes the upward status, capabilities and potential of women.
- Monitors changing issues for women in education and employment.
- Encourages and promotes research on and by women within the academy.
- Maintains a resource library consisting of books, periodicals, bibliographies, newsclippings, national and state reports, studies and other information relevant to the lives of women.
- Gives more visibility and stature to the various accomplishments and diverse roles of women.
- Provides education and training on assertiveness, healthy relationships, personal safety, sexual harassment and career issues for women in traditional and nontraditional fields.
- Supports and encourages women's organizations on campus and in the community.
- Provides opportunities for students on campus to volunteer in the Center's activities and programs.

The Women's Center is located in A-331 Ellsworth Hall. For further information call 387-2990.
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 alumnae 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 director of the association.

DEVELOPMENT

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

WESTERN MICHIGAN UNIVERSITY FOUNDATION

The WMU Foundation is a non-profit, tax-exempt corporation that was formed for the exclusive benefit of the University. The Foundation exists to secure and distribute private gifts to the University for the purpose of improving or creating services and programs that would not otherwise thrive.

The Foundation was created by the University Trustees as a corporate, but University-related, organization. It has a corporate body and a Foundation Board of Directors composed of seven prominent alumni and friends of the University.

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

Archives

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

Athletics (Intercollegiate)

The University is represented by men's teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, gymnastics, ice hockey, and soccer. Women's teams also participate in all the sports plus golf, lacrosse, and volleyball.

The and support is received from students, faculty, and friends of the University. Support is provided by the Western Michigan University Athletic Association. The Western Michigan University is a member of the Mid-American Conference. The Western Michigan University is a member of the Mid-American Conference.

Other members of the conference are Bowling Green, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Toledo, Ball State, and Ohio. The teams winning the Mid-American Conference championships in men's and

SPORES CLUBS

Sports Clubs are designed to provide the University community with the opportunity to participate in sports and activities of special interest. Sports Clubs provide opportunities for students competition at various levels of play, contribute to the development of student leadership and provide a bond between individual clubs. Each club is formed, developed, governed, and administered by the student membership of that club. Participation is voluntary and all currently enrolled Western Michigan University students are eligible for club membership. To join a particular sports club contact the Student Activities Office or Campus Recreational Activities.

THE ATHLETIC BOARD

The Mid-American Conference consists of nine 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.

Campus Recreational Activities

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

The Campus Recreation program is designed to provide a sound, attractive offering of organized recreational activities which will appeal to the leisure time pursuits of students, faculty and staff.

INFORMAL RECREATION

The informal recreation program permits individual choice of activity. Various facilities are available on a drop in or reservation basis including: basketball courts, volleyball courts, racquetball courts, tennis courts, indoor and outdoor tracks, weight rooms, swimming pools. Equipment for the various activities may be checked out from the equipment room.

Participants need only to leave their university identification card when using the equipment.

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

ATHLETICS (INTERCOLLEGiate)

The University is represented by men's teams in football, baseball, basketball, indoor and outdoor track, cross country, tennis, gymnastics, hockey, and soccer. Women's teams also participate in all the sports plus golf, lacrosse, and volleyball.

Athletics are governed by the Athletic Board, which adheres to the policies and principles established by the National Collegiate Athletic Association. Western Michigan University is a member of the Mid-American Conference.

Other members of the conference are Bowling Green, Central Michigan, Eastern Michigan, Kent State, Miami (Ohio), Toledo, Ball State, and Ohio. The teams winning the Mid-American Conference championships in men's and
INTRAMURAL SPORTS

Intramural championship competition is conducted on a single elimination or round robin tournament basis. Competition is held in men's, women's and co-rec divisions and residence hall, independent and fraternity/sorority housing. Men's sports include baseball, touch football, volleyball, basketball, tennis, racquetball, and more.

OUTDOOR RECREATION

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

SPECIAL EVENTS

Campus Recreation normally conducts one or two special events each semester. These events may coincide with other university events or reflect a seasonal or holiday theme. Games, activities and contests are offered in an informal festive atmosphere designed to provide interactions among the participants.

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

Faculty Senate

The Senate is composed of members elected by the faculty, representatives of the academic units 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 Association. The terms of elected members expire in April in a staggered year sequence. The Councils include: Admissions, Financial Aid, and Student Services; Budget and Finance; Campus Planning; Graduate Studies; Research Policies; and Undergraduate Studies.

For names of members and further information, contact the Faculty Senate office. The Faculty Senate President for 1989-90 is Linda M. Delene and the Senate Vice President is Mary A. Can.

ADMISSIONS, FINANCIAL AID AND
STUDENT SERVICES COUNCIL

The Admission, Financial Aid, and Student Services Council is responsible for initiating, reviewing, developing and recommending policies pertaining to the academic and student services at Western Michigan University.

BUDGET AND FINANCE COUNCIL

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

CAMPUS PLANNING COUNCIL

The Campus Planning Council serves as an advisory body to the administration and Faculty Senate on matters related to the acquisition, design, renovation, maintenance, and general use of all classroom buildings, faculty office

structures, residential units, recreational facilities, and lands owned by the University. In this capacity, the Council develops and recommends policies to provide a framework within which campus agencies may act in making administrative decisions; (2) develops procedures for the award of audit decisions and administrative actions; (3) processes information brought before the Council from the administration, faculty, and students which will guide the Council in making informed recommendations in its areas of concern; and (4) reviews all major planning proposals of the University which call for decisions regarding building sites, space allocation, long-range campus growth and development, or which impair, limit, or have any major impact on the aesthetic, physical, or social-ecological environment of the campus, community, or region.

GRADUATE STUDIES COUNCIL

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

RESEARCH POLICIES COUNCIL

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

UNDERGRADUATE STUDIES COUNCIL

The Undergraduate Studies Council is a policy-making and review body with jurisdiction over any matter relating to 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.

Libraries, University

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

The main collection is housed in the Dwight B. Waldo Library, which is named for the first president of the University. Built in 1959, it was enlarged in 1967 to almost double its original size. A new addition is planned and is expected to be completed in 1990.

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

A microform collection of more than 900,000 contains such items as the Human Relations Area File, the American Bibliographies, Early American Newspapers of the 18th and 19th centuries, the U.S. National Archives, Early English Books printed in Great Britain from 1551-1700, and ERIC (documents in educational research published by the Educational Resources Information Center). Some special collections are maintained by the library and holdings have been especially strengthened in some subject areas to support University programs:

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

2. Library holdings on Southern Asia are another area of special strength. Together with the Kemerer 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 alumna, 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 about 185,000 items includes Air Army and U.S. Geological Survey maps, which are cataloged and readily available for use. In addition to the maps, the Map Library also possesses more than 1,000 atlases.

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

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

The Physical Sciences Library contains 67,000 volumes in the fields of mathematics, astronomy, physics, and geology and has subscriptions to about 600 periodical and serial titles. This branch is located on the third floor of Rood Hall.

The Education Library in Sangren Hall has some 490,000 bibliographic items and receives more than 600 periodical titles.

The Cistercian Studies Library located in Hillside Apts. West is a collection of books in the areas of monastic history, saints, 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...
48 UNIVERSITY SERVICES

Media Services

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

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

AUDIOVISUAL CENTER

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

TELEVISION

The Television Production Unit under Media Services creates a broad range of video and film programs in support of instructional and institutional goals. Started in 1960, its use has continually broadened to meet growing academic and non-academic needs. The unit produces educational and informational programs each week for use in the classroom setting, by local commercial and public broadcast stations, by satellite transmission to regional centers and to cable access stations.

Programs are produced in the classroom in the three television production studios located in Dunbar Hall. These studios are multi-camera, broadcast quality, production centers. One of these studios is made available to the Department of Communication to teach students television production and performance. The third studio is a state-of-the-art remote-controlled classroom equipped to be linked via satellite to classrooms in other cities. The fourth studio, located in Sangren Hall, utilizes small format VHS technology. This studio is located in Room 1500 of Dunbar Hall.

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.

Musical Activities

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

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

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

Police

Located at the corner of West Michigan Ave. and Western Ave., the Department of Public Safety is open 24 hours a day, providing a full range of police services through the use of a uniformed patrol division, a detective division, and a crime prevention bureau. The Department of Public Safety is responsible for investigating all crimes and accidents occurring on University property and is committed to
Calliope, coordinated their efforts to create and maintain the Western Herald, WMU’s student newspaper, is published Mondays, Wednesdays, and Thursdays during the fall and spring semesters, Monday and Thursday during the spring session, and Wednesday during the summer session. The Western Herald is made available to students through the Office of Alumni Affairs and Development. The Westerner is published four times each year for alumni and other friends of the University. Reading Horizons, a quarterly journal devoted to the study of reading problems, is published by the Department of Education and Professional Development and the College of Education. East Lakes Geographer, a professional academic journal covering the entire breadth of geography and concentrating on the Great Lakes (Canada and the United States), is edited and published annually through the Department of Geography. The Department of English publishes a number of journals: Comparative Drama, a scholarly journal, circulated nationwide; The Western News, a student-edited literary journal containing poetry, prose, and the non-fiction writings of students and faculty; Trial Balloon, a faculty-edited literary journal containing work produced in creative writing courses; and Cellphone, for high school writers. Other academic areas that publish scholarly works include Center for Educational Research, Cistercian Studies, Department of Blind Rehabilitation and Mobility, Department of Mathematics and Statistics, Evaluation Center, Medieval Institute, and New Issues Press.

WMUK(FM) provides a cultural extension of the University through its broadcasts of campus, community, and area events. Through the satellite-linked National Public Radio network of stations, WMUK provides listeners with outstanding programming in the 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 member affiliate of NPR, the National Public Radio network of nearly 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 award for extraordinary service to the community through public radio, the Ohio State Award, and the George Foster Peabody Award for meritorious service in broadcasting. WIDR(FM), a 100-watt station operated by students and broadcasting on frequency 89.1, is located in the L. Dale Faunce Student Services Building. WIDR(FM) offers the only alternative music format in Southwestern Michigan and provides a unique opportunity for Western Michigan University students to gain experience in alternative music programming, promotion, and station operation.

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

Substance Abuse Services
University Substance Abuse Services, located in the Sincere Health Center, provides a program for Western Michigan University students concerned with their use, misuse, or abuse of alcohol and other mood-altering substances. Under the auspices of the University Counseling Center, the program offers information, case-finding, assessment, training, counseling and supportive therapy, referral and follow-up services to individuals and groups. Also offered are support groups to those students seriously interested in exploring their relationship with licit and illicit drugs (alcohol, marijuana, stimulants, narcotics, depressants and barbiturates). University Substance Abuse Services is directed by a state certified substance abuse therapist and professor of counseling. It is open Mondays and Thursdays from 8 a.m. to 5 p.m. All services are free and completely confidential as required by state and federal law. Students are encouraged to make an appointment through the Sincere Health Center reception area, or, by calling 387-3257.

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

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

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

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

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

Plagiarism
Definition: Intentionally or knowingly representing the words or ideas of another person as one's own in any academic exercise. Clarification:
1. Direct Quotation—Every direct quotation must be identified by quotation marks or appropriate indentation, and must be cited in a footnote or endnote.
2. Paraphrase—Prompt acknowledgement is required when material from another source is paraphrased or summarized, in whole or in part, in one's own words. To acknowledge a paraphrase properly, one might state: "To paraphrase Locke's comment..." Then conclude with a footnote or endnote identifying the exact reference.
3. Borrowed facts—Information gained in reading or research which is not common knowledge among students in the course must be acknowledged. Examples of common knowledge include the names of leaders of prominent nations, basic scientific laws, etc. Material which add only to a general understanding of the subject may be acknowledged in the bibliography and need not be footnoted or endnoted.

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

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

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

Student Academic Rights: Policies and Procedures

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

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

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

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

B. POLICIES AND PROCEDURES
1. Students should be fully informed by the faculty about course requirements, evaluation procedures, and the academic criteria to be used in each class. This information should be provided at the beginning of the semester or sufficiently in advance of actual evaluation.
2. Procedures for Reviewing Student Grievances Related to Grading
   - Students have the right to have all their examinations and other written graded materials 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 change if warranted.
   - 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 contact the student for at least one full semester after the course was given.
   - The Ombudsman will have the authority to investigate complaints, and recommend or negotiate fair solutions on behalf of the student.

Conduct and Discipline

Rules and regulations covering student conduct are developed by the Admissions, Financial Aid and Student Services Council, composed of faculty, 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 *The Code of Student Life*.

The Dean of Students has overall responsibility for student conduct and discipline. It is implemented by the Office of University Judiciary. If the student is still dissatisfied after seeing the University Ombudsman, the student should next see the department chairperson or head, who may effect a change if warranted.

The Family Educational Rights and Privacy Act

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

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

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

As its own 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(s) 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 athletics teams, and weight and height of members of athletic teams. Students may withhold directory information by notifying the Academic Records Officer in writing within the first full add period of each semester or session.

The law provides students with the right to inspect and review information contained in their educational records, to challenge the contents of these records, to have a hearing if the outcome of the challenge is unsatisfactory, and to submit explanatory statements for inclusion in their files if they feel that the decisions of the hearing panels are unacceptable. The Registrar at Western Michigan University has been designated by the institution to coordinate the inspection and review of educational records for student educational records, which include admissions, personal, academic, and financial files and academic, cooperative education, and placement records. Students may request 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 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 that the contents of their records 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' complaints, the appropriate records will be amended. If not, the students will be notified within a reasonable period of time that the records will not be amended and also be in violation 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 the time...
Sexual Harassment and Sexism
Western Michigan University is committed to an environment which encourages fair, humane, and beneficial treatment of all faculty, staff, and students. In accordance with that fundamental objective, the University has a continuing commitment to assure equal opportunity and to oppose discrimination because of race, sex, sexual orientation, religion, national origin, or handicap. Therefore, in that same perspective, neither sexual harassment nor sexism will be tolerated at Western Michigan University. It is expected that each member of the University community will consider himself/herself responsible for the proper observance of this policy.

DEFINITIONS

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

Conduct will be defined as sexual harassment when any or all three of the following conditions exist:
1. The sex-related situations are unwelcome by the recipient.
2. A specific or implied connection with employment or student status is involved.
3. The sexual harassment continues after the recipient has made it clear that the conduct is unwelcome.

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

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

COMPLAINT PROCEDURE
Sexual harassment and sexism constitute acts of misconduct. Therefore, whenever such acts are reported and confirmed, prompt, disciplinary action will be taken, up to and including discharge. However, to enable the University to act through these formal procedures, employees and students are encouraged to report such incidents. Employees should report such conduct to the Associate Vice President for the Department of Human Resources, and students should report it to the Associate Vice President for Student Services.

The Department of Human Resources and the Division of Student Services shall jointly establish appropriate procedures to implement this policy. They shall also investigate thoroughly any complaints of alleged sexual harassment or sexism, and then report the results of such investigations to the President of the University.

RECOGNIZING SEXUAL HARASSMENT AND SEXISM
Sexism and sexual harassment can take the form of:
• Derogatory jokes or comments based on sex.
• The use of graphics or other materials degrading persons based on their sex.
• Unwelcome touching or ogling.
• Overt advances.
• Coercion, with the promise of reward.
• Threats, with the promise of punishment; and
• Physical assault.

Sexism and sexual harassment are prohibited at Western Michigan University. The University's policy on harassment and sexism states: "Sexual harassment and sexism constitute acts of misconduct. Therefore, whenever such acts are reported and confirmed, prompt disciplinary action will be taken, up to and including discharge."

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

Any woman can be the target of harassment, but two groups are the most vulnerable: women entering male-dominated fields of study, and women from minority groups. Both of these types of women may feel uncomfortable and out of place in their environments. The harasser, sensing this discomfort, finds them easy prey.

TAKING ACTION AGAINST THE SEXUAL HARASSER
If you are being harassed, take action to stop it. The University will support you.

• Keep records of all incidents and confrontations.
• Find witnesses or others who will back you up.
• Get support from a friend, counselor, professor, or anyone else you trust. Make sure you don't keep it bottled up inside; the more help you get, the faster the harasser will stop.
Bachelor's Degrees

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

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

BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF FINE ARTS

BACHELOR OF MUSIC

BACHELOR OF SCIENCE
The student who completes a curriculum conforming to the requirements of this degree, with a minimum of forty hours taken from the General Education program, and courses in the Language and Literature, Science, or Social Science areas, is eligible for the degree of Bachelor of Science.

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

BACHELOR OF SCIENCE IN MEDICINE
Physician Assistant

BACHELOR OF SOCIAL WORK

SECOND BACHELOR’S DEGREE
A student may earn a second bachelor’s degree at Western Michigan University. In order to qualify, a student must meet all Western Michigan University bachelor degree requirements and earn a minimum of thirty semester hours of 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 subsequently from the director of Academic Records before beginning their course work.

Graduate Degrees

MASTER OF ARTS

MASTER OF BUSINESS ADMINISTRATION

MASTER OF DEVELOPMENTAL ADMINISTRATION

MASTER OF FINE ARTS

MASTER OF MUSIC

MASTER OF PUBLIC ADMINISTRATION

MASTER OF SCIENCE

MASTER OF SCIENCE IN ACCOUNTANCY

MASTER OF SOCIAL WORK

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

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

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

DOCTOR OF PUBLIC ADMINISTRATION

Certificates

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

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

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

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

PROVISIONAL CERTIFICATE REQUIREMENTS
A Provisional certificate is issued upon satisfactory completion of an approved program, including a bachelor’s degree, offered by a teacher preparation institution. An overall grade point of 2.5 is required at Western Michigan University for a Provisional certificate. Beginning September 1, 1991, the Michigan Board of Education will issue a teaching certificate to a person only after passing both a basic skills examination and an appropriate subject area examination for each subject in which certification is granted.

CONTINUING CERTIFICATE REQUIREMENTS
The requirements for the Continuing certificate are:

1. EXPERIENCE. The candidate must have taught successfully for the equivalent of three years following the issuance of and within the grade level and subject area validity of the Provisional certificate.

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

   Experience can be accumulated through part-time (including substitute teaching under the following pro-rating formula: one half or more of a teaching day (2½ or more clock hours) is the equivalent of one day, and 150 accumulated days is the equivalent of one year. There is no requirement that such experience be under contract, in consecutive years, be completed in Michigan, nor be completed before expiration of the Provisional certificate. All experience stays forever cumulative toward the Continuing certificate.

   1. Two PLANNED PROGRAM. The candidate must earn eighteen semester hours after the issuance of the Provisional certificate in a course of study established and/or approved as a “planned program” by an approved teacher education institution. A person with an approved master’s or higher degree (regardless of when earned) is not required to complete the eighteen semester hour program.

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

   Graduates of WMU who wish to be recommended for the Continuing certificate by
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-accredited 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 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 first ten semester hours of the eighteen semester hour "planned program." After expiration of the first three-year renewal, if the holder has not completed the experience requirements for the Continuing certificate, a second three-year renewal is available any time after actual completion of the entire eighteen semester hour "planned program."

Procedures for Applying for the Continuing Certificate, or the Provisional Renewal

The Continuation certificate or the Provisional Renewal will be recommended by the approved Michigan teacher education institution which "planned" or approved the eighteen semester-hour program of additional credit. The candidate applies directly to 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 certificate are available from the Certification Officer, College of Education, 2504 Sangren Hall, (616) 387-3473.

Validity Span of Michigan Certificates

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

Continuing certificates automatically remain valid as long as the holder serves in an "educational capacity" for a minimum of 100 days (need not be consecutive days) in any given five-year period. Continuing certificates automatically lapse on any given day that the holder has failed to serve in an educational capacity for a minimum of 100 days in the immediately preceding five years.

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

Certification Fees

Effective October 18, 1986, the Michigan Department of Education established an administrator/teacher fee for all transactions involving certification. A schedule of fees and the procedure for payment may be obtained from the Teacher Certification Office.

Undergraduate Curricula and Approved Majors

College of Arts and Sciences: LAS

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

CURR: ASC Arts and Sciences
Major: AMS American Studies
ANT Anthropology
BIO Biology
BMS Biomedical Sciences
BUC Business-Oriented Chemistry
CHM Chemistry
COM Communication
CPS Computer Science
EAC Earth Science
ECO Economics
ENG English
FHY Field Hydrogeology
FRE French
GEG Geography
GEL Geology
GEP Geophysics
GER German
HCH Health Chemistry
HIS History
HYG Hydrogeology
LAT Latin
LAV Lithuanian
LIN Linguistics
MAT Mathematics
PHL Philosophy
PHY Physics
POL Political Science
PCM Pre-Communication
PPY Pre-Psychology
PSY Psychology
PUR Public Relations
REL Religion
SGB Social Science
SOC Sociology
SOA Sociology/Anthropology
SPA Spanish
STA Statistics
TOU Tourism and Travel

CURR: LA Liberal Arts
Major: Must elect major from ASC Curriculum
CURR: CPU Computer Science—Theory and Analysis
Major: CPU Computer Science—Theory and Analysis
CURR: CRJ Criminal Justice
Major: CRJ Criminal Justice
COR Corrections
CURR: EVS Environmental Studies
Major: EVS Environmental Studies
CURR: PD Pre-Dentistry
Major: Must elect major from ASC Curriculum
CURR: PL Pre-Medical
Major: Must elect major from ASC Curriculum
CURR: PM Pre-Medicine
Major: Must elect major from ASC Curriculum
CURR: PAP Public Administration
Major: PPA Political Science in Public Administration
CURR: PUA Public History
Major: HIS History
CURR: STC Student Planned Curriculum
Major: STC Student Planned Curriculum

Curriculum until requirements have been met. See the College of Education section for complete information on admission requirements.

CURR: EED Elementary Education
Major: EGM Elementary Group Minor
CURR: EEM Elementary Music
Major: MUS Music, Elementary
CURR: JHS Middle School and Junior High School
Major: CPS Computer Science
ENG English
FRE French
GER German
MAT Mathematics
SCI Science
SPA Spanish
CURR: PED Pre-Education
Major: Select major approved for certification

Haworth College of Business: BUS

CURR: PBA Pre-Business Administration
Major: Must elect major from BAD Curriculum

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

College of Education: EDU

Students selecting teacher certification programs will be placed in the "PRE-EDUCATION" (PED) curriculum until requirements have been met. See the College of Education section for complete information on admission requirements.

CURR: EED Elementary Education
Major: EGM Elementary Group Minor
CURR: EEM Elementary Music
Major: MUS Music, Elementary
CURR: JHS Middle School and Junior High School
Major: CPS Computer Science
ENG English
FRE French
GER German
MAT Mathematics
SCI Science
SPA Spanish
CURR: SED Secondary Education
Major: AGR Agriculture
AMS American Studies
ANT Anthropology
BIO Biology
CHM Chemistry
CPS Computer Science
EAC Earth Science
ECO Economics
ENG English
FRE French
GEG Geography
GER German
HIS History
LAT Latin
MAT Mathematics
PHY Physics
POL Political Science
PSY Psychology
SCI Science
SOC Sociology
SPA Spanish

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

Note: "No" means that a slip is not required for the major, curriculum, or minor. "None" means that a major, curriculum, or minor is not offered.

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

The primary uses of the STC fall into three categories: 1) as a preparation for graduate or professional study, 2) as a way to pursue employment possibilities in areas where no conventional curricula exist, and 3) as a convenient and pleasurable way to obtain a broad interdisciplinary undergraduate education without particular concern for career possibilities. Non-traditional students are often especially attracted to it for this latter reason. Any undergraduate student in good academic standing, with 75 or fewer semester hours earned, is eligible to enter the STC. Students may initiate this process by contacting the University Counseling Center (387-1850) and requesting an appointment with one of the designated STC counselors. Those entering the curriculum are expected to develop a written statement outlining educational goals as well as the proposed course of study.

Preprofessional Curricula
Every professional school has prescribed the nature and amount of academic work to be completed as a prerequisite to the professional training for a particular profession. Four years of higher education are generally required by most professional schools for entrance. Western Michigan University is able to offer its preprofessional students those courses of study that meet the requirements for this preprofessional training. It should be noted, however, that the courses outlined are only suggested plans to illustrate in general the kinds of programs that preprofessional students should follow. In every case students should plan their courses of study according to the requirements of the school to which they plan to transfer for professional training. It cannot be emphasized too strongly that the student should exercise care to make certain that the specific requirements of a particular school will have been met.

DENTISTRY
Medical Sciences Adviser
2060 Friedmann Hall
387-4366

Most dental schools require three years of academic study and prefer baccalaureate degree candidates. They expect students to have good basic training in chemistry, biology, and physics, good communication skills, and some background in the humanities and social sciences. In general dental schools require two semesters each of English, Physics, Biology, Inorganic Chemistry, and Organic Chemistry. Since minimum course requirements vary among dental schools, you should find out specific requirements by consulting the publication, Admission Requirements of U.S. and Canadian Dental Schools, which is on reserve in Waldo Library and is also available in 2060 Friedmann Hall. The Dental Admission Test (DAT) is required by all dental schools, and is offered at Western Michigan University each spring and fall.

Most preprofessional students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, dental schools look with equal favor on other majors, as long as students complete the minimal preprofessional requirements. It is important that preprofessional students see the preprofessional adviser on a regular basis for curriculum guidance. The adviser is located in 2060 Friedmann Hall. Also available through the advising office are Predental Advisory Booklet, Dental Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee Services. Preprofessional students are encouraged to join the Medical Sciences Association, which is composed of students interested in health science careers.

The sequence of courses will depend on the student’s major and minor, as well as appropriate prerequisites. Western Michigan University courses which fulfill minimum dental school requirements, and also provide a good foundation for the Dental Admission Test, are listed below:

1. CHEM 101 or 102, 120, 360, and 361
2. BIO 101, 102, 213, 250, and 350
3. PHYS 110 and 111 or 210 and 211 (Physics is not required for the Dental Admission Test.)
4. ENGL 105 plus a literature course.

LAW
Advisers: Haworth College of Business W. Morrison, N. Baich, T. Gosman, P. G. Renstrom

387-7100

Advisers: College of Arts and Sciences
G. H. Demetrakopoulos
2060 Friedmann Hall
387-4366

No special 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.
Medical schools increasingly want students with diverse backgrounds and a wide variety of skills and interests. They expect good basic training in chemistry, biology, physics, and mathematics, but also want students to have well-developed communication skills and long-term interests in the humanities and social sciences. In general, medical schools require two semesters each of English, Physics, Biology, Inorganic Chemistry, and Organic Chemistry. Since minimum course requirements vary among medical schools, you should find out specific requirements by consulting the publication, Medical School Admission Requirements, which is on reserve in Waldo Library (card catalog No. R745.H8) and is also available in 2060 Friedmann Hall. The Medical College Admission Test (MCAT) is required by nearly all medical schools, and is offered at Western Michigan University each spring and fall.

Most premedical or preosteopathic students at Western Michigan University major in either Biology, Biomedical Sciences, or Chemistry. However, medical schools look with equal favor on other majors, as long as students complete the minimal premedical requirements. It is important that premedical and preosteopathic students see the preprofessional adviser on a regular basis for curriculum guidance. The adviser is located in the College of Arts and Sciences Advising Office, 2060 Friedmann Hall.

Also available through the advising office are Premedical Advisory Booklets, Medical College Admission Test application forms, centralized application service forms, and Preprofessional Evaluation Committee services. Premedical and preosteopathic students are encouraged to join the Medical Sciences Association, which is composed of students interested in health science careers.

Students should complete the minimal requirements by the end of their junior year or before they take the Medical College Admission Test. In addition, courses in cell biology, genetics, and physiology are recommended. The sequence of courses will depend on the student’s major and minor, as well as appropriate prerequisites. Western Michigan University courses which fulfill minimum medical school requirements, and also provide a good foundation for the Medical College Admission Test, are listed below:
1. CHEM 101 or 102, 120, 360, and 361
2. BIOS 101, 102, 213, 250, and 350
3. PHYS 110 and 111 or 210, 211, and 212
4. ENGL 105 plus a literature course.

PRE-ARCHITECTURE
Charon L. Sanford, Adviser
A preprofessional curriculum in architecture is outlined in this catalog in the College of Engineering and Applied Sciences section.
MILITARY SCIENCE

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

The Department of Military Science offers courses intended to develop leadership and managerial skills and to broaden students' knowledge of the role of the military in society. The department offers a four year and a two year Military Science program, which lead to an officer's commission in the Army Reserve, National Guard, or Regular Army upon successful completion of the program. ROTC scholarships are available to students, and a student need not be enrolled in the military science program to compete for the ROTC scholarship.

The chair of the department and all instructors are officers of the United States Army assigned to the University by permission of the University. They administer the military science program and conduct all classes offered by the department. The government provides uniforms for all advanced course students as well as additional financial assistance for students in the last two years of the program.

Career Opportunities
Army ROTC increases opportunities for students by giving them options and potential for a civilian and/or military career. To enter the Advanced Course, a student agrees to finish the ROTC instruction, then accept a commission and an assignment in either active or reserve forces duty.

The active duty career option is usually three years for nonscholarship students. Starting salary for a second lieutenant on active duty is approximately $3,400.

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 $2,100.

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

Scholarships
Army ROTC has one of the largest scholarship programs in the nation. Awards are competitively based on ability, not on income. ROTC scholarships are offered for four, three, and two years. Four-year scholarships are awarded to incoming college freshmen. Three and two-year scholarships are awarded to students already enrolled in college. It is not a requirement to be enrolled in ROTC to compete for a scholarship. ROTC scholarships pay for all tuition, lab, and most student fees; a flat rate for textbooks; and a tax-free subsistence allowance (up to $1,000) each year the scholarship is in effect.

Facilities
The department is located in Oakland Gym, with a marksmanship range and classroom facilities in house. Special training is also conducted at Fort Custer and Asylum Lake. More information about the ROTC program is available at the ROTC office or by calling (516) 387-8120 or 387-8115.

Four Year Program
The four year military science program is divided into a basic course (first two years) and an advanced course (last two years). Students who participate in the basic course are under no obligation to the active Army or the reserves.

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

Advanced Course
Students successfully completing the basic course may be enrolled in the advanced course with the permission of the chair of the department. Students accepted for the advanced course receive a non-taxable subsistence allowance of $100 per month while school is in session (up to $1,000 a year). The major emphasis of the advanced course is the development of individual leadership and stated military skills. During the junior year, students complete MLSC 340 and 350. Between the junior and senior year, students attend a six week camp which will qualify for academic credit (MLSC 390). During the senior year, students complete MLSC 440 and 450. Course work is also required of students in the areas of history, behavioral sciences, written communications, mathematics, and national security in order to complete the Military Science minor. These courses will be taken in the general education distribution program areas. The Department of Military Science Enrollment Officer should be consulted on the specific courses which satisfy these requirements. Exceptions must be approved by the chair of the department.

Two Year Program
For those students who are transferring into the University, graduate students, and currently enrolled students who have not taken military science classes, a two year program is available. Students enter this program by applying for attendance at a six week basic summer camp at Fort Knox, Kentucky. Attendance and successful completion of basic summer camp is substituted for the basic course classes. At the basic summer camp, the student is trained, fed, and housed at the expense of the government. The student also
receives travel pay plus a salary of approximately $675. Contact the Military Science Department for details.

Veterans can have the basic camp requirement and basic course waived by the department chair. Therefore, the student has only to complete the advanced course requirements while he or she is finishing the overall degree requirement in order to be eligible for a commission.

Students in the two year program receive uniforms and a non-taxable subsistence allowance of $100 per month while school is in session (up to $1,000 a year). Two year scholarships are available.

Military Science Minors
A department minor slip is required.

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

TWO YEAR PROGRAM
Prerequisite: Veteran, or 3 years JROTC, or Basic Camp, or approval of department chair.
Junior Year
MLSC 340 and MLSC 350 6 hrs.
Senior Year
MLSC 440 and MLSC 450 5 hrs.

ADDITIONAL REQUIREMENTS
In addition to the courses listed above, all students in the minor program must complete one course from each group below:

A. History
HIST 321 3 hrs.
HIST 420 3 hrs.

B. Mathematics
MATH 111 3 hrs.
MATH 116 3 hrs.
MATH 366 4 hrs.

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

D. Psychology/Sociology
PSY 194 3 hrs.
SOC 171 3 hrs.

Military Science Courses (MLSC)
Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture-lab hours).

Basic Course
MLSC 140 Military Survival Skills (2-2)
2 hrs. Fall, Winter
Emphasis is placed on outdoor survival skills; including land navigation, survival cooking, cold/hot weather injury prevention, basic first aid, CPR, and physical fitness. An off-campus exercise will put to use skills acquired during the course.

MLSC 150 Military Aspects of National Power (2-2)
2 hrs. Fall, Winter
A study of the factors contributing to national and international power, and an introduction to the principles of warfare and the causes of international conflict.

MLSC 240 Basic Leadership (2-2)
2 hrs. Fall
A study of leadership principles and methods of instruction. Includes a study of the evolution, purpose, and organization of the military.

MLSC 250 Basic Tactics (3-2)
3 hrs. Winter
A study of tactical considerations and employment of small military units to include their movement based on topographic map reading and land navigation techniques.

MLSC 290 Basic Leadership Field Experience
3 hrs. Spring, Summer
A six week summer camp designed for students who were unable to take the Military Science Basic Course on campus. The students receive practical experience and instruction in tactical and technical subjects, with specific emphasis on leadership training in the form of problem analysis, decision-making, and troop-leading procedures. Travel to and from camp and room and board are provided at no expense to the student. Prerequisite: Approval of department chair.

MLSC 296 Studies in Military Science
2 or 3 hrs. Fall, Winter, Spring, Summer
An opportunity for students who have been unable to take military science courses in sequence to obtain needed course work at more convenient times. Course content is adapted to meet the individual needs of the student. Prerequisite: Approval of department chair.

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

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

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

MLSC 390 Advanced Military Leadership (3-0)
3 hrs. Spring, Summer
A six week training session designed to supplement camp instruction by providing the cadet practical experience and instruction in tactical and technical subjects with specific emphasis on leadership training in the form of problem analysis, decision-making and troop-leading experiences. Prerequisites: Approval of department chair.

MLSC 440 Command and Staff (3-2)
3 hrs. Fall
A comprehensive course in the fundamentals of military administrative management and military law. Prerequisites: Approval of department chair.

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

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

Dr. Lynne McCauley, Director
Ms. Marilyn Duke, Chief Academic Adviser
201 Moore Hall

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

University Curriculum provides beginning and transfer students who wish to explore academic and career options with advising, assessment, and referral services designed to help them select a curriculum. The program is designed with a sensitivity to students' developmental as well as academic needs.

Students in the University Curriculum are assigned advisers and counselors who are specialists in academic planning, human development, and career planning. Help is provided for course selection, academic program planning, interpreting skills and interest assessments, exploring academic and career alternatives, and establishing goals. In addition to academic advising and career counseling, opportunities available for

University Curriculum students include:
- University 101: Freshman Seminar, 1-3 hours
- Arts and Sciences 100, Career Exploration and Development, 1 hour
- Academic Skills Center Programs and Workshops
- Career Exploration and Media Center
- Skills and Interest Assessment
- Specially designed freshman curriculum options suited to skills and interests

Course Options

UNIVERSITY (UNV)
UNV 101 Freshman Seminar
1-3 hrs.
This course is designed to assist students to encounter experientially, intellectually, and emotionally the various avenues of learning, and to foster the academic, personal, social, and career development of each student. The activities and assignments of the course will students in the development of an intellectual awareness and provide the skills and self-management required for a successful transition from high school to the University. The course is intended to excite students about learning and living in the new and challenging world of Western Michigan University. For freshmen only.

ARTS AND SCIENCES (A-S)
A-S 100 Career Exploration and Development
1 hr.
This course is designed to help the undecided student assess and develop skills in self-awareness, career awareness, decision-making and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, and University resources. Homework assignments will involve written exercises and research in the Career Media Center. Credit/No Credit.
THE HONORS COLLEGE

Joseph G. Reish
Associate Dean

John Martell
Assistant to the Dean

Faith Gabelnick
Dean

Academic Adviser

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

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

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

The Honors College is a member of the National Collegiate Honors Council and the Mid-East Honors Association. It is a founding member of the Michigan Honors Association. Honors students and administrators of the College have held offices in these organizations and regularly participate on regional and national Honors committees.

THE ACADEMIC PROGRAM OF STUDY

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

The purpose of the Honors College academic program of study is to deepen and enrich a student's undergraduate experience in a way which coordinates with other University requirements. At the freshman-sophomore level, it consists of courses which earn General Education or major credit and which are clustered around a theme in order to allow students to explore relationships among various disciplines. In consultation with an Honors adviser, students enroll in two course clusters consisting of three courses each. At the junior and senior levels, students take two interdisciplinary seminars which examine critical issues within the fields housed in a particular College. A senior capstone project requires students to prepare and present a paper or performance typical of professional work in their major field.

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

The following courses are available to hearten students to explore relationships among various disciplines. In consultation with an Honors adviser, students enroll in two course clusters consisting of three courses each. At the junior and senior levels, students take two interdisciplinary seminars which examine critical issues within the fields housed in a particular College. A senior capstone project requires students to prepare and present a paper or performance typical of professional work in their major field.

For further information on specific aspects of the Honors College, call or write to: Dean of The Honors College, Western Michigan University, Kalamazoo, MI 49008, (616) 387-3230.

Honors Courses (HNRS)

Each semester a variety of honors courses, course clusters, and seminars is offered. Many of these are applicable to General Education requirements and other curriculum requirements. These courses and seminars are described in the Honors College course booklet printed each semester. All honors courses taken since Fall 1988 are so indicated on the transcript.

The following variable topic/variable credit courses enable the Honors College to offer a wide range of additional seminar and experiential learning opportunities. Information and descriptions for specific semester offerings are available at The Honors College.

HNRS 290 Honors Seminar
Variable Credit
An undergraduate seminar for first- and second-year honors students. The content of the seminar varies and will be announced in advance.

HNRS 299 Independent Study
Variable Credit
An opportunity to explore individually, under the guidance of a member of the faculty, a topic or problem in almost any area.

HNRS 399 Field Experience (Community Participation)
Variable Credit
An organized association with a person or institution involving work and learning activities related to a significant academic interest of the student.

HNRS 480 Honors Seminar
Variable Credit
An undergraduate seminar for upper level honors students. The content of these seminars varies and will be announced in advance.

HNRS 492 Visiting Scholars
Variable Credit
A seminar involving visiting scholars from other institutions and countries. The content of these seminars varies and will be announced in advance.

HNRS 495 Individual Studies
Variable Credit
Students in the Honors College may enroll in this course for one or several semesters upon approval of the Dean of the Honors College. The course is an administrative facility for individual study outside the usual course structure.

HNRS 499 Honors College Thesis
3-6 hrs.
The design, writing and defense of a directed research project appropriate to the major disciplinary area of the student. The thesis must be directed by a faculty sponsor and approved by two additional faculty members knowledgeable in the discipline or allied discipline. A copy of the final project must be filed with the Honors College. Prerequisite: approval of the thesis project by the Dean.

HNRS 290 Honors Seminar
Variable Credit
An undergraduate seminar for first- and second-year honors students. The content of the seminar varies and will be announced in advance.

HNRS 299 Independent Study
Variable Credit
An opportunity to explore individually, under the guidance of a member of the faculty, a topic or problem in almost any area.

HNRS 399 Field Experience (Community Participation)
Variable Credit
An organized association with a person or institution involving work and learning activities related to a significant academic interest of the student.

HNRS 480 Honors Seminar
Variable Credit
An undergraduate seminar for upper level honors students. The content of these seminars varies and will be announced in advance.

HNRS 492 Visiting Scholars
Variable Credit
A seminar involving visiting scholars from other institutions and countries. The content of these seminars varies and will be announced in advance.

HNRS 495 Individual Studies
Variable Credit
Students in the Honors College may enroll in this course for one or several semesters upon approval of the Dean of the Honors College. The course is an administrative facility for individual study outside the usual course structure.

HNRS 499 Honors College Thesis
3-6 hrs.
The design, writing and defense of a directed research project appropriate to the major disciplinary area of the student. The thesis must be directed by a faculty sponsor and approved by two additional faculty members knowledgeable in the discipline or allied discipline. A copy of the final project must be filed with the Honors College. Prerequisite: approval of the thesis project by the Dean.
INTERNATIONAL EDUCATION AND PROGRAMS

Norman C. Greenberg
Dean
Howard J. Dooley
Assistant Dean
Michitoshi Soga
Assistant to the Dean
Nita Hurdie
Sunway College Liaison Officer
2909 Friedmann Hall
(616) 387-3951
FAX (616) 387-3962
Tel. 6877099 WEST MICH UNIV INTERED

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

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

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

INSTITUTION-TO-INSTITUTION LINKAGES

The Office of International Education and Programs negotiates formal linkages with educational institutions abroad. These institutional affiliations involve direct operational ties, arrived at through mutual agreement and providing mutual benefit. Western Michigan University's interest in institutional affiliations around the world is a logical outgrowth of the University's integrated, international perspective on education. WMU's current linkage partners include:

- Free University of Berlin, West Berlin, Federal Republic of Germany
- University of Passau, Passau (Bavaria), Federal Republic of Germany
- Fachhochschule Niederrhein, Munchengladbach, Federal Republic of Germany
- Keio University, Tokyo, Japan
- Rikkyo University, Tokyo, Japan
- Aoyama Gakuin University, Tokyo, Japan
- Josai University, Saitama, Japan
- St. Margaret's Junior College, Tokyo, Japan
- Nankai University, Tianjin, People's Republic of China
- Guangxi University, Nanning, People's Republic of China
- Xibei University, Xi'an, People's Republic of China
- Sookmyung Women's University, Seoul, Republic of Korea
- Sunway College, Petaling Jaya, Malaysia
- Inter-University Center, Dubrovnik, Yugoslavia
- University of Quebec at Hull, Quebec, Canada
- Yagyo School, Madrid, Spain
- Autonomous University of Guadalajara, Guadalajara, Mexico
- The American University in Cairo, Cairo, Egypt
- University of Liberia, Monrovia, Liberia

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. For students on the Roman military camp.

CHINA

Student Exchange Programs

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

DOMINICAN REPUBLIC

Geography and Tourism Program

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

EGYPT

Middle East Studies

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

ENGLAND

London Tour

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

Oxford Seminar

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

FRANCE

Undergraduate Language Program in

For the French major, this program is offered in cooperation with the Council on International business, familiarity with other cultures is an essential element of education. In order to facilitate cross-cultural education and communication, the Office of International Education and Programs offers a variety of study abroad and travel opportunities, open to undergraduate and graduate students as well as faculty, staff, alumni, and friends of the University.

AUSTRIA-BAVARIA

Summer Seminars in Admont, Enns, Table inset, and Vornbach/Passau

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

CMN

Student Exchange Programs

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

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Geography and Tourism Program

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

EGYPT

Middle East Studies

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

ENGLAND

London Tour

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

Oxford Seminar

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

FRANCE

Undergraduate Language Program in

For the French major, this program is offered in cooperation with the Council on International
Students may study for one or two semesters in courses designed to help participants achieve a semester program which combines academic and experiential learning. University of Haute-Bretagne in Rennes offers courses in commercial management, marketing, museum administration, communications, engineering, and computer systems, banking and translation.

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

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

Geography and Tourism Program
A field course offered in cooperation with the Eurorail study program and the University of Erlangen-Nuernberg. This program brings American and German students together in a study of the tourist industry in southern Germany, the Alps and northern Italy.

"GRAND TOUR" OF EUROPE
European Arts and Culture: Renaissance to Modern
A field course following the tracks of Boccaccio and Goethe on the classic itinerary of the Grand Tour: The Netherlands, France, Switzerland, Germany, Austria and Italy.

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

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

Japan Center for Michigan Universities
Educational programs at the Center in Hiroko, Shiga Prefecture include courses in Japanese language and culture for full-time students enrolled in Michigan public universities. The State of Michigan provides a limited number of partial scholarships, worth a maximum of $7,500 each for two semesters of study, for students recommended by their university. The Japan Center was established in 1986 by Shiga Prefecture and the State of Michigan as part of their more than twenty years of formal sister-state relationship. Semester and academic year options.

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

MEDITERRANEAN
Summer Institute on the Mediterranean World
A ship-based cruise program which visits archaeological sites in Italy, Southern France, Greece, Turkey, Egypt and Israel.

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

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

SPAIN
Undergraduate Language Program in Seville
For the Spanish major, this program is offered in cooperation with the Council on International Educational Exchange (CIEE) and the University of Seville. Students may study one or two semesters in courses designed to help students achieve fluency in Spanish.

Business and Society Program in Seville
A one semester program at the university of Seville which includes classes in Spanish business, economy, society, and advanced language. Also part of the program are visits to local companies, and optional internships in businesses such as IBM, Banque National de Paris, Investandustria, and Television Española.

Language and Area Studies in Alicante
Elementary-level Spanish language courses are offered at the University of Alicante, as well as undergraduate courses in English, in cooperation with the Council on International Educational Exchange (CIEEE).

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

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

INTERNATIONAL BUSINESS SEMINARS
Europe and the Orient
Summer seminar programs to Europe and the Orient expose participants to the international business environment and practices outside the U.S. Students participate in lecture/discussion sessions with executives of multinational corporations, local business firms, government agencies, and trade unions.

International Music Seminars
Strings, Piano, Alexander Technique, Art and Photography
Summer workshops for musicians, painters and photographers inspire a rich artistic interchange.

Concurrent with the workshops are a concert series and international art and photography exhibits. Location varies from year to year; past locations: Exeter, England; Bologna, Italy; Innsbruck, Austria.

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

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

Scholarship opportunities at Western Michigan University’s foreign study offerings are subject to change. Interested students are urged to contact the Office of International Education and Programs for current information.

SUMMER INSTITUTES
Summer Institutes in "English Language and American Culture" and "Business and American Society" are offered by the Office of International Education and Programs in cooperation with the Council on International Educational Exchange (CIEE) and the University Centre of Post-Graduate Studies in Eastern Europe (CIES) and the Institute of International Education (IIE) at Michigan University. Each program includes an international internship and studying a particular term of interest and schedule of each group. Subjects covered may include American English, Business English, American national character, history, politics, social issues, international relations, business practices, arts and music.

The Business and Society program includes visits to factories, offices, and farms, including the Uppjohn Company, General Motors, Nippondenso, Pioneer Seed Company, and the Chicago Board of Trade. The extracurricular program includes home visits with American families, a picnic at a Lake Michigan beach, local touring and visits to e.g. the President Gerald R. Ford Museum in Grand Rapids and the Henry Ford Museum (Greenfield Village) near Detroit. Summer Institutes are often combined with tours around the United States.

FULBRIGHT CAMPUS OFFICE
The Office of International Education and Programs is the official campus liaison office with the Council on International Educational Exchange (CIES) and the Institute of International Education (IIE) information about Fulbright Scholarships Abroad and Fulbright Scholars-in-Residence Grants, Fulbright Scholars and Occasional Lecturers, Teacher Exchange Programs, and Fulbright Grants for Graduate Study Abroad are made available to faculty members and students.

PEACE CORPS
Western Michigan University is the fourth largest source of Peace Corps volunteers among all colleges and universities in Michigan, according to a report published by the Peace Corps. Since the Peace Corps' founding in 1961, more than 270 Western graduates have served as volunteers. The Office of International Education and Programs assists in informational and recruiting activities.

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

International and Area Studies
Norman C. Greenberg, Director
2090 Friedmann Hall
(616) 387-3951

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

The International and Area Studies Program, established nearly thirty years ago with the assistance of a major Ford Foundation grant, serves as the focus of four areas of specialization: African Studies, Asian Studies, European Studies and Latin American Studies. Every semester, more than 140 courses are offered in International and Area Studies by faculty in 15 departments. The Area Studies programs operate under the supervision of the Dean of International Education and Programs. Detailed descriptions of the major and minor requirements for these programs may be found in the College of Arts and Sciences interdisciplinary programs section of this catalog.

Center for Korean Studies
Andrew Nahm, Director
4063 Friedmann Hall
(616) 387-4636

The Center for Korean Studies, established in 1972, promotes study and research in Korean culture and politics. In cooperation with the Asian Studies Program, it sponsors course offerings in Korean language, history, arts and government by appropriate departments. The Center publishes books on Korea, holds conferences and seminars on Korea, and organizes summer institutes in Korean studies and study tours to Korea.

Canadian Studies Committee
Bradley Hayden, Chair
715 Sprau Tower
(616) 387-2597

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

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

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

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

There are two principal methods by which students at Western Michigan University may earn credit through a period of foreign study:

1. A student may enroll in one of the University's study abroad programs, e.g. the Oxford Seminar or the Mediterranean Institute. Information on these programs and their procedures for enrollment can be obtained by contacting the Office of the Dean of International Education and Programs.

2. A student may enroll directly in a foreign university or participate in foreign study programs sponsored by other American colleges and universities. Information about the opportunities and procedural requirements of this option is provided by the Foreign Study Office, which maintains up-to-date listings, brochures, and application forms for more than 1,500 study programs in other countries. Material and advice on evaluation of foreign study programs is available.

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

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

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

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

SPECIAL PROGRAMS
The Foreign Study Office coordinates the annual International Study/Travel Night and workshops and smaller presentations on study, work, and travel abroad throughout the year. Students, faculty, and staff wishing to participate are urged to contact the office.
The College of Arts and Sciences at Western Michigan University offers undergraduate courses and programs in the humanities, the social and behavioral sciences, and the physical, biological, and mathematical sciences. The goals of the college for the undergraduate student can be seen as liberal, professional, pre-professional or vocational, depending on the student's motivation for enrolling in a particular course or program. In addition to providing specialization in its many disciplines, the college contributes to the basic knowledge and the general education of students throughout the University.

The College of Arts and Sciences expects that its students will develop self-confidence through what they learn, as well as a proper awareness of the extent of the knowledge they do not yet possess. It provides students with the tools to explore and master knowledge in areas beyond their present grasp. Thus, it hopes to encourage the growth of persons who are competent, humane, and sensitive to the human condition, and who therefore will make effective and substantial contributions to society.

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

Admission to Majors
In order to be admitted to any major in the College of Arts and Sciences, students should apply to the department or program before they have completed 35 semester hours. Transfer students with more than 35 hours should apply before matriculation. Failure to do this may mean that a student will not be permitted to enroll in major core courses. Change of 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. University Intellectual Skills, College Writing, Baccalaureate Writing, and Computer Literacy requirements.
7. Electives and/or cognates required by major or minor to make a total of 122 hours.

Liberal Arts Curriculum
Bachelor of Arts or Bachelor of Science Degree
1. Seventy (70) hours in the College of Arts and Sciences.
2. One course in Science or Mathematics
   One course in Social Sciences
   One course in the Humanities (excluding language courses)
   One course in the Fine Arts
   (These requirements are in addition to the General Education requirements.)
3. Major and Minor in the College of Arts and Sciences.
4. A minimum of fifty (50) hours of 300, 400, or 500 level courses.
5. Sixteen (16) hours of a foreign language or proficiency by exam.
6. General Education requirement thirty-five (35) hours. Consult the curriculum adviser.
7. Two (2) hours of Physical Education.
8. University Intellectual Skills, College Writing, Baccalaureate Writing, and Computer Literacy requirements.
9. Electives and/or cognates required by major or minor to make a total of 122 hours.

Other Curricula
For the other curricula offered by the College of Arts and Sciences, see the respective programs on the following pages. Advice regarding these programs may be obtained from the appropriate curriculum adviser listed with each program.

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

Students in the Arts and Sciences Curriculum and the Liberal Arts Curriculum should see a college adviser to plan their degree program. The staff of the College of Arts and Sciences Advising Office advises students concerning General Education requirements, Intellectual Skills, and other University requirements. An appointment with an adviser should be scheduled during the students first enrollment.
period in order to obtain information regarding requirements.

Transfer students in the Arts and Sciences and Liberal Arts Curriculum, after they have received their credit evaluation forms from the Admissions Office, should have their transfer courses evaluated for credit toward their General Education and other University requirements.

The staff of the Academic Advising Office will provide introductory information about the programs, majors, and minors available within the College of Arts and Sciences, and will make referrals to other advising facilities, such as departmental advisers, etc. Students seeking exploratory information about the programs and curricula of the college are encouraged to visit this office.

Students may stop by, or call 387-4366 for an appointment.

Arts and Sciences
College Courses (A-S)

A-S 100 Career Exploration and Development
1 hr. (Credit/No Credit)
This course is designed to help the undecided student assess and develop skills in self-awareness, career awareness, decision-making and planning. It will include activities to identify and explore the following areas: values, interests, career information, decision-making, and University resources. Homework assignments will involve writing exercises and research in the Career Media Center.

A-S 399 Field Experience (Community Participation)
2-8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. May be used as elective credit only. Prerequisites: A written outline of the student's project, approved by a faculty supervisor, with approval from the office of the Dean.

A-S 501 Studies in American Culture
1-3 hrs.
An interdisciplinary study of perennial issues in American life. The materials for this course are drawn from literature, the arts, the social sciences, philosophy, and religion. This course must be approved by the American Studies Program Adviser.

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

A-S 504 Foreign Studies Seminar
1-6 hrs.
Seminars in the Social Sciences conducted outside the U.S. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science or Sociology, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

A-S 505 Foreign Studies Seminar
1-6 hrs.
Seminars in the Humanities conducted outside the U.S. Students completing such a seminar may receive credit in the departments of Communication, English, Languages and Linguistics, Philosophy, Religion and the departments of the College of Fine Arts, if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

INTERDISCIPLINARY PROGRAMS

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

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

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

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

American studies also offers perceptive students an opportunity to evaluate the forces shaping their own culture and to assess their personal role in a complex society.

A 3.00 grade point average is generally considered a prerequisite.

MAJOR IN AMERICAN STUDIES
Students majoring in American Studies are expected to complete:
1. At least 36 hours in five approved fields.
2. At least 18 hours in courses numbered 300 or above.
3. At least 12 hours in one participating department.
4. An interdisciplinary course dealing with basic issues in American culture. A list of approved courses is available in 214 Moore Hall.

MINOR IN AMERICAN STUDIES
The Minor requires 20 hours from four approved fields of American Studies and one two-hour interdisciplinary independent study (Arts and Sciences 501). Approval of the adviser is required for entry into the program. Minor slip is required. A list of approved courses is available in 214 Moore Hall.

Black Americana Studies
LeRoi R. Ray, Jr., Director and Adviser
815 Sprau Tower
(616) 383-5015

Leander C. Jones
Benjamin C. Wilson

This interdisciplinary program has a corrective and supportive function to the curricula and services of the University. Its broad design is to penetrate, permeate, and pervade the life of the University. Its more specific aims are to provide
Black Americana Studies Courses (BAS)

(Courses described in italics are approved for General Education)

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

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

BAS 300 Black Experience
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. Slave narratives reveal much about the African interpretation of their presence in the New World. Black presence created a community 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.

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

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

BAS 320 Ecology and the Black Community
3 hrs.
Ecology and the Black Community will be an investigation of the relationships between human beings (local residents) and their social and physical environments. The course will focus on the determination of the individual's status in the community by an examination of the social, political, economic and physical aspects of the environments as influenced by the social order of the American society and philosophy.

BAS 350 Blacks in Michigan
3 hrs.
A survey of the significance of Blacks in the making of Michigan history. We will trace the movement of Blacks into Michigan, investigate patterns of settlement, reactions to the emigrés, and the development of Black families and church as principal forces in the Black community. We will study the political, social, and economic implications of being Black in Michigan, both in urban and rural areas from 1790 to the present. The student will be introduced to the varieties of historical sources available for such study.

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

BAS 310 Multiethnic Education
3 hrs.
This course is designed to prepare teachers to teach a social studies component, but teachers will learn how to compile data on the biological and specialized classes including: Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Criminal Law. Specialized work in juvenile justice, courts, probation, and corrections is available as well as certifiability as a Michigan police officer.

The Corrections Major provides an alternative focus in the area of corrections. It is designed for students to take advantage of job opportunities in the Department of Corrections and meet new requirements for certification under PA 415. The Corrections Major requires thirty-six hours of core and specialized classes including: Introduction to Corrections, Client Growth and Development, Correctional Institutions, Facilities, Client Relations in Corrections, Legal Issues in Corrections, Correctional Process and Techniques, Advanced Institutional Treatment of Offenders, Non-Institutional Treatment of Offenders, and Internship/Field Experience. Curriculum and program details may be found under Sociology/Criminal Justice.

INTERDISCIPLINARY PROGRAMS

Criminal Justice Program
Paul C. Friday, Director
2409 Sangren Hall
(616) 387-5284
Carole J. Rogers, Adviser
2407 Sangren Hall
(616) 387-5286

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

The Criminal Justice Major requires thirty-six hours of core and specialized classes including: Criminology, Criminal Justice Process, Sociology of Law Enforcement, Juvenile Delinquency, Correctional Process, Advanced Criminology, and Criminal Law. Specialized work in juvenile justice, courts, probation, and corrections is available as well as certifiability as a Michigan police officer.

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

The Corrections Major requires thirty-three hours of core and specialized courses including: Introduction to Corrections, Client Growth and Development, Correctional Institutions, Facilities, Client Relations in Corrections, Legal Issues in Corrections, Correctional Process and Techniques, Advanced Institutional Treatment of Offenders, Non-Institutional Treatment of Offenders, and Internship/Field Experience. Curriculum and program details may be found under Sociology/Criminal Justice.

Anthropology Hrs.
220 Cultural Anthropology
332 Topics in World Culture Areas: Culture of Africa

Economics
201 Principles of Economics
202 Principles of Economics
410 Labor Problems

English
223 Black American Literature

History
314 Black American History
386 Introduction to African History and Civilization

Political Science
341 African Political Systems

Religion
304 African Religions
311 Myth and Ritual

Sociology
200 Principles of Sociology
314 Ethnic Relations

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.)
MINORS
The Environmental Studies Program offers both a non-teaching and a teaching minor. These minors are offered for students who are unable to pursue a major but wish to 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 24 semester hours of approved course work within the program.
2. Successful completion of program component requirements as outlined below under the heading of program components.

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

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.

Program Components
ENVS 300—Introduction to Environmental Education
ENVS 400—Senior Seminar

Advising
Given the interdisciplinary nature of the program, it is very important that students work with one of the program advisers. Once a decision is made to major in Environmental Studies, students should come to the advising office, so that a program can be designed to meet requirements and fit individual interests. Information about internships, summer jobs, and career opportunities is also available in the advising office. Students are urged to consider an environmental internship, for which academic credit is usually available.

Environmental Studies Courses (ENVS)
(Courses described in italics are approved for General Education.)
ENVS 110 Fundamentals of Environmental Studies 3 hrs.
Fundamentals of Environmental Studies is an interdisciplinary introduction to the study of environmental concerns. It is particularly designed for students majoring or minoring in Environmental Studies, but is equally valuable for anyone desiring a conceptual foundation on which to build an independent study of these concerns. Attention is focused on the structure and behavior of systems—biological, physical and social—which both create and are
influenced by environmental problems. Particular attention is given to the role of energy in the definition and maintenance of these systems.

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

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

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

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

ENVS 400 Senior Seminar in Environmental Studies
3 hrs.
A team-taught, integrated seminar in which the subject material will be built around the orienting concepts of ecology, evolution and culture. Students will develop a project which demonstrates ecological relationships.

ENVS 550 Contemporary Environmental Projects
1-4 hrs.
Contemporary Environmental Projects is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, field experience, and/or workshop experience. Students selecting this course will work on projects especially designed for their programs. The goal of this course is to identify a problem, outline the approach to study, and consider paths to solving the problem. The course is repeatable for up to eight hours of academic credit. Prerequisite: Consent of instructor and approval of the Director of the Environmental Studies Program.

Integrated Language Arts Minor (ILAM)

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

An interdisciplinary program of:
COLLEGE OF ARTS AND SCIENCES
Communication English
COLLEGE OF EDUCATION
Education and Professional Development
COLLEGE OF HEALTH AND HUMAN SERVICES
Speech Pathology and Audiology

This 24-hour interdepartmental program for pre-service elementary school teachers emphasizes the integrated nature of language learning. The critical importance of fieldwork in the learning of pre-service teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions, and workshops together with opportunities for student-initiated learning.

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

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

Entry Courses—must be taken concurrently:
ILAM/SP 260 Linguistic Development of The Child ........................................ 2 hrs.

Intermediate Courses:
ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child .................... 4 hrs.
ILAM/ENGL 376 Acquisition of Literacy and the Later Elementary Child ..................... 4 hrs.

Capstone—to be taken after at least 16 hours of the minor are completed:
ILAM/ED 460 Integrated Language Arts Seminar ........................................ 4 hrs.

For individual course descriptions see catalog listings under the following departments.

International and Area Studies

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

AFRICAN STUDIES PROGRAM
Sisay Asfela, Chair

ASIAN STUDIES PROGRAM
Arthur W. Helweg, Chair

EUROPEAN STUDIES PROGRAM
William Ritchie, Chair

LATIN AMERICAN STUDIES PROGRAM
David Chaplin, Chair

The International and Area Studies Programs were established by the Trustees and Administration of Western Michigan University as interdisciplinary programs devoted to the study of cultures located geographically outside the continental United States. Coordination of the International and Area Studies Programs is provided by the Office of the Dean of International Education and Programs.

There are numerous programs that should be of great interest to undergraduate students; a detailed description of each will be found on the following pages of this catalog. In broad outline, these programs of study fall 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, languages, literature and fine arts, social institutions, political processes, major intellectual currents, geography, economic problems, and the relationship of these factors to the role of these nations in the world community. Students enroll in relevant departmental courses including readings and independent courses.

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

These programs seek to promote the following educational objectives:

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

The International and Area Studies Programs offer interdisciplinary international education programs to 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
Sitaya Asefa (Economics), Adviser 5025 Friedman Hall 387-5540

The African Studies Program is an interdisciplinary international education program of concentrated study leading to a coordinated major or ordinary regular minor in African studies as part of the student’s overall bachelor’s degree program. The specific aims are to develop a greater appreciation of the rich variety of African cultures and their achievements; to stimulate acquisition of languages spoken in Africa and knowledge about contemporary African affairs; and to provide a forum for the exchange, analysis, and evaluation of information and ideas concerning U.S.—African relations and the importance of Africa in the world.

This program is ideally organized for the student who wishes to take advantage of the Student-Planned Curriculum available at Western. A student who enrolls for the coordinate major in African studies must also have a disciplinary major in any college of the University. The program requires 24 semester hours of courses for the major and 15 semester hours for the minor (24 hours for students enrolled in any curriculum in the College of Education). Courses for the coordinate major or minor must be taken from the following list of courses and departments. Students must have their program of study approved by the African Studies Program Adviser.

**ANTH 332 Peopies and Cultures of Africa**

**ANTH 542 Development Anthropology**

**BAS 200 Black Presence**

**ECO 484 Comparative Economic Systems**

**ECO 588 Economics of Development**

**ENG 314 African Literature**

**GENL 305 Non-western Societies**

**GEOG 366 Subsaharan Africa**

**GEOG 303 Studies in Regional Geography—Africa**

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

**PSCI 250 International Relations**

**PSCI 341 African Political Systems**

**REL 304 African Religions**

**SOC 430 Sociology of Development**

Core Courses

**ASIAN STUDIES PROGRAM**

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

This is a program to acquaint people with Asia as a whole as well as specific topics and areas within the region. "The future is with the Pacific rim," is a common phrase and this program is designed to suit the individual focus of each student, whether the goal is international business and finance, technological transfer, economic development, cross-cultural negotiations, education, language training and developing an understanding of Asian communities in the United States.

**COORDINATE MAJOR**

Undergraduates may choose an interdisciplinary coordinate major in Asian studies. This is a double major program. In addition to fulfilling the requirements of a disciplinary major in any college of the University, the student is required to take 24 credit hours of approved Asian studies courses. An Asian language is not required for this major; however, it is strongly recommended, and training in an Asian language counts toward the requirements.

**MINOR**

Undergraduates in any college of the University may choose an interdisciplinary minor in Asian studies. Fifteen semester hours (24 for students enrolled in education curricula) of approved Asian studies courses are required. The minor in Asian studies has been approved by the State Board of Education for teacher certification at the secondary education level. For an up-to-date course list, see the program adviser listed above.

**EUROPEAN STUDIES PROGRAM**

Coordinate Major
William Ritchie (Political Science), Adviser 3025 Friedman Hall 387-5698

The courses for this program concentrate on the European area. They are drawn from sixteen departments of the University which offer subject matter focused on the European area. The program is designed to appeal to those students who have an interest in Europe and wish to transcend the disciplinary boundaries of any one field of study. The European Major must be undertaken in conjunction with a disciplinary major and is designed to broaden the student's general knowledge of the European area in general. Students are encouraged to concentrate on one of the major cultural linguistic regions of Europe. For those students who wish to broaden their knowledge in European culture and its institutions, and who do not wish to specialize in one of the major complexes, there is the general option.

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

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

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

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

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

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

**MINOR**

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

**British Studies**

Dr. Dale Patterson (History), Adviser

British Studies Program 4006 Friedman Hall 387-4639

Dr. William Ritchie (Political Science), Chair

European Studies Program 3025 Friedman Hall 387-5698

The Coordinate Major in British Studies is designed to complement, not substitute for, conventional major programs in the various colleges of the University. Undergraduate students having a strong interest in Britain may pursue an interdisciplinary curriculum tailored by the student and the adviser to further the student's interests and career needs. Twenty-four credit hours must be selected from several of the thirteen departments participating in the program. More than forty separate courses constitute the total British Studies option of the
European Studies Coordinate Major-Minor Program.

The Coordinate Minor program in British Studies may be chosen by the student in consultation with the adviser. A minimum of 15 credit hours of approved British Studies courses must be accumulated successfully. Courses in British Studies currently approved are included in the list below. Students should consult with the adviser as to additions or changes.

<table>
<thead>
<tr>
<th>A-S</th>
<th>Core Courses</th>
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<tbody>
<tr>
<td>504</td>
<td>-505 Foreign Studies Seminars</td>
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A SELECTION OF GERMANIC STUDIES COURSES

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European Studies Coordinate Major-Minor Program.

The Coordinate Minor program in French Studies may be chosen by the student in consultation with the adviser. A minimum of 15 credit hours of approved French Studies courses must be accumulated successfully. Courses in French Studies currently approved are included in the list below. Students should consult with the adviser as to additions or changes.

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Germanic Studies

Dr. Johannes Kissel (Languages and Linguistics), Adviser
Germanic Studies Program
419 Sprau Tower
387-3010

Dr. William Ritchie (Political Science), Chair
European Studies Program
350 Friedmann Hall
387-5698

Students in Germanic Studies usually combine a major in a regular academic discipline with a broader study of the culture, history, literature, politics, geography, and economics of the Germanic areas of Europe. Travel and study in the particular literature is encouraged whenever possible. Opportunities are made available through Foreign Study Seminars and through the Office of Foreign Study Services. The Coordinate Minor in Germanic Studies must be combined with a major in a conventional academic discipline such as language, art, music, political science, history, or business. It consists of 24 credit hours which the student chooses together with an adviser from over forty courses in thirteen departments. Eight credit hours or the corresponding knowledge of German or another Germanic language area are required together with the three core courses listed below. The Coordinate Minor may be used to supplement conventional majors or as a minor. It consists of 15 credit hours. Eight hours or the corresponding knowledge of German or another Germanic language area are required, together with two core courses drawn from the list below.

Core Courses

- GEOG 383 Comparative Economic Systems (Europe) 3
- HIST 563 Europe Since 1945 (Europe) 3
- PSCI 340 Western European Political Systems (Europe) 4

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Romance Studies

Dr. Joseph G. Reish (Honors College), Adviser
Romance Studies Program
509 Sprau Tower
387-3230

Dr. William A. Ritchie (Political Science), Chair
European Studies Program
3025 Friedmann Hall
387-5698

Romance Studies is a coordinate major or minor program emphasizing an interdisciplinary approach to the study of Romance languages, literature, and cultures. A student selects a program of study in consultation with the Romance Studies adviser.

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

Core Courses

- GEOG 383 Western and Southern Europe 3
- HIST 563 Europe Since 1945 (Europe) 3
- PSCI 340 Western European Political Systems (Europe) 4

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350 Friedmann Hall
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Slavic Studies Program
James Butterfield (Political Science), Adviser
3013 Friedmann Hall
387-5696

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

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

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

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

**ELECTIVE COURSES**—There are 9 hours to be taken from among the following courses and/or others as approved by a Slavic Studies adviser:
- ECON 484 Comparative Economic Systems 3
- ENGL 510 Special Topics in Literature: Russian Literature 4
- GEOG 384 Soviet Peoples and Landscape 3
- HIST 300 Issues in History: Modern Eastern Europe 3
- HIST 369 Soviet Union 3
- LANG 375 Foreign Literature in English Translation 3
- PSCI 344 Soviet and East European Political Systems 4
- PSCI 549 Problems of Foreign Political Systems: Soviet Politics 3
- RUSS 344 Summer Study in the Soviet Union 4

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

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

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

**LATIN AMERICAN STUDIES PROGRAM**

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

Students enrolled in this coordinate major must select at least 24 hours from core and cognate courses and a minimum of 9 hours from the program adviser. Students must demonstrate intermediate-level proficiency in Spanish or Portuguese.

Students wishing to enroll in the Latin American studies coordinate major should make this intention known to the Latin American studies adviser by no later than the first semester of their junior year—and preferably earlier.

**Honors Certificate Program**
A Certificate in Latin American Studies will be awarded to Western Michigan University students 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 and is, above all, tailored to each individual's interest.

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

Students wishing to enroll in this minor concentration should make this desire known to the Latin American studies adviser before courses employed to satisfy this program are taken; records of the minor are maintained and verified by the Latin American studies adviser.

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

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

**The Medieval Institute**
Otto Gründig, Director and Adviser

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

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

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

**MINOR PROGRAM**
Students with an undergraduate minor must elect twenty hours, to include the following:

1. One history course chosen from the approved list.
2. One literature course chosen from the approved list.
3. One course in intellectual history, philosophy, or religion chosen from the approved list.

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

**APPROVED COURSES**

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<th>Area</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Art</td>
<td>220</td>
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<tr>
<td>History of Art (to the Renaissance)</td>
<td>3</td>
</tr>
<tr>
<td>520     Independent Study in Art History</td>
<td>2-3</td>
</tr>
<tr>
<td>583     History of Medieval Art</td>
<td>3</td>
</tr>
<tr>
<td>585     History of Renaissance Art</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>252</td>
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<tr>
<td>Shakespeare</td>
<td>4</td>
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<tr>
<td>372     Development of Modern English</td>
<td>4</td>
</tr>
<tr>
<td>452     Shakespeare Seminar</td>
<td>4</td>
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<tr>
<td>510     Special Topics: Norse Literature and Mythology</td>
<td>4</td>
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<tr>
<td>530     Medieval Literature</td>
<td>4</td>
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<tr>
<td>532     English Renaissance Literature</td>
<td>4</td>
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<tr>
<td>555     Studies in Major Writers (Dante, Chaucer)</td>
<td>4</td>
</tr>
<tr>
<td>598     Reading in English</td>
<td>1-4</td>
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<tr>
<td>History</td>
<td>354</td>
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<tr>
<td>550     Medieval History</td>
<td>3</td>
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<tr>
<td>554     Renaissance and Reformation</td>
<td>3</td>
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<tr>
<td>598     Independent Study in History</td>
<td>3</td>
</tr>
<tr>
<td>French</td>
<td>550</td>
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<tr>
<td>550     Independent Study in French</td>
<td>1-3</td>
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<tr>
<td>560     Studies in French Literature (Medieval)</td>
<td>3</td>
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<tr>
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<tr>
<td>German</td>
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<tr>
<td>528     Survey of German literature (early)</td>
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<tr>
<td>550     Independent Study in German</td>
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<tr>
<td>559     History of the German Language</td>
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<td>Latin</td>
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<td>550     Independent Study in Latin</td>
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<tr>
<td>560     Medieval Latin</td>
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<tr>
<td>Spanish</td>
<td>322</td>
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<td>322     Life and Culture of Spain</td>
<td>3</td>
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<td>550     Independent Study in Spanish</td>
<td>1-3</td>
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<tr>
<td>560     Studies in Spanish Literature</td>
<td>3</td>
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<tr>
<td>Linguistics</td>
<td>421</td>
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<tr>
<td>421     The Development of Language: History and Dialects</td>
<td>4</td>
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<tr>
<td>598     Readings in Linguistics</td>
<td>1-4</td>
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<tr>
<td>Medieval Studies</td>
<td>145</td>
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<tr>
<td>145     Heroes and Villains of the Middle Ages</td>
<td>3</td>
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<tr>
<td>500     Interdisciplinary Studies in Medieval Culture</td>
<td>3</td>
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<tr>
<td>Music</td>
<td>270</td>
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<tr>
<td>270     Music History and Literature (early)</td>
<td>3</td>
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<tr>
<td>458     Readings in Music</td>
<td>1-4</td>
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<tr>
<td>517     Collegium Musicum</td>
<td>1</td>
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<tr>
<td>585     Medieval Music</td>
<td>2</td>
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</table>
Philosophy
303 Ancient and Medieval Philosophy ....4
498 Independent Study ...........................................2-4
598 Readings in Philosophy ..................................2-4

Political Science
360 Introduction to the History of Political Theory I .................................................3
598 Studies in Political Science ................................1-4

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

Theatre
370 Theatre History I ..........................................3

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

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

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

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

MDVL 597 Directed Study 1-3 hrs.
Research on a selected topic in the field of Medieval Studies directed and supervised by a faculty member. Registration requires at least junior standing and approval by the Director of the Medieval Institute. May be repeated for credit. Prerequisite: Approval application required.

Science and Mathematics Teaching Minor
Adviser: College of Education Office of Admission and Advising
2504 Sangren Hall

This minor is open only to students enrolled in the elementary education curriculum. Transfer students will need to have their previous coursework in sciences and mathematics evaluated by a College of Education adviser prior to enrolling in this minor. This minor results in an endorsement in science. To obtain information about an additional mathematics endorsement contact the Department of Mathematics and Statistics.

Because of the interdisciplinary nature of this minor, one course must be selected from each of the three science areas. Mathematics courses must be taken in sequence. Practica and seminar are taken concurrently. Courses approved for general education are marked with an *. A REQUIRED SCIENCE (Select one course from each area. Courses approved for general education are marked with an *)

Group Science Majors
Group majors are intended for students in the middle school and junior high school curricula. For information contact the College of Arts and Sciences Advising Office, 2060 Friedmann Hall (616) 387-4366.

The group science major in the Middle School and Junior High School Curriculum will include 12-13 hours of Biological Science, 11-12 hours of Earth Science and 12 hours of Physical Science. A total of 36 hours is required. The following courses are recommended:

**Biological Science** 12-13
BIOG 101 Animal Biology ........................................4
BIOG 102 Plant Biology ........................................4
One of the following:
BIOG 301 Ecology ...............................................4
BIOG 211 Human Anatomy .....................................4
BIOG 220 Applied Botany .....................................4

**Earth Science** 11-12
GEOG 105 Physical Geography ..................................4
Two of the following:
GEOG 130 Physical Geology ....................................4
GEOG 131 Earth History and Evolution .........................4
GEOG 300 Oceanography ......................................3
GEOG 301 Minerals and Rocks ................................3
GEOG 225 Intro. to Meteorology and Climatology ........3
GEOG 350 Principles of Conservation and Environmental Management .................................................3

**Physical Science** 11-12
PHYS 106 Elementary Physics ..................................4
PHYS 110 General Physics I ....................................4
One of the following:
CHEM 101 General Chemistry I ................................4
CHEM 102 General Chemistry I ................................4
CHEM 103 General Chemistry I ................................4
CHEM 140 Intro. Environmental Chemistry .................4

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

Minimum Total 36

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

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

**GROUP SOCIAL SCIENCE MAJOR**
This major provides an interdisciplinary experience in the social sciences. It is not open to students in education curricula.

Requirements include:
1. At least 36 hours credit in the College of Arts and Sciences from the departments of anthropology, economics, history, political science, and sociology.
2. The following basic courses must be completed. They may be applied towards either the social science major or a minor in one of the departments.

**GROUP SOCIAL SCIENCE MINOR**
This minor is open only to students enrolled in the elementary education curriculum. Transfer students will need to have their previous coursework in sciences and mathematics evaluated by a College of Education adviser prior to enrolling in this minor. This minor results in an endorsement in science. To obtain information about an additional mathematics endorsement contact the Department of Mathematics and Statistics.

Because of the interdisciplinary nature of this minor, one course must be selected from each of the three science areas. Mathematics courses must be taken in sequence. Practica and seminar are taken concurrently. Courses approved for general education are marked with an *.

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

**Biological**
BIOG 107 Biological Science ..................................4
BIOG 234 Outdoor Science ....................................4

**Earth Science**
*GEOG 130 Physical Geology ..................................4
*GEOG 105 Physical Geography (section for general education) ..........................4

**Physical Science**
CHEM 200 Chemical Science in Elementary Education .................................................4
GSCI 231 Physical Science in Elementary Education I .................................................4
(Prerequisite: GSCI 131)

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

**C. REQUIRED PRACTICA AND SEMINAR**
MATH 552 Teaching of Elementary Mathematics .................................................3
(Prerequisite: MATH 265)
ED 401 Teaching Elementary School Science .........................................................3
ED 402 Seminar in Elementary Science and Mathematics .................................................2

Math 552 and completion of all science courses are prerequisites for ED 401 and ED 402. ED 401 and ED 402 are to be taken concurrently.

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

**GROUP SOCIAL SCIENCE MAJOR**
This major provides an interdisciplinary experience in the social sciences. It is not open to students in education curricula.

Requirements include:
1. At least 36 hours credit in the College of Arts and Sciences from the departments of anthropology, economics, history, political science, and sociology.
2. The following basic courses must be completed. They may be applied towards either the social science major or a minor in one of the departments.

**GROUP SOCIAL SCIENCE MINOR**
This minor is open only to students enrolled in the elementary education curriculum. Transfer students will need to have their previous coursework in sciences and mathematics evaluated by a College of Education adviser prior to enrolling in this minor. This minor results in an endorsement in science. To obtain information about an additional mathematics endorsement contact the Department of Mathematics and Statistics.

Because of the interdisciplinary nature of this minor, one course must be selected from each of the three science areas. Mathematics courses must be taken in sequence. Practica and seminar are taken concurrently. Courses approved for general education are marked with an *.

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

**Biological**
BIOG 107 Biological Science ..................................4
BIOG 234 Outdoor Science ....................................4

**Earth Science**
*GEOG 130 Physical Geology ..................................4
*GEOG 105 Physical Geography (section for general education) ..........................4

**Physical Science**
CHEM 200 Chemical Science in Elementary Education .................................................4
GSCI 231 Physical Science in Elementary Education I .................................................4
(Prerequisite: GSCI 131)

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

**C. REQUIRED PRACTICA AND SEMINAR**
MATH 552 Teaching of Elementary Mathematics .................................................3
(Prerequisite: MATH 265)
ED 401 Teaching Elementary School Science .........................................................3
ED 402 Seminar in Elementary Science and Mathematics .................................................2

Math 552 and completion of all science courses are prerequisites for ED 401 and ED 402. ED 401 and ED 402 are to be taken concurrently.
Social Science Courses (SSCI)

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

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

Women's Studies Minor
Barbara Speas Havira, Adviser
337 Moore Hall
387-5366

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

The Women's Studies minor brings an additional perspective to any field of study, but is particularly useful in social work, education, the social sciences, the health professions, business, counseling, communications, and management. Course work encourages students to develop their critical skills and creative potential, and to become advocates for expanded opportunities for all women.

The women's studies minor consists of twenty or more hours of coursework selected in consultation with the director of Women's Studies. The Status of Women is the only required course; all others are electives. Courses that address variable topics require the approval of the director to obtain women's studies credit. Women's studies courses are open to all students and may fulfill general education, major, and elective requirements. For specific descriptions of the courses consult the departmental sections of the catalog.

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

Required:

- Hrs.
- Status of Women .......................... 4
- Electives (sixteen or more additional credits to be taken from the following):
  - ANTH 345 Topics in Anthropology: Sex and Gender (variable) ....... 3
  - COM 579 Female/Male Interaction (co-listed with SOC 579) ........ 3
  - CRT 205 Topics in Consumer Resources and Technology: Women and Health (variable) .......... 3

World Literature Minor
William Combs, Department of English, Adviser
Robert Felkel, Department of Languages and Linguistics, Adviser
387-6030

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

The world literature minor provides an opportunity for students to learn about the world's literature by taking courses in a variety of courses and departments at Western Michigan University. The world literature minor grows out of and is based on these courses. This minor should be of value to students who have a general interest in literature and are curious about the world, especially that part which does not have English as its literary language.

Any student, including those majoring 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 curriculum students should understand that this minor is not a teaching minor.

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

The minor should interest students who, whatever their career plans or major, wish the varied view and mixture of experience of an interdisciplinary program. Also, the wide range of electives possible should make the minor attractive to students who would like the opportunity to help shape their own programs.
Prerequisites listed for any of the courses in this minor will be waived. However, students with questions about the advisability of taking courses for which there are prerequisites should consult one of the minor 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 one of whom may issue minor slips. For information, stop at or call the English Department office (620 Sprau: 387-2570) or the Department of Languages and Linguistics (410 Sprau: 387-3001).

REQUIREMENTS
Twenty hours, with the following distribution:

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

2. Two courses selected from the following list:
   - **ENGL 110 Literary Interpretation**
   - **ENGL 252 Shakespeare**
   - **ENGL 312 Western World Literature**, if not used under Requirement (1)
   - **ENGL 313 Asian Literature**, if not used under Requirement (1)
   - **ENGL 314 African Literature**, if not used under Requirement (1)
   - **ENGL 315 The English Bible as Literature**
   - **ENGL 410 Special Topics in Literature**
   - **ENGL 442 Modern Drama**
   - **ENGL 510 Special Topics in Literature**

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

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

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

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

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

**AMERICAN STUDIES PROGRAM**
See “Interdisciplinary Programs” in the College of Arts and Sciences.

**ANTHROPOLOGY**

Robert Sundick, Chair
Nicole Constand, William Cramm
Elizabeth Garland
William Garland
Norman Greenberg
Arthur Helweg
Lawrence Israel
Alan Jacobs
Erica Lofthus
Allen Zagar

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

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

A major in anthropology consists of a minimum of 30 hours of anthropology courses and must include ANTH 210, 240, and 250. Only one course at the 100 level may be counted toward the major.

A minor in anthropology consists of a minimum of 20 hours of anthropology courses and must include ANTH 210, 240, and 250. Only one course at the 100 level may be counted toward the minor.

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

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

**GROUP SOCIAL SCIENCE**
Students in the secondary education curriculum who major in Anthropology must also complete a minor in group social science. Refer to the “Interdisciplinary Program” section of this catalog for a description of the minor requirements.

**Anthropology Courses (ANTH)**

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

**ANTH 100 Man in Evolutionary Perspective** 3 hrs.
The nature, causes and prospects of being human as seen through an examination of the events and processes of biocultural evolution.

**ANTH 110 Lost Worlds and Archaeology** 3 hrs.
An introduction to the archaeological record relating to the development of culture from its stone age origins through the development of village agriculture and the beginnings of urban life.

**ANTH 120 Peoples of the World** 3 hrs.
A general survey of the rich variety and types of traditional and contemporary societies in major culture areas of the world, such as hunting and...
gathering peoples, nomads, small-scale versus large-scale societies, and Non-Western
kingdom states. Intended as a general introduction to the field of ethnography, with
emphasis on detailed descriptions of representative societies.

ANTH 210 Introduction to Archaeology
3 hrs. Fall, Winter
The science of archaeology is explored in terms of the methods and concepts used to discover
and interpret past human behavior. Select portions of the Old and New World prehistoric
cultural sequences provide the frame of reference.

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

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

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

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

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

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

ANTH 332 Topics in World Culture Areas
3 hrs.
Studies of the major non-Western traditions of the world, such as those of North Africa and the Middle East, Sub-Saharan Africa, and Asia. Each offering covers major cultural configurations; e.g. rural-urban, peasant-nomad, great civilizations-tribal organizations. Emphasis will be on the unity and diversity, tradition, and changes of peoples and cultures in the developing world. Topics will be announced each semester. May be repeated for credit with different topics.

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

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

ANTH 345 Topics in Anthropology
3 hrs.
An intensive study of selected topics or emerging fields in anthropology, such as visual anthropology, museology, voluntary associations, population genetics, women and culture, socialization, and occult or utopian movements. Topics will vary and be announced each semester. (May be repeated for credit with different topics.)

ANTH 346 Microcomputers in Anthropology
3 hrs.
The use and application of microcomputer programs in anthropology and social science research, with practical instruction and experience in utilizing a number of software packages specific to portable, disk-based microcomputers, such as: word processing, statistical and multi-variate analysis, data base management, and communication with other computers and network systems via a modem. Emphasis given to learning program commands for purposes of customizing software packages for specific research tasks. Students will be expected to implement one or more software packages as part of their current research activities. Prerequisite: Computer literacy or consent.

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

ANTH 370 Culture and Communication
3 hrs.
A consideration of the nature and role of various symbolic systems of communication, especially non-verbal, such as food, dress, art forms, use of space, mythology and folklore. Intended as a general introduction to such fields as semiotics, proxemics, aesthetics, folklore analysis, structuralism, ethnosemantics, and modern theories of communication as they relate to cultural systems of cognition and social organization.

ANTH 490 Undergraduate Seminar in General Anthropology
2-4 hrs.
An informal seminar oriented to the integrative and synthesizing dimensions of anthropology. Through classroom discussions of readings, 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.

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

ANTH 500 Topics in 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.

ANTH 501 The Rise of Civilization
3 hrs.
The archaeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area (e.g. the Near East or Meso-America), or it may give equal emphasis to two or more areas in a comparative framework. The specific area or areas to be studied will be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 210 or consent of instructor.

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

ANTH 510 Field Methods in Archaeology I
3 hrs. Spring
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 archaeological problems chosen for investigation in a given field season. (May be repeated for credit.) Prerequisite: consent of instructor.

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

ANTH 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.

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

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

ANTH 531 Medical Anthropology 3 hrs. An examination of anthropological research relating to cross-cultural beliefs and practices about health and illness and the relationship between folk and scientific medical care systems. Included is analysis of public health programs in Western and developing societies, the effect of institutional/bureaucratic social structure on the adequacy of health care systems, and patients' rights in this age of extraordinary medical technology. Prerequisites: ANTH 220, 240, or consent of instructor.

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

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

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

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

ANTH 542 Development Anthropology 3 hrs. An examination of the role of social science when applied to the solution of specific development problems, particularly in the Non-Western World. Explores a wide range of applied or adaptive research techniques designed to insure that directed social change actually benefits those for whom it is intended. Also surveys numerous research strategies, methods, and constraints involved in conducting research for national or international development agencies. Prerequisites: ANTH 220, 240, or consent of instructor.

ANTH 545 Topics in Ethnology 3 hrs. Fall An intensive study of the cultures of an area of the world (e.g. Japan, Philippines, Caribbean, East Africa) or selected problems (e.g. kinship systems, millenarian movements). Topic will be announced each semester. (May be repeated for credit.) Prerequisite: ANTH 240, 220 or consent of instructor.

ANTH 551 Human Osteology 3 hrs. A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, paleoanthropology, and reconstruction of the individual and the population. Prerequisite: ANTH 250 or consent of instructor.

ANTH 555 Topics in Physical Anthropology 3 hrs. A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, paleoanthropology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

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

The specific objectives of the General and Preprofessional Option include: (1) providing technical training for employment in hospitals, clinics and basic research laboratories, industrial laboratories, and state and federal agencies; and (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.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, accountancy, economics, psychology, marketing, and interpersonal communication. Such students would be employable as technical representatives in the pharmaceutical or biomedical-industrial field.

BIOLOGICAL SCIENCES 79

BIOLOGICAL SCIENCES

Richard W. Pippen, Chair
Leonard J. Beving
Richard D. Brewster
David P. Cowan
Elwood B. Ehrle
Robert C. Eisenberg
Joseph G. Engemann
Gyula Ficior
Stephen B. Friedman
Leonard C. Ginsberg
Edgar Inselberg
Cecil McIntire
Jack S. Wood

An understanding of the biological sciences is essential if we are to solve the pressing social, environmental, and economic problems of our times. The Department of Biological Sciences offers a major and a program designed to provide today's student with effective knowledge and training in various areas of the Life Sciences.

The Biology Major explores the broad spectrum of the life sciences with opportunities to concentrate in aquatic biology, botany, ecology, evolutionary biology, physiology, zoology, or sample a number of areas. Students completing this major should be prepared for one or more of the following goals: (1) graduate study toward an advanced degree in the Biological Sciences, i.e., M.S. or Ph.D.; (2) employment in state and federal government service, industry, laboratory or technical work; (3) advanced study at the professional level, i.e., M.D., D.D.S., D.V.M., D.O.M., D.P.M., or Pharmacy.

The Biomedical Sciences Major is designed to prepare students for biomedical careers by providing (1) a core of basic biological sciences courses required of all department majors, (2) biomedical sciences courses in human anatomy, general microbiology and human physiology, and (3) advanced laboratory techniques are available in several elective courses. Three options are available within this major: the general and preprofessional option, the medical service representative option, and the medical technology option.

The specific objectives of the General and Preprofessional Option include: (1) providing technical training for employment in hospitals, clinics and basic research laboratories, industrial laboratories, and state and federal agencies; and (2) producing highly qualified students for advanced training at the graduate-professional levels, i.e., M.S., Ph.D., M.D., D.D.S., D.O.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, accountancy, economics, psychology, marketing, and interpersonal communication. Such students would be employable as technical representatives in the pharmaceutical or biomedical-industrial field.

The Medical Technology Option leads to a B.S. degree and is designed to prepare the student for entrance into the twelve-month clinical practicum in a hospital school of medical technology, which is required for certification by the American Society of Clinical Pathologists (ASCP). The resulting medical technologist is an important member of the health care team. He/she is the one who performs specialized tests that assist the physician in the diagnosis and treatment of various diseases. The medical technologist must, therefore, be precise and accurate in the performance of these tests and possess a keen awareness for the importance of quality control within the laboratory. This option assures the necessary strong background in biomedical
Biography Major—Secondary Education Curriculum

The SED curriculum consists of a minimum of thirty-six credit hours including the basic core curriculum and electives. The electives must include at least eight credit hours at the 200 level. A student may be eligible for equivalency and transfer credit toward the major. (See Transfer Students.)

CQUIRED CORE CURRICULUM

BIOS 101, 102, 211, 230, 252, and 350.

Cognate Requirements

Twenty-one hours of college-level science courses, including the basic core curriculum and electives. The electives must include at least eight credit hours at the 200 level. A student may be eligible for equivalency and transfer credit toward the major. (See Transfer Students.)

CURED CORE CURRICULUM

BIOS 101, 102, 211, 230, 252, and 350.

Cognate Requirements

Twenty-one hours of college-level science courses, including the basic core curriculum and electives. The electives must include at least eight credit hours at the 200 level. A student may be eligible for equivalency and transfer credit toward the major. (See Transfer Students.)

CURED CORE CURRICULUM

BIOS 101, 102, 211, 230, 252, and 350.

Cognate Requirements

Twenty-one hours of college-level science courses, including the basic core curriculum and electives. The electives must include at least eight credit hours at the 200 level. A student may be eligible for equivalency and transfer credit toward the major. (See Transfer Students.)

CURED CORE CURRICULUM

BIOS 101, 102, 211, 230, 252, and 350.
**Biomedical Sciences Minor—General Option**

**REQUIREMENTS**
- A minor in Biomedical Sciences consists of a minimum of eighteen credit hours including BIOS 101 or 102, BIOS 213 and BIOS 250 or 495. Four of the remaining eight or nine elective credit hours may be chosen from BIOS courses.

**Cognate Requirements for a Minor**
- Eight credit hours of college level chemistry and three hours of mathematics at the MATH 111 or above level.

**Science and Mathematics Teaching Minor**

The Department of Biological Sciences participates in the science and mathematics teaching minor for students in elementary education curriculum (EED). For a full description of the program consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

**Transfer Students**

A minimum of nine hours of coursework in the Biology Major and fifteen hours in the Biomedical Sciences Major and Medical Technology Major must be earned at Western Michigan University. At least six hours in any of the departmental minors must be earned at Western Michigan University.

Transfer students should consult with a departmental adviser before registering for classes.

**Suggested Sequence of Coursework**

**For Biology Majors**

<table>
<thead>
<tr>
<th>FRESHERMAN YEAR</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Fall (15-17 hours)</td>
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</tr>
<tr>
<td>BIOS 101 or 102</td>
<td>4</td>
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<tr>
<td>CHEM 101 or 102</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics—One of five courses specified, or a prerequisite for one of these, according to placement test</td>
<td>3-4</td>
</tr>
<tr>
<td>General Education elective—English 105 recommended</td>
<td>3-4</td>
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<tr>
<td>Physical Education</td>
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| Winter (15-17 hours) |       |
| BIOS 102 or 101 | 4     |
| CHEM 120 | 4     |
| Mathematics—One of five courses specified | 4     |
| General Education elective | 3-4    |
| Physical Education | 1   |

**Sophomore Year**

| Fall (14-15 hours) |       |
| BIOS 213 | 3     |
| CHEM 360 or 365 | 3     |
| PHYS 110 or 210 | 4     |
| General Education elective | 3-4   |

| Winter (13-15 hours) |       |
| BIOS 250 | 3     |
| Biological Sciences elective | 3-4   |
| PHYS 111 or 211 | 4     |
| General Education elective | 3-4   |

**Junior Year**

| Fall (13-16 hours) |       |
| BIOS 301 | 4     |
| Biological Sciences elective | 3-4   |
| Requirements for a minor (or second major) | 3-4 |
| General Education elective | 3-4   |

| Winter (12-21 hours) |       |
| BIOS 317, 319 or 350 | 3-5 |
| Biological Sciences electives | 3-4   |
| Requirements for a minor (or second major) | 3-6 |
| General Education electives | 3-6   |

**Senior Year**

| Biological Sciences electives to complete thirty-six hours, including six hours at 500 level |       |
| Complete Chemistry, Mathematics and Physics requirements |       |
| Complete specific curricular requirements, such as the language requirement in the Liberal Arts curriculum or the courses specified under the Preprofessional and Secondary Education curricula |       |
| Complete 122 credit hours. |       |

**For the Biomedical Sciences Major—General and Preprofessional Option**

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<th>FRESHERMAN YEAR</th>
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<tr>
<td>BIOS 101</td>
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<tr>
<td>CHEM 101 or 102</td>
<td>4</td>
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<tr>
<td>Mathematics*</td>
<td>4</td>
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<tr>
<td>General Education elective</td>
<td>3-4</td>
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<tr>
<td>Physical Education</td>
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</table>

| Winter (16-17 hours) |       |
| BIOS 102 | 4     |
| CHEM 120 | 4     |
| Mathematics* | 4     |
| General Education elective | 3-4   |
| Physical Education | 1   |

**Sophomore Year**

| Fall (15-17 hours) |       |
| BIOS 211 | 4     |
| BIOS 213 | 3     |
| CHEM 360 or 365 | 3     |
| General Education elective | 4-6 |

| Winter (14-15 hours) |       |
| BIOS 250 | 3     |
| CHEM 361 or 222 | 4     |
| PHYS 110 or 210 | 4     |
| General Education elective | 3-4   |

**Junior Year**

| Fall (15-17 hours) |       |
| BIOS 312 | 5     |
| PHYS 111 or 211 | 5     |
| General Education elective | 6-8 |

| Winter (16-18 hours) |       |
| BIOS 350 | 5     |
| CHEM 450 and 456 | 5     |
| BIOS electives | 3-4   |
| General Education electives | 3-4   |

**Senior Year**

| Biological Sciences electives to complete thirty-six hours, which must include a minimum of eight credit hours at 500 level (excluding 598 and 599). |       |
| Complete General Education requirements, minor and at least 122 total credit hours for graduation requirements. |       |

**For the Biomedical Sciences Major, Medical Technology Option**

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<td>4</td>
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<tr>
<td>General Education elective</td>
<td>3-4</td>
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<tr>
<td>Physical Education</td>
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| Winter (16-17 hours) |       |
| BIOS 211 | 4     |
| CHEM 120 | 4     |
| Mathematics | 4     |
| General Education elective | 3-4   |
| Physical Education | 1   |

**Sophomore Year**

| Fall (14-15 hours) |       |
| BIOS 213 | 3     |
| BIOS 365 | 5     |
| General Education elective | 3-4   |
| PHYS 110 | 4     |

| Winter (14-15 hours) |       |
| BIOS 250 | 3     |
| CHEM 222 | 4     |
| PHYS 111 | 4     |
| General Education elective | 3-4   |

**Junior Year**

| Fall (14 hours) |       |
| BIOS 536 | 3     |
| BIOS 430 | 4     |
| Management elective | 3     |
| BIOS 102 | 4     |

| Winter (15-16 hours) |       |
| BIOS 530 | 4     |
| CHEM 450 and 456 | 5     |
| Education elective | 2-3   |
| General Education electives | 3-4   |

**Senior Year**

| Fall (14 hours) |       |
| BIOS 536 | 3     |
| BIOS 430 | 4     |
| Management elective | 3     |
| BIOS 102 | 4     |

| Winter (15-16 hours) |       |
| BIOS 530 | 4     |
| BIOS 534 | 3     |
| BIOS 559 recommended | 3     |
| Electives | 5-6   |

**For the Biomedical Sciences Major, Medical Service Representative Option**

<table>
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<tr>
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<tr>
<td>CHEM 101 or 102</td>
<td>4</td>
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</tr>
<tr>
<td>Physical Education</td>
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</table>
BIOS 105 Environmental Biology 3 hrs.
An ecology course that will examine the relationships among living organisms, including man, and their environment. Emphasis will be placed on basic ecological principles. (Credit does not apply toward a major or minor in biology, botany, or zoology.)

BIOS 107 Biological Science 4 hrs.
Designed to present basic biological principles, and to give the student an understanding of the operation of the world of life. (Credit does not apply toward a major or minor in biology, botany or zoology.)

BIOS 112 Introduction to Biomedical Sciences 3 hrs. Fall, Winter
A course designed to provide a natural science foundation for BIOS minors, allied health majors, and general education students. Foundation concepts in anatomy, physiology, genetics, microbes, cell chemistry and biology, and ecology and botany are presented for students who do not have strong biology and chemistry backgrounds.

BIOS 211 Human Anatomy 4 hrs. Fall, Winter
A lecture and laboratory course in which all major structures of the human body are studied. Prerequisites: BIOS 101 or BIOS 112 or equivalent.

BIOS 213 Cell Biology 3 hrs. Fall, Winter
This course presents an introduction to the field of cell biology. Concepts which are stressed include cell structure and function, types, chemistry, transport, and interactions. Prerequisites: BIOS 101 or BIOS 112 or equivalent.

BIOS 214 Microbiology and Infectious Diseases 4 hrs.
An introductory microbiology course emphasizing characteristics and modes of transmission of those microorganisms which cause human disease. Credit does apply toward a minor in Biomedical Sciences major but does apply toward a minor.

BIOS 220 Applied Botany 4 hrs.
Lectures, discussions, field trips and greenhouse experience are used to develop an understanding of the practical applications of botany. Principles and practices in indoor and outdoor gardening, landscaping, plant propagation, and care and identification of cultivated plants are emphasized.

BIOS 234 Outdoor Science 4 hrs.
A course designed to increase the student’s awareness and appreciation of the biological environment. Lectures provide introductions to basic ecological principles. Weekly field trips to a variety of environments involve identification and ecology of local aquatic and terrestrial plants and animals.

BIOS 240 Human Physiology 4 hrs. Fall, Winter
This course is designed to provide non-majors with an understanding of the basic functioning of the organ systems of the human body and their regulation and control. The molecular and cellular mechanisms involved are emphasized. Applications to exercise physiology are made. Clinical applications are introduced where they provide additional insight into basic function and regulatory mechanisms. Prerequisite: BIOS 101 or BIOS 112; BIOS 211 is recommended.

BIOS 250 Genetics 3 hrs. Fall, Winter
A study of the mechanisms of heredity at the level of cells, individuals, families and populations. Prerequisite: BIOS 213 or equivalent.

BIOS 301 Ecology 4 hrs.
An introduction to the relationships of organisms to their environment and to one another. Interrelationships of individuals and the physical environment, dynamics of populations, and structure and function in the community and ecosystem are considered. Prerequisite: 8 hours of biological sciences

BIOS 312 Microbiology 5 hrs. Fall, Winter
An introduction to the fundamental relationships among microbes with an emphasis on controlling principles. Laboratory work deals with techniques basic to bacteriology. Prerequisites: BIOS 250 and a course in organic chemistry, or consent of department.

BIOS 317 Animal Physiology 4 hrs.
The field of comparative animal physiology is reviewed. Organs are compared and considered in their function of maintenance of homeostasis (healthful state). The structure and physiology study are combined in lecture and coordinated 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 biological sciences or consent of instructor.

BIOS 319 Plant Physiology 3 hrs.
An examination of plant functions and metabolism. The chemical elements essential for plant growth are studied, along with processes (such as photosynthesis) through which these elements combine to form cells and tissues. The structure of plant cells and tissues is observed, in order to provide an understanding of the localization of plant functions. The lab uses up-to-date techniques and equipment to investigate processes, such as enzyme action, respiration and the movement of substances through membranes. Prerequisites: BIOS 102 and a course in organic chemistry.

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

BIOS 330 Clinical and Pathogenic Microbiology 4 hrs. Winter
A course dealing with infectious diseases and their etiology. Emphasis will be placed on epidemiology, pathogenesis and pathology, diagnosis and treatment of various diseases.

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

BIOS 101 Animal Biology 4 hrs.
An introductory course in biology in which animals are used to illustrate basic biological principles. The relationships between the structure, function, and habitat of representative animals are emphasized. Surveys of the major animal systems and the major animal phyla are included. This course may be taken concurrently with BIOS 102, Plant Biology.

BIOS 102 Plant Biology 4 hrs.
An introductory course in biology in which plants are used to illustrate basic biological principles. The interaction of structure, function, and environmental factors is emphasized. A survey of monocots, lycopsids, algae and multicellular plants is included. This course may be taken concurrently with BIOS 101, Animal Biology.

BIOS 107 Biological Science 4 hrs.
Designed to present basic biological principles, and to give the student an understanding of the operation of the world of life. (Credit does not apply toward a major or minor in biology, botany or zoology.)

BIOS 112 Introduction to Biomedical Sciences 3 hrs. Fall, Winter
A course designed to provide a natural science foundation for BIOS minors, allied health majors, and general education students. Foundation concepts in anatomy, physiology, genetics, microbes, cell chemistry and biology, and ecology and botany are presented for students who do not have strong biology and chemistry backgrounds.

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

BIOS 330 Clinical and Pathogenic Microbiology 4 hrs. Winter
A course dealing with infectious diseases and their etiology. Emphasis will be placed on epidemiology, pathogenesis and pathology, diagnosis and treatment of various diseases.
Laboratory will employ current methods utilized for cultivation and identification of most common pathogens and nonpathogens encountered in a clinical microbiology laboratory. Prerequisites: BIOS 312.

BIOS 350 Human Physiology for Majors 5 hrs. Fall, Winter
An introduction to the function and interrelationships of the human body organ systems with description of various physiological malfunctions. The laboratory provides experience with some types of clinical measurements, laboratory instrumentation, data organization and scientific writing. Prerequisites: BIOS 250 and organic chemistry; anatomy is recommended.

BIOS 401 Pathogenic Microbiology for Physician's Assistants 2 hrs. Winter
This course describes the common diseases and their treatment with emphasis on the significance of laboratory findings in their diagnosis. Students must be in Physician Assistant program or consent of instructor.

BIOS 404 Problems in the Teaching of Biology 3 hrs.
This course describes the common diseases and their treatment with the teaching of biology in high school. Required of all students who are following a secondary education curriculum and are major or minor. This course assumes a working knowledge of plants, animals, and biochemistry, and of ecology, physiology, as well as ecology and genetics. Limited to majors and minors enrolled in a secondary education curriculum.

BIOS 430 Hematology—Serology 4 hrs. 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: BIOS 350, CHEM 450 and 456.

BIOS 485 Medical Genetics 3 hrs. Winter (alternate years)
This course will teach the information necessary to understand Medical Genetics. The principal focus will be on the principles of human genetics and birth defects, genetic and congenital abnormalities associated with various parts of the body will be presented. Topics to be covered include sensory disorders, mental retardation, genetics of cancer, skeletal abnormalities, genetic disorders of the blood system, and genetic counseling. Prerequisites: BIOS 112, 240 and permission of instructor.

BIOS 501 Ecological Adaptations of Organisms 3 hrs.
An investigation of the many environmental factors (light, temperature, time, magnetism, and others) that influence the life and behavior of organisms. A study will be made of the strategies used by organisms to adapt to these factors. Adaptations will be considered as adjustments in both behavior and physiology. Ecological interactions between the environment and the organisms at the molecular, cell, and organ levels will be studied. Plants, animals, and microorganisms will be used as examples. Prerequisite: consent of instructor.

BIOS 507 The Biology of Addictive Drugs 3 hrs.
The principles of pharmacology (modes of action and effects of drugs) as related to abuse drugs, such as marijuana, alcohol, heroin, methadone, LSD, amphetamines (Speed), and cocaine. The course is designed primarily for non-science majors to give them an understanding of the objective and subjective effects of drug use. Legal and social implications of illegal drug use are discussed. No prerequisites.

BIOS 509 Evolution 3 hrs.
A consideration of the theory of evolution by natural selection, including discussions of the mechanisms of evolution and predictions generated by the theory. Prerequisites: BIOS 250 and BIOS 301 or consent of instructor.

BIOS 512 Environment and Health Problems 3 hrs.
The impact of the environment on the health of the individual and of populations, the resulting physiological and pathological difficulties, and the various means employed in meeting these challenges. Prerequisite: 8 hours of biological sciences.

BIOS 515 Plants for Food and Industry 3 hrs.
Representative cereal, fiber, and industrial plants of primary economic importance will be examined, such as wheat, rice, wood and its uses, soybeans, and grapes. Following discussion of plant composition and some of the important processes involved in plant growth, we will look into the botanical characteristics of each plant, the areas where it is grown and why, the special aspects of its composition and growth habits that account for its economic prominence, its value in human nutrition, and some of its special problems. The course is enriched with several demonstrations and lab experiences that include diverse practical applications. Prerequisites: BIOS 102 and a course in organic chemistry.

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

BIOS 520 Human Genetics 3 hrs. Winter (alternate years)
The principles of human heredity with particular emphasis on the clinical significance of biochemical and chromosomal variation. Abnormalities of development and methods of risk analysis in genetic counseling are discussed. Prerequisite: BIOS 250; biochemistry is recommended.

BIOS 524 Microbial Genetics 3 hrs. (alternate years)
A molecular approach to microbial genetics, dealing primarily with bacterial and viral systems. Emphasis is placed on current literature and on the application of concepts to biomedical research. Prerequisites: BIOS 250 and 312 or consent of instructor; biochemistry is recommended.

BIOS 525 Genetics Laboratory 3 hrs. Winter (alternate years)
Students will acquire techniques currently used in the field of genetics. Although all areas of genetic interest will be presented, emphasis will be placed on the areas of cytogenetics, biochemical genetics, genetic toxicology and genetic counseling techniques which are currently used in industrial and biomedical research areas. In addition, time will be provided for indepth experimentation. Prerequisite: BIOS 250 or equivalent.

BIOS 527 Systematic Botany 4 hrs.
Principles and techniques of plant classification, nomenclature, and biosystematics are presented in lectures in the field, and laboratory experiences using vascular plants as examples. Evolutionary trends, family characteristics and experimental systematics of vascular plants are emphasized. Students will be able to recognize 100-150 plant species by common and scientific name. Prerequisite: BIOS 102 or equivalent.

BIOS 528 Biology of Non-Vascular Plants 4 hrs.
A detailed comparative study of the morphology, life cycles, and ecology of the algae, fungi, and bryophytes. Laboratory study will be complemented by field investigations. An independent project may be required. Prerequisite: BIOS 102.

BIOS 531 Biology of Aging 3 hrs.
This course is designed to provide students with an understanding of the aging process. The lectures will emphasize the anatomical, physiological and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process. Prerequisites: An introductory physiology course or consent of instructor.

BIOS 532 Bacterial Physiology 3 hrs. Winter
Bacterial structure-function relationships are examined in a biochemical context. Current concepts of cell biochemistry are organized around the bacterial cell as a traditional model system for understanding energetics, synthesis of cell structures, transport, metabolism and regulatory mechanisms. The course is designed for advanced undergraduates and beginning graduate students. No textbook is required; reading assignments are from the scientific literature. Prerequisites: a microbiology course and a biochemistry course.

BIOS 533 Neuroendocrinology 3 hrs.
Neuroendocrinology is designed to acquaint the student with the interrelationships of the environment and the organisms as mediated by the neuroendocrine system. The 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. Prerequisite: a course in neurology, organic chemistry or consent of instructor.

BIOS 534 Virology 3 hrs. Winter
A study of the classification, structure and chemistry of viruses. Emphasis will be placed on the cell-virus interaction leading to the disease process or cellular alterations in mammalian systems. Prerequisite: BIOS 312; biochemistry is recommended.
84 COLLEGE OF ARTS AND SCIENCES

BIOS 535 Plant Nutrition
3 hrs.
The elements essential for plant growth and development, their uptake, and their main functions in the plant are examined. Some important relationships of plant nutrition to human nutrition will be pointed out. Throughout the course a balance between theory and application will be maintained. The cycling of elements in nature provides insights into ecological aspects of plant nutrition. Several demonstrations and lab experiences serve to enrich the course; for example, the students make up nutrient solutions, grow various plants in them, and observe the effects of nutrient deficiencies. Prerequisites: BIOS 102, CHEM 101, and a course in physiology.

BIOS 536 Immunology
3 hrs.
A study of the biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens and their interaction. Emphasis will be placed on in vitro and in vivo humoral and hypersensitivity reactions. Prerequisite: BIOS 312; biochemistry is recommended.

BIOS 537 Histology
3 hrs. Fall
A study of the function and microscopic anatomy of mammalian tissues. Prerequisite: BIOS 211 or consent of instructor.

BIOS 539 Animal Behavior
3 hrs.
Animal behavior with emphasis on evolution and ecology. Includes an introduction to the ethological point of view. One student project. Prerequisite: 8 hours of biological sciences or consent of instructor.

BIOS 540 Cell and Organ Culture
3 hrs. Fall
The purpose is to introduce the student to the fundamental procedures of cell and organ cultures of mammalian tissue. The application of cell and organ culture to routine clinical, research or drug screening procedures will be emphasized as well as specialized procedures employed to solve specific biomedical research problems. Prerequisite: consent of instructor.

BIOS 541 Invertebrate Zoology
3 hrs.
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: 12 hours of biological sciences, including BIOS 101.

BIOS 542 Entomology
4 hrs.
A general study of insects, their structure, classification, life histories, ecological relationships and economic importance. Collection and identification of local species is included. Prerequisite: 8 hours of biological sciences, including BIOS 101.

BIOS 547 Ornithology
3 hrs.
An introductory course that explores both scientific and popular aspects of bird study. Life history, behavior, ecology and identification are emphasized.

BIOS 548 Animal Ecology
3 hrs.
Principles of animal populations and communities, with emphasis on the interrelations of life history features (such as habitat selection and reproductive patterns and population traits; competition and predation and their role in the evolution of community structure; and the roles of animals in the functioning of ecosystems). Methods of determining abundance are studied. Prerequisite: BIOS 201 or equivalent.

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

BIOS 553 Limnology
3 hrs.
Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisites: BIOS 101 and 102. CHEM 101 recommended.

BIOS 554 Histological Techniques
2-3 hrs. Winter (alternate years)
A variety of techniques including cellicidin, paraffin, decalcification and special stains will be used to prepare mammalian tissues for histological examination. Prerequisites: BIOS 537 or consent of instructor.

BIOS 555 Marine Biology
3 hrs.
A survey of marine biology topics including: the physical marine environment and general principles of marine ecology; marine plants and animals, with emphasis on their special roles and adaptations; major marine communities; and marine biotic resource conservation and utilization. Selected topics of current research are included. Prerequisite: 8 hours of biological sciences or consent of instructor.

BIOS 556 Tropical Biology
4 hrs.
A travel study course providing an introduction to both terrestrial and marine ecosystems in the tropics. The course, consisting of lectures, field explorations, and individual projects, examines the major life zones and biogeography of the region visited, from an ecological perspective. Tropical Rain, Montane, and Dry Forests and the biology of a coral reef will be studied. Human ecology, agriculture (tropical fruits and vegetables, sugar cane and coffee) and environmental issues will also be included. The course will be presented on one of the islands of the Caribbean and/or in Central America. Prerequisites: Two courses in biological sciences or consent of instructor.

BIOS 557 Water Pollution Biology
3 hrs.
A comparison of organisms which live in clean waters as contrasted with those in polluted waters. Streams, lakes and ponds will be studied. Water conditions will be analyzed, and the use of biological indicators will be studied. The course will include field trips, laboratory work and lecture presentations. Prerequisites: BIOS 101 and 102.

BIOS 570 General Pathology
4 hrs. Fall (alternate years)
An introduction to pathology which describes to the structural and biochemical changes occurring in cells and tissues following injury or disease. Prerequisites: BIOS core curriculum and organic chemistry.

BIOS 574 Embryology
4 hrs. Fall
Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. This course will present this material from both a classical descriptive and an experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos in vitro and in vivo. Prerequisite: BIOS 213, 250 or equivalent.

BIOS 577 Comparative Animal Physiology
3 hrs.
An examination of how different groups of animals have adapted to various aspects of a dynamic environment. Prerequisite: One course in physiology and one course in organic chemistry.

BIOS 596 Readings in Biological Sciences
1-3 hrs.
Approved application required.

BIOS 599 Independent Studies in Biological Sciences
1-4 hrs.
Approved application required.

BLACK AMERICANA STUDIES
See "Interdisciplinary Programs" in the College of Arts and Sciences.
CHEMISTRY

Michael E. McCarville, Chair
Donald C. Berndt
Donald J. Brown
Dean W. Cooke
J. Lindsey Fote
Robert E. Harmon
Thomas Houser
James A. Howell
Joseph M. Kanameru
George G. Lowry
William J. Kelly
Donald R. Schreiber
Ralph K. Steinhaus
Joelchan Sneath
H. Dale Warren

Students majoring in chemistry may prepare for a career in high school teaching, industrial laboratory work, or graduate work in departments of chemistry, biochemistry or medical colleges. The course offerings for the undergraduate attempt to give a broad but thorough grounding in the elements of chemistry. They should be fortified by a minor in physics, mathematics, or biology. Most students who intend to do advanced work in chemistry should plan to obtain a reading knowledge of a European language. At the present time German is preferred, but French or Russian might well be taken.

The Chemistry Department is accredited by the American Chemical Society. Students who follow the American Chemical Society certification course sequence below are considered professional chemists by the American Chemical Society. These students are eligible for direct membership senior grade in the American Chemical Society immediately upon graduation.

In order to complete an American Chemical Society certified chemistry major, the following would be the 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 or mathematics of physics as approved by the Chemistry adviser. Reading knowledge of a foreign language is required for ACS certification.

 Majors and Minors

To qualify as a major or minor in chemistry from Western Michigan University the student must complete a minimum of 14 credit hours or 7 credit hours, respectively, in the Chemistry Department following the declaration of the major or minor with the departmental adviser. Students who plan to attend graduate school in chemistry should take a minimum of courses under the credit-no credit option.

Students who fail to earn a grade of "C" or better in CHEM 120, 360, and 430 must not enroll in courses requiring these classes as prerequisites.

The Arts and Sciences Curriculum Chemistry Major requires 34 hours in chemistry including the basic sequence through Physical Chemistry as in the A.C.S. certified program and two 3 or 4 hour courses at the 500 level, chosen from at least two areas of chemistry.

Secondary Education Chemistry Majors require 30 hours of chemistry courses as in the Arts and Sciences curriculum including a minimum of 4 hours of Physical Chemistry.

The Health Chemistry Major is designated to meet the needs of a chemistry background for the preprofessional degree leading to health science areas such as medicine, dentistry, veterinary medicine, clinical chemistry, toxicology, pharmacology, etc. A minimum of 33 chemistry credit hours must be selected according to the following:
CHEM 101 or 102, General Chemistry I
CHEM 120, General Chemistry II
CHEM 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
CHEM 222, Quantitative Analysis
CHEM 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 II (21 hrs.) in the Haworth College of Business and must include BUS 142, 242 courses in writing and communication. This chemistry major must include a minimum of 30 chemistry credit hours as follows:
CHEM 101 or 102, General Chemistry I
CHEM 120, General Chemistry II
CHEM 360, Organic Chemistry I
CHEM 361, Organic Chemistry II
CHEM 222, Quantitative Analysis
CHEM 450, Introductory Biochemistry
CHEM 535, Introduction to Physical Chemistry 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.

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 "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.

Chemistry Courses (CHEM)

(Courses described in italics are approved for General Education)

CHEM 100 Introduction to General Chemistry 4 hrs. Fall, Winter
A course for students with insufficient background for college level chemistry which develops skills essential to a working understanding of the science of chemistry. Instruction and practice in the fundamental tools for solving chemical problems: chemical formulas, chemical equations, stoichiometry, measurement units, conversions. An introduction to the nature of matter is developed. Enrollment is restricted to students without high school chemistry or to those who demonstrate inadequate retention of their chemistry background. This course credit will not apply to curricular requirements of chemical science at this university and should be followed by CHEM 101 or CHEM 103. It is assumed that students have mathematical competence through MATH 110.

CHEM 101 General Chemistry I 4 hrs. Fall, Winter
The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for two or more additional courses in chemistry. Credit for 101 is equivalent to the level of completion of CHEM 102. Prerequisite: CHEM 100 with a grade of "C" or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. This course includes lecture and laboratory. Students can receive credit for only one of Chem 101, 102, 103.

CHEM 102 General Chemistry I 4 hrs. Fall
The theory and fundamental principles of chemistry are emphasized in this foundation course which serves primarily those who intend to enroll for more than two semesters of chemistry. Prerequisite: One unit of high school chemistry and one unit of algebra, pass chemistry placement examination at upper level. Students well prepared may earn credit by taking examination. This course includes lecture and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.
CHEM 103 General Chemistry I
4 hrs. Fall, Winter
A course primarily for students in Engineering and Applied Sciences curricula and others planning only a one or two semester terminal review of chemistry. This course surveys principles of chemistry with emphasis on calculations, descriptive and applied chemistry. Prerequisite: CHEM 100 with a grade of "C" or better or one year of high school algebra and one year of high school chemistry and a passing grade on the chemistry placement examination. May be used as a prerequisite for CHEM 120 passed with a grade of "C" or better. This course includes lectures and laboratory. Students can receive credit for only one of CHEM 101, 102, 103.

CHEM 107 Chemistry of Textiles and Design Media
4 hrs. Fall, Winter
A course in which the concepts needed to understand the chemical properties of textile and design media are developed in a non-mathematical manner. Textile fibers, textile finishes, dyes, plastics, rubber, paint, paper, leather, metals, cleaning agents, ceramics, glass, cosmetics, and wool are considered. This course is designed to meet the needs of students of home economics who plan a career in merchandising, or other students of art and applied science who handle the materials being considered. Not applicable for major or minor in chemistry nor as a prerequisite to other chemistry classes, this course includes lecture and laboratory.

CHEM 119 General Chemistry Laboratory
1 hr.
A laboratory course designed to complement the lecture topics covered in General Chemistry. This course is intended for those students who have had a general chemistry course at another school which did not have a laboratory as part of the course. Prerequisite: a minimum of 3 hours of non-laboratory General Chemistry and permission of chemistry adviser.

CHEM 120 General Chemistry II
4 hrs. Fall, Winter
The preparation and chemical properties of aliphatic and aromatic carbon compounds are studied. Emphasis is placed upon the nature of covalent bonds and molecules and the general reactions of functional groups. The course includes lecture and laboratory. Prerequisite: CHEM 120.

CHEM 350 Biochemistry for Physician's Assistant
3 hrs.
This course emphasizes those aspects of biochemistry that are required for an understanding of physiology and pharmacology. The focus includes metabolism, bioenergetics, pH control systems, oxygen-carbon dioxide transport and some aspects of nutrition, disease and hormone action. Prerequisite: PA Curriculum and CHEM 365 or 361.

CHEM 360 Organic Chemistry I
4 hrs. Fall, Winter
The preparation and chemical properties of aliphatic and aromatic compounds are studied. Emphasis is placed upon the nature of covalent bonds and molecules and the general reactions of functional groups. The course includes lecture and laboratory. Prerequisite: CHEM 120.

CHEM 361 Organic Chemistry II
4 hrs. Fall, Winter
A continuation of CHEM 360. Prerequisite: CHEM 360.

CHEM 365 Introduction to Organic Chemistry
4 hrs. Fall, Winter
A one semester course which surveys the chemistry of aliphatic and aromatic carbon compounds. Emphasis is placed upon the working knowledge of organic chemistry without the theoretical detail of a full year course. Credit may not be received for both CHEM 365 and 361.

CHEM 369 Organic Chemistry Laboratory
1 hr.
A laboratory course designed to complement the lecture topics covered in Organic Chemistry. This course is intended for those students who have had an organic chemistry course at another school which did not have a laboratory as part of the course. Prerequisite: A minimum of 3 hours of non-laboratory Organic Chemistry and permission of chemistry adviser.

CHEM 430 Physical Chemistry I
3 hrs. Fall, Winter
This course is designed to give students that have completed basic chemistry an opportunity to receive credit for experience in chemical laboratory independent study in association with a faculty member. May be repeated once for credit. Prerequisite: 18 hours of chemistry, with approval of the department chairperson and a faculty director.

CHEM 431 Physical Chemistry II
3 hrs. Winter
A continuation of CHEM 430. Prerequisite: CHEM 430.

CHEM 436 Physical Chemistry Laboratory
1 hr. Fall, Winter
Laboratory experiments designed to emphasize and reinforce the principles studied in this course. CHEM 430 and 431, with consideration of the limitations of physical measurements and their quantitative interpretation. Can be multiply enrolled or reenrolled for a total of 2 credit hours. Prerequisites: CHEM 222 and 430 or 535. Repeatable for up to 2 credit hours.

CHEM 450 Introductory Biochemistry
3 hrs. Winter
A basic course in the chemistry and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Not applicable for majors or minors in chemistry. Prerequisite: CHEM 365 or 361.

CHEM 456 Introductory Biochemistry Laboratory
2 hrs. Winter
Basic biochemical laboratory techniques; isolation and properties of proteins, enzymes, carbohydrates, lipids and nucleic acids; studies of metabolism; determinations of clinical interest involving blood, urine, liver and brain. Prerequisite or corequisite: CHEM 450 or 550.

CHEM 501 Chemical Communications
1 hr. Fall, Winter
Principles and techniques involved in writing and/or presenting technical information are discussed and practiced through a series of lectures and assignments. Prerequisite: 24 hours of chemistry.

CHEM 505 Chemical Literature
2 hrs. Fall, Winter
An introduction to the use of the various types of chemical literature such as journals, abstracts, monographs, government, and institutional publications and patents. Both manual and computer search techniques are employed in the course of completing assigned problems involving literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: 23 hours of chemistry.

CHEM 506 Chemical Laboratory Safety
1 hr. Fall, Winter
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: 24 hours of chemistry.

CHEM 509 Topics in Chemistry
3 hrs.
A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as microprocessors, industrial chemistry, chemical pollution, etc. according to student interest and request. Prerequisite: 16 hours of chemistry.

CHEM 510 Inorganic Chemistry
4 hrs. Winter
The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or corequisite: CHEM 431.
CHEM 520 Instrumental Methods in Chemistry
3 hrs. Fall
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy, and other instrumental techniques. Prerequisite or corequisite: CHEM 431, 436.

CHEM 535 Introduction to Physical Chemistry
3 hrs. Fall
Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. Laboratory credit is obtained by taking CHEM 436, Physical Chemistry Laboratory. This course may not be applied to a graduate curriculum in chemistry. Prerequisites: 16 hours chemistry, MATH 123, PHYS 111 or 211.

CHEM 550 Biochemistry I
3 hrs. Fall
The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes and biochemical energetics. Prerequisites: CHEM 361, and 430 or 535.

CHEM 552 Biochemistry I with Laboratory
4 hrs. Fall
This course consists of CHEM 550 plus laboratory. Experiments involve more advanced techniques and instrumentation than in CHEM 456. Emphasis will be on purification and properties of proteins and nucleic acids. Prerequisites: CHEM 361, and 430 or 535.

CHEM 554 Biochemistry II
3 hrs. Winter
Continuation of CHEM 550. Chemistry and metabolism of carbohydrates and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

CHEM 556 Biochemistry II with Laboratory
4 hrs. Winter
This course consists of CHEM 554 plus laboratory. Experiments will involve more advanced techniques than CHEM 456. Emphasis will be on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Prerequisite: CHEM 550 or 552.

CHEM 560 Qualitative and Spectroscopic Analysis of Organic Compounds
4 hrs. Fall
A course in spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures, which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361 and 24 hrs. of chemistry.

CHEM 564 Drugs and Pesticides
3 hrs. Winter
This course introduces students to the chemical nature and uses of drugs and pesticides. Abuses and potential toxicological hazards are also discussed in respect to biological-chemical properties and the behavioral-sociological implications. Prerequisite: CHEM 361 or 365.

CHEM 570 Polymer Chemistry
3 hrs. Winter
The aspects of macromolecular chemistry which are significantly different from the chemistry of small molecules are studied. In particular, mechanisms and techniques involved in the synthesis of macromolecules, and the structure, composition, mechanical properties, and solution properties of polymers are studied in terms of the organic, physical, and analytical chemistry involved. Prerequisites: CHEM 361 or 365, and CHEM 431 or 535.

CHEM 590 History of Chemistry
3 hrs. Winter
This course traces the roots of chemistry from ancient technology through alchemy and medicine to the chemical revolution of Lavoisier and Dalton. In more detail it examines the nineteenth century basis of modern chemistry and the twentieth century clarification of the structural atom. Prerequisite: 16 hours of chemistry, including CHEM 360 or 365.

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

COMMUNICATION
Richard J. Dieker, Chair
Roy Beck
June Cottrell
Loren Crane
Leigh A. Ford
Richard A. Gershon
James Gilchrist
Ruth Hering
James Jaksa
Steven Lipkin
Peter G. Northouse
Thomas F. Page
Steven C. Rhodes
George Robbeck
Jules Roehman
Thomas Sil
Robert L. Smith
Shirley A. Van Hoeven
Earl Washington
Kim D. White
Shirley A. Woodworth
Paul Yetsma

Communication is the principal mode for establishing and maintaining human relationships. It consists of those processes by which society is made possible, by which people develop and exchange ideas, solve problems, and work cooperatively in attaining common objectives. Effective oral communication is an educational imperative for all human beings.

The Department of Communication is dedicated to meeting the personal and professional communication objectives of our students. Several emphases within the major and minor are available: public relations; interpersonal communication; organizational communication; communication education; mass communication—radio, television, and film. While some students specialize in one emphasis, most take coursework in two or more of these general areas.

The study of communication is important to virtually every profession that involves working with people, making an excellent major, minor or cognate for communication-related jobs in education, business, government agencies, health care professions, social services, industry, and other public and private organizations. Communication is central to positions in public relations, corporate communication, public information management, employee communication, training and development, and radio, television, and film.

Excellent production training facilities and professional curricular programs in radio, television and film provide both the background knowledge and training for positions in mass media production, performance and management.

The department also encourages a close relationship between academic classes and extracurricular and co-curricular experiences. Students may become involved in a variety of activities, including community service projects, WIDR-FM radio 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 COM or Public Relations or minor in COM 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 Sprat Tower, or by calling 387-3130. A Handbook for Majors and Minors in Communication, which describes career opportunities and suggested programs of study in COM, is available free of charge from the department office.
Pre-Communication Major

Any freshman or transfer student planning to pursue communication as a major will be admitted as a pre-communication student, PCM, and will work with a communication adviser in the development of a planned program. This status, however, does not guarantee admission to the departmental major, since more students apply for admission than can be accepted. A student’s application for admission as a major in communication will be considered following completion of a minimum of 30 semester hours, 15 of which must be from Western Michigan University and the completion of COM 170 and COM 200. Transfer students who present appropriate communication courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no communication courses will be required to take COM 170 and COM 200 the first semester, and will be acted upon at the completion of their first semester.

Admission as a major in communication will be based on the following factors:
1. Overall grade point average, with a minimum of 2.0
2. Grades earned in COM 170 and COM 200 must be “C” or better.
3. Application forms and additional information can be obtained from the departmental office, 301 Sprau Tower. Students not meeting admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary basis to the communication major will be considered on an individual basis.

General Program Requirements

1. All major/minor programs must be approved by a departmental adviser. Application to the major in COM must be considered by a departmental adviser following completion of the PCM requirements. Declaration of a minor in communication must be made with a departmental adviser before the completion of nine semester hours of COM credit.
2. Students must earn a grade of “C” or better in all course work applied toward a major or minor program.
3. Petition for exceptions to any departmental policies should be directed to the department chair.

Majors

Communication Major

A communication major requires 36 semester hours of COM, including COM 104, COM 170, COM 200 and 27 hours of electives to be arranged in consultation with the departmental adviser. Twelve of these hours must be taken at the 300-500 level.

Public Relations Major

The public relations major is designed to prepare students with the knowledge and skills for an entry-level position in public relations in various organizations, and to provide students with the background in communication theory and production to understand the role and function of public relations in organizations and society. Application is required for acceptance to this major. An application form is available from the Undergraduate Adviser. Deadlines for submitting applications are October 1, February 1, and June 1.

A major in public relations consists of 36 hours of COM credit, and 14 hours of required cognate courses, for a total of 50 hours.

CORE COURSE REQUIREMENTS Include (12 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>170</td>
<td>Interpersonal Communication I</td>
<td>3</td>
</tr>
<tr>
<td>498</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>549</td>
<td>Public Relations and Organizations</td>
<td>3</td>
</tr>
<tr>
<td>550</td>
<td>Public Relations Program Development (549 Prerequisite)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following (3 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>358</td>
<td>Television and Film Scripting</td>
<td>3</td>
</tr>
<tr>
<td>359</td>
<td>Broadcast Journalism</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following (3 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>331</td>
<td>Persuasive Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following (3 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>482</td>
<td>Communication Processes in the Organization</td>
<td>3</td>
</tr>
<tr>
<td>547</td>
<td>Organizational Uses of Radio and TV</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following (3 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>232</td>
<td>Discussion</td>
<td>3</td>
</tr>
<tr>
<td>335</td>
<td>Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following (6 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>256</td>
<td>Broadcast Operations</td>
<td>3</td>
</tr>
<tr>
<td>257</td>
<td>Radio Programming and Production (256 Prerequisite)</td>
<td>3</td>
</tr>
<tr>
<td>355</td>
<td>Small Format Video Production (256 Prerequisite)</td>
<td>3</td>
</tr>
<tr>
<td>356</td>
<td>Film Production (241 Prerequisite)</td>
<td>3</td>
</tr>
<tr>
<td>357</td>
<td>Television Studio Production (256 Prerequisite)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following (6 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>458</td>
<td>Television Performance</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following (6 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>240</td>
<td>Broadcast Communication</td>
<td>3</td>
</tr>
<tr>
<td>543</td>
<td>Mass Communication and Social Change</td>
<td>3</td>
</tr>
<tr>
<td>544</td>
<td>Mass Communication, News and Public Affairs</td>
<td>3</td>
</tr>
</tbody>
</table>

COGNATE COURSE REQUIREMENTS Include 14 hours:

Required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAPP 150</td>
<td>Graphic Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following (3 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED 548</td>
<td>Audio Visual Media</td>
<td>3</td>
</tr>
<tr>
<td>ED 550</td>
<td>Photography Workshop</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following (required courses in English can be used as part of a journalism minor) (8 hours):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 264</td>
<td>News Writing</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 265</td>
<td>News Editing (264 Prerequisite)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 363</td>
<td>Advanced Reporting (264 Prerequisite)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 364</td>
<td>Feature/Article Writing (256 Prerequisite)</td>
<td>4</td>
</tr>
</tbody>
</table>

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

Minors

Communication Minor

A communication minor requires 21 semester hours of COM, including COM 170, COM 200 and 14 additional elective hours to be chosen in consultation with the appropriate advisers of the department.

Nine of these hours must be taken at the 300-500 level.

Interdisciplinary Minors

Integrated Language Arts Minor

The Department of Communication is one of five participating departments in the integrated language arts minor—a program designed particularly for pre-service elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternative learning styles. Interested persons should contact the ILAM adviser, Dr. James Burns, 3414 Sangren, 387-3516.

Integrated Creative Arts Minor

The Department of Communication is a participant in the integrated creative arts minor. An interdepartmental program, the minor offers elementary school teachers an opportunity to emphasize the integration of all the arts into the core of the elementary school curriculum. Interested students should contact A. Balkin, Department of Education and Professional Development.

Transfer Students

Transfer students are permitted to transfer as many as 12 semester credit hours for a major and 9 hours for a minor in communication.

Communication Courses (COM)

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

COM 104 Public Speaking

3 hrs.
Study of the application of principles of communication underlying effective oral presentations, with attention given to speaking to business, professional and public settings. Includes practice in preparing, presenting and evaluating speeches and other forms of oral presentations. (Students who have received credit for COM 130 in the past may not receive credit for COM 104.)

COM 106 Voice and Diction

3 hrs.
Individual improvement program emphasizing voice production and diction.

COM 131 Parliamentary Procedure

1 hr.
Study and practice of the principles and rules which govern business meetings in voluntary organizations.

COM 170 Interpersonal Communication

3 hrs.
An introductory course in communication theory and practice in which a student utilizes higher powers of speech to increase his/her effectiveness in interpersonal relationships through understanding of self and others.
COM 200 Introduction to Communication Theory
3 hrs.
A study of communication models and theories which are common to the fields of interpersonal, group, organizational, public and mass communication.

COM 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.

COM 211 Oral Interpretation II
3 hrs.
A continuation of COM 210. COM 211 introduces the individual reading of dramatic scenes and the basic theory of readers theatre. Class activities include group reading of prose, poetry and drama. Prerequisite: COM 210.

COM 222 Discussion
3 hrs.
Study and practice in discussion and conference. Skill in participation, leadership, group thinking, and evaluation are emphasized. Recommended for students whose vocational plans involve work with groups.

COM 240 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.

COM 241 Film Communication
3 hrs.
An introduction to the unique language and elements of the film medium through the study of outstanding examples of historical and contemporary experimental, documentary and feature films. $10 lab fee.

COM 256 Broadcast Operations
3 hrs.
Introduction to the electronic theory, equipment, operating procedures and personnel involved in radio/television production, storage and distribution.

COM 257 Radio Programming and Production
3 hrs.
Analysis of sound as a creative element in radio broadcasting and production. Studio experience in writing and producing radio formats, commercials, drama, documentary and other types of aural messages. $8 lab fee. Prerequisite: COM 256.

COM 305 Special Topics in Communication
1-4 hrs.
Group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Departmental office, 301 Sprau Tower. Six hours of COM 305 and COM 505 may be accumulated as credit toward a major or minor in COM.

COM 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.

COM 311 Readers Theatre
3 hrs.
Selecting and arranging materials for readers theatre, directing and participating in performances. Prerequisite: COM 210 or consent.

COM 331 Persuasive Speaking
3 hrs.
The study and application of logical, emotional and ethical principles of persuasion.

COM 334 Argumentation and Debate
3 hrs.
Theory and practice in argumentation and debate. Included are the analysis of propositions and the use of logic and evidence. Students will build, present, and defend cases. Debate is taught as a process of inquiry and advocacy.

COM 335 Leadership
3 hrs.
A study of the characteristics and behaviors of leaders with emphasis on the development of leadership abilities in the individual for different group situations.

COM 342 The Film Industry
3 hrs.
The history and development of the American film medium from an economic, social, and cultural perspective. Emphasis will be on methods of production, distribution, exhibition, and legal issues. Prerequisite: COM 241.

COM 355 Small Format Video Production
3 hrs.
Practical experience in the design, production, implementation and evaluation of small-format television programs. Applications of portable video technology to the broadcast industry and community cable television systems will be stressed. $20 lab fee. Prerequisite: COM 256.

COM 356 Film Production
3 hrs.
Production of short experimental films; scripting, planning, editing, directing and photography. Work in this course will be done within the limitations of 8 mm format. In addition to text materials, students must provide supplies averaging about $30.00 per student. $10 lab fee. Prerequisite: COM 241.

COM 357 TV Studio Production
3 hrs.
Explores the elements of television studio production and directing. Studio experience in equipment operation, crew roles, and producing and directing various types of television studio formats. In addition to the texts, students must provide supplies averaging about $10. $15 lab fee. Prerequisite: COM 256.

COM 358 TV and Film Scripting
3 hrs.
The styles and techniques of film and television scripting for broadcast formats, station continuity, commercials, dramatic scripts, small format video, and documentary.

COM 359 Broadcast Journalism
3 hrs.
Radio and TV as news and information media. The styles and techniques of writing and producing radio and TV news and current affairs programs. Prerequisite: COM 210 or consent of instructor.

COM 365 Oral Communication and the Early Childhood
3 hrs.
A study of language and writing. Deals with the child from birth through seven years. (This course is required for the integrated language arts minor.)

COM 366 Oral Communication and the Later Childhood
3 hrs.
This course focuses on the oral communication processes, particularly as they relate to personal and social development. Particular attention is paid to the development of oral communication by the older child; the role of oral communication in the teaching/learning environment; and the relationship between oral language and reading and writing. Deals with the child from age seven through twelve years. (This course is required for the integrated language arts minor.)

COM 370 Interpersonal Communication II
3 hrs.
An analysis of relational communication with particular emphasis on the nature of transactional relationships. Prerequisite: COM 170 or consent of instructor.

COM 372 Introduction to General Semantics
3 hrs.
A study of the function of language. The course deals with the nature and meaning of symbols and differences between the communication systems of the human animal and other species. Examines the assumptions held by Western man about the structure/function of his universe as reflected in language; the problem of "reality" as distinct from "meaning." The purpose of the course is to increase the student's awareness of his/her effectiveness as a thinker or symbol-user.

COM 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.

COM 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 accumulated. Prerequisite: Consent, Chair of Department.

COM 441 Documentary in Film and Television
3 hrs.
A study of documentary philosophies, strategies, and accomplishments through an examination of important documentarians, movements, and films. $10 fee.

COM 457 Advanced TV Studio Production
3 hrs.
Individual and group projects in the development and production of television programs stressing experimental techniques. $10 lab fee. Prerequisite: COM 357 or consent of instructor.

COM 458 Television Performance
3 hrs.
Exercises in television performance, stressing the special problems of the video performer. $10 lab fee. Prerequisite: Consent of instructor.
COM 470 Communication, Social Issues and Change 3 hrs.
A study and practical application of communication and rhetorical methodology in contemporary social problems.

COM 482 Communication Processes in the Organization 3 hrs.
This course is a systematic study of the communication processes in organizations at the individual, group, and organization-wide levels. Students will learn strategic communication planning, including methods of organizing and evaluating information, identifying and solving communication problems and applying organizational communication skills in decision-making.

Open to Advanced Undergraduate and Graduate Students

COM 505 Special Topics in Communication 1-3 hrs.
Advanced group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Department offices, 301 Sprau Tower. Six hours of COM 305 and COM 505 may be accumulated as credit toward a major or minor in COM.

COM 530 Studies in Attitude Change: Variable Topics 3 hrs.
Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under COM 530. In addition to the topics listed, additional topics are offered from time to time and will be listed in the Schedule of Classes.
1. Freedom of Speech
2. Political Communication

Analysis in depth of continuing issues in mass communication. Topics vary from semester to semester and students may take one or all topics for credit. Topics include:
1. Broadcast Sales
2. Broadcast/Cable Programming

COM 541 Mass Communication Law 3 hrs.
The laws, principles and issues of mass communication regulation. Includes media ownership and licensing, programming, political broadcasting, controversy, defamation, obscenity, and the role of the FCC, FTC, and other regulatory agencies.

COM 542 Mass Media and the Child 3 hrs.
Assesses the impact that mass media, including radio, television, films, comics, and other media, may be having on the minds and behaviors of children.

COM 543 Mass Communication and Social Change 3 hrs.
The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups and institutions. The fields of politics, advertising, and public relations are studied from the communication/ change viewpoint of the practitioner and the consumer.

The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation and message production are discussed in light of current events.

COM 545 Television Criticism 3 hrs.
Examines the various functions and writings of contemporary television criticism and establishes criteria for evaluating television programs and program criticism. Students will view and analyze various television program types, including documentary, drama, visual essay and other entertaining and educational programs.

COM 546 Mass Entertainment 3 hrs.
This course examines the role and function of mass entertainment in modern society. Major topics include mass entertainment as part of leisure; the social and psychological functions of mass entertainment; measuring mass taste; and in-depth study of familiar mass media formats such as soap operas, detective, western, popular music, etc.

COM 547 Organizational Uses of Radio and Television 3 hrs.
Applications of radio and TV technology for the business professional, educator, media specialist and the clinician. Utilization of electronic media for training, research, observation and instruction. In addition to required text materials, students must provide supplies averaging about $10.00 per student.

COM 548 Broadcast Management 3 hrs.
Studies the functions and responsibilities of broadcast station management. Students examine theories of station management, audience research, budgeting and accounting principles, sales, and regulatory problems.

COM 549 Public Relations and Organizations 3 hrs.
The course will examine the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries.

COM 550 Public Relations Program Development 3 hrs.
This is an advanced course in public relations emphasizing research methodology, developing planning objectives, and program evaluation for corporate, governmental, educational, and social service organizations.
Prerequisite: COM 549

COM 551 Methods of Film Analysis 3 hrs.
An investigation of the approaches to film analysis (auteurist, intellectualist, sociological, structural, historical, ideological, psychological) by intensive "reading" and shot sequence examination and evaluation of widely divergent works. Prerequisite: COM 241 or COM 356.

COM 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.

COM 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 COM or obtain consent of instructor. Prerequisite: ED 300 and COM 365 or COM 366. Offered fall semesters only.

COM 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 evolving and 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 visitations and special projects. The student must have completed at least fifteen hours of work in COM and, ideally, take the course immediately prior to student teaching. Prerequisite: ED 301. Offered winter semesters only.

COM 564 Creative Drama for Children 4 hrs.
Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences. $9 fee.

COM 567 Studies in Communication: Variable Topics 3 hrs.
Selected areas of study within the total range of communication. Each topic carries separate credit, and a student may take any or all of the different offerings under COM 570. Selected topics each semester will be listed in the Schedule of Classes.

COM 571 Theories of Interpersonal Communication 3 hrs.
A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations and models which explain how people interact at the content and relationship levels.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COM 572</td>
<td>Non-Verbal Communication</td>
<td>3 hrs.</td>
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<tr>
<td>COM 574</td>
<td>Intercultural Communication</td>
<td>3 hrs.</td>
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<td>COM 575</td>
<td>Family Communication</td>
<td>3 hrs.</td>
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<tr>
<td>COM 577</td>
<td>Communication Ethics: Honesty and Deception</td>
<td>3 hrs.</td>
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<tr>
<td>COM 579</td>
<td>Female/Male Interaction</td>
<td>3 hrs.</td>
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<td>COM 582</td>
<td>Group Communication Theory</td>
<td>3 hrs.</td>
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<td>COM 583</td>
<td>Interviewing</td>
<td>3 hrs.</td>
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<td>COM 584</td>
<td>Health Communication</td>
<td>3 hrs.</td>
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<tr>
<td>COM 581</td>
<td>Introduction to Communication Research</td>
<td>3 hrs.</td>
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<tr>
<td>COM 598</td>
<td>Independent Study</td>
<td>1-4 hrs.</td>
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**COMPUTER SCIENCE**

**Donald Nelson, Chair**

**Members:**
- Fred Boals
- Donna Kaminski
- Elise de Doncker Kapenga
- John Kapenga
- Mark Kerstetter
- Dionysios Kountanis
- Dalia Motzkin
- Carolyn Oberlink
- Ben Pinkowski
- Naveed Sherwani
- Robert Trepany
- Kenneth Williams

Computer Science is the study of digital computers and their uses for the effective processing of information. Degree programs offered emphasize the software aspects both in theory and application rather than the physical construction of computers (hardware aspects). The department offers a number of introductory programming courses as well as complete programs which provide a major or minor in computer science.

Students considering a major or minor in computer science should make an appointment with the departmental adviser, Marianne Vakalis, by contacting the Computer Science Office located in 4045 Friedmann Hall (phone 387-5645). This should be done as soon as possible—certainly within the second semester of enrollment in computer science classes. Eligibility requirements for admittance into a major or minor program are available from the computer science adviser.

The department offers three majors providing opportunities for students to pursue a variety of interests.

- Students in the minor in computer science are particularly qualified for applications programming positions.

**ADDITIONAL INFORMATION**

General information regarding counseling and types of degrees may be found under the beginning of the Arts and Sciences section of this catalog.

Students must satisfy prerequisites before enrolling in a course. Those who fail to earn a "C" or better grade in a prerequisite course will be denied permission to enroll in the next course.

The department reserves the right not to honor enrollment in a course if the student fails to attend the first two class meetings of the term, unless prior arrangements have been made with the instructor.

Enrollment will not be honored if it is found that the proper prerequisites have not been met. Students whose enrollment is denied for whatever reason are responsible for processing drop slips with the Registration Office.

**Majors**

**Computer Science—Theory and Analysis in the Computer Science Curriculum**

The Theory and Analysis program has been accredited by the Computing Sciences Accreditation Board, Inc. (CSAB). It provides a greater depth and breadth in computer science than the Arts and Sciences major (see below). The Theory and Analysis major includes additional emphasis in physics, science, and engineering, as well as the minor in...
Computer Science in the Arts and Sciences Curriculum

This major is designed to provide the student with the fundamental concepts of computer science and a broad selection of electives in liberal arts and other fields. The major requires a minor in mathematics. Students selecting this major are encouraged to consider completion of a second minor in some other field of interest.

COMPUTER SCIENCE COURSES (34 hrs.)
CS 111 Computer Programming I .................. 3
CS 112 Computer Programming II ..................... 3
CS 201 Programming in FORTRAN .................. 2
CS 202 Programming in COBOL ..................... 2
CS 223 Computer Organization and Assembly Language . . . 3
CS 224 Systems Programming Concepts ................ 3
CS 331 Design and Analysis of Algorithms and Data Structures . . . . 3
CS 342 Analysis of File Systems and Structures .................. 3
CS 485 Programming Languages ..................... 3
CS 554 Operating Systems ......................... 3
Two approved non-language electives (see adviser) .................. 6

REQUIRED MATHEMATICS COURSES (19 hrs.)
MATH 122 Calculus I .................................. 4
MATH 123 Calculus II .................................. 4
MATH 145 Discrete Mathematical Structures .......... 3
MATH 230 Elementary Linear Algebra .................. 4
MATH 364 Statistical Methods ....................... 4

REQUIRED PHYSICS COURSES (8 hrs.)
PHYS 210 Mechanics and Heat ...................... 4
PHYS 211 Electricity and Light ...................... 4

REQUIRED ELECTRICAL ENGINEERING COURSES (10 hrs.)
EE 250 Digital Logic I .................................. 3
EE 251 Digital Systems I .................................. 4
EE 357 Computer Architecture ....................... 3

MATH 122 Calculus I .................................. 4
MATH 123 Calculus II .................................. 4
MATH 145 Discrete Mathematical Structures .......... 3
MATH 230 Elementary Linear Algebra .................. 4
MATH 364 Statistical Methods ....................... 4

REQUIRED ELECTRICAL ENGINEERING COURSE (3 hrs.)
EE 250 Digital Logic I ................................ 3
Approved electives can be CS 495, 506, 518, 527, 543, 544, 555, 580, 581, 582, 595, MATH 440, 507, 574, PHIL 520. Electives should be approved in advance by the student's adviser.

Secondary Teaching Major

The Secondary Teaching Major is designed for the student interested in the teaching of computer science in the secondary school.

COMPUTER SCIENCE COURSES (32 hrs.)
CS 105 Introduction to Computers .................... 3
CS 111 Computer Programming I ..................... 3
CS 112 Computer Programming II ..................... 3
CS 201 Programming in FORTRAN .................... 2
CS 202 Programming in COBOL ...................... 2
CS 223 Computer Organization and Assembly Language ....... 3
CS 299 Professional Concerns for Computer Scientists . . . . 1
CS 331 Design and Analysis of Algorithms and Data Structures . . . . 3
CS 443 Database Management Structures .................. 3
CS 502 Introduction to Microcomputer Concepts for Teachers .................. 3
Approved Computer Science Elective (see adviser) .................. 3
Note: With approval of adviser, other 200-level language courses may be substituted for 201 and 202.
CS 302 Teaching of Computer Science does not carry credit toward the major but is a required course for those in secondary education.

REQUIRED MATHEMATICS COURSES (11 hrs.)
MATH 122 Calculus I .................................. 4
MATH 145 Discrete Mathematical Structures .......... 3
MATH 230 Elementary Linear Algebra .................. 4

Minors

General Option

COMPUTER SCIENCE COURSES
CS 111 Computer Programming I ..................... 3
CS 112 Computer Programming II ..................... 3
CS 201 Programming in FORTRAN .................... 2
CS 202 Programming in COBOL ...................... 2
CS 223 Computer Organization and Assembly Language ....... 3
CS 331 Design and Analysis of Algorithms and Data Structures . . . . 3
CS 342 Analysis of File Systems and Structures .................. 3
Approved elective (may be a language course) .................. 2-3

REQUIRED MATHEMATICS COURSES
MATH 122 Calculus I .................................. 4
MATH 200 Application and Analysis ................... 4

Computer Science Courses (CS)

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

CS 105 Introduction to Computers 3 hrs.
The BASIC programming language is used to acquaint students with the computer facility and with the abilities of computers. The course consists of one hour of lecture and two hours in recitation sections each week. Computer terminology and capabilities are explored. Student-written computer programs are executed and related to a variety of computer applications. Illustrations of programming techniques and the significance of computers in contemporary society will be given. A student may not receive credit for both BIS 102 and CS 105 after the completion of any CS course except CS 306.

CS 106 BASIC for Engineers 1 hr.
The course provides an introduction to programming in the BASIC language and an introduction to the WMU computer system. It is designed primarily to give students in certain engineering programs enough background so they can use BASIC in further courses. Prerequisite: 1½ years of high school algebra or MATH 111.

CS 110 Introduction to Computer Programming Using BASIC 3 hrs.
This course is designed for those with little previous programming experience beyond computer literacy. The emphasis is on non-numerical problem solving. Students learn about system commands necessary to create and execute computer programs written in a high-level
programming language and are introduced to problem solving, program design, coding, and debugging using the BASIC programming language. Programming assignments are given to build technical skill. These general language concepts will be discussed: program syntax, declaration and basic data types, constants and variables, arrays, executable instructions, statements and expressions, statement types (i.e., assignments, decision, looping, subprogram definition and use, functions with parameters). This course cannot be used for a major or minor in computer science nor can it be taken for any credit after completing CS 111 or a higher level CS course. Prerequisite: Computer Literacy.

CS 111 Computer Programming I 3 hrs.
A first course in the science of programming digital computers. Analysis of problems and development of correct procedures for their solution will be emphasized along with the expression of algorithms. Solutions to problems in a structured computer language. Applications will involve the use of the Pascal language to solve numerical and non-numerical problems for the microcomputer. Prerequisite: CS 105 or BIS 102. (This prerequisite will be waived for students with a year of high school computer programming or a college level programming course.) Corequisite: MATH 122 or 200.

CS 112 Computer Programming II 3 hrs.
This course is a continuation of Computer Programming I with more emphasis on top-down, modular, structured design and techniques involved in the production of large computer programs. The Pascal language will be used, and advanced features of the language such as recursion, pointers, sets, and variable records will be discussed. Data structures and their various implementations are introduced. Discussion and analysis of searching and sorting techniques will be presented. Elementary file processing using sequential and random input and output will be demonstrated. A team project will be assigned. Prerequisite: CS 111 and MATH 122 or 200.

CS 200 Programming Language Experience 2 hrs.
Details of a specific computer programming language are presented. The name of the specific language discussed will appear in the student's transcript. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. It is suitable for anyone wishing to learn the specific language being taught. Course can be repeated for credit in a different language. Prerequisite: CS 110 or CS 111 and 1.5 years of high school algebra or MATH 111.

CS 201 Programming in FORTRAN 2 hrs.
Details of the FORTRAN computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Credit will not be given for both CS 201 and CS 306. Prerequisite: CS 110 or CS 111 and one and one-half years of high school algebra or MATH 111.

CS 202 Programming in COBOL 2 hrs.
Details of the COBOL computer programming language are presented. Students obtain practice by writing programs in the language. This course assumes knowledge of the use of the computer system and editor and basic programming concepts. Prerequisite: CS 110 or CS 111 and one and one-half years of high school algebra or MATH 111.

CS 223 Computer Organization and Assembly Language 3 hrs.
The structure and internal organization of digital computers will be emphasized. Additional topics include addressing techniques, internal machine representation of numbers, characters, and programs; program control; arithmetic and logical operations; input-output; subroutines and interrupts; system control programs in time-sharing and batch environments. An introduction to assembly languages will be given. Prerequisite: CS 111.

CS 224 Systems Programming Concepts 3 hrs.
This course introduces concepts and examples of systems software: assemblers, loaders, linkers, macroprocessors, compilers, and language run time systems. An introduction to operating systems concepts including device drivers, time sliced and interrupt driven processes, interprocess communication, reentrant and shareable code, and data and instruction space will also be provided. A discussion of the structure of a single user operating system will take place. Prerequisite: CS 112 and CS 223.

CS 298 Professional Concerns for Computer Scientists I 1 hr.
This writing intensive course explains the different things computer scientists do and how it affects the world around them. It teaches about the use of research tools such as library and electronic tools. Emphasis is placed on oral and written communication skills. Professionalism and professional societies are discussed. Students are required to become involved with the profession outside of class.

CS 302 Teaching of Computer Science 3 hrs.
This course deals with the problems and current trends of teaching high school computer science. The main emphasis is on effective methods of instruction. Practical methods of selection, organization, and maintenance of hardware and software are also considered. Topics such as computer literacy, the computer as a problem solving tool, issues in computing, and related computer applications will be considered and discussed. This course does not carry credit towards a Computer Science Major or Minor; however, it is required course for those in Secondary Education. Prerequisites: CS 105, CS 112, and junior status.

CS 306 Introductory Programming: FORTRAN 2 hrs.
An introduction to computer programming using the FORTRAN language (FORmula TRANslator). Prerequisite: One and one-half years of high school algebra or MATH 111. Credit will not be given for both CS 201 and CS 306. This course will not be used towards a major or minor in Computer Science.

CS 309 Introductory Programming: ALGOL 2 hrs.
An introduction to computer programming using the ALGOL language (ALGOrithmic Language). Prerequisite: Programming course.

CS 331 Design and Analysis of Algorithms and Data Structures 3 hrs.
Various data structures such as stacks, queues, lists, trees and graphs will be modeled and implemented. Algorithms to manipulate structures will be studied and analyzed. Memory management systems as well as techniques for searching and sorting will be discussed. The idea of a data base will be introduced. Prerequisite: CS 112 and 223.

CS 342 Analysis of File Systems and Structures 3 hrs.
Programming projects will be assigned to give students experience in systems programming and file processing. Topics will include: records, file blocking, data base management systems, characteristics of storage media, algorithms to process direct access devices, inverted lists, multilists, indexed sequential and hierarchical structures. Prerequisites: CS 331.

CS 443 Data Base Management Systems (DBMS) 3 hrs.
This course presents the fundamental concepts and practices of data base management systems. The data base environment and administration are defined along with the roles of the data base administrator and the data dictionary. Conceptual and logical models are discussed. The three approaches, hierarchical, and network—will be briefly described. Data access techniques such as sequential and multi-level sequential indexes, linked lists, inverted files and hashing are briefly reviewed. A few commercial systems will be surveyed. Security, reliability and integrity will be studied. Students will acquire experience with the various topics by applying them to an actual data base system. Students will also write application programs which use the data base system. Not for Computer Science Majors (except Teaching major). Prerequisite: CS 202 or BIS 362. A student may not receive credit for both CS 443 and CS 543.

CS 485 Programming Languages 3 hrs.
Properties of various programming languages including scope of declarations, storage allocation, control structures and formal parameters will be studied, as well as run time representation of programs and data structures. A study of compilers and interpreters will be made. This will include loading, execution, storage allocation, symbol tables, lexical scan, parsing and object code generation. The relation of automata to formal languages and grammars will be discussed. Prerequisites: CS 331; MATH 310.

CS 495 Topics in Computer and Information Science 3 hrs.
The content of this course varies. It is intended to introduce the student to significant topics which are not normally offered as separate courses. This course may be taken more than once with the approval of the student’s adviser. Prerequisite: Approval of Department.

CS 499 Professional Concerns for Computer Scientists II 1 hr.
This course discusses the role of the computer scientist in society. It prepares students for their next step in their career as a computer scientist. The second major theme of the course promotes awareness of professional issues such as ethics and current events. Oral and written communication will be stressed. Students are required to become involved with the profession outside of class. Prerequisite: Senior status.

A fundamentals course for students in academic programs in Public Administration. An introduction to how computers work, how they are programmed and their use in
information systems. Students learn to work with computer input and output on the WMU DEC System-10 and write at least one elementary computer program. Course requirements include several reports and a term project. This course may not be used towards a major or minor in Computer Science.

CS 502 Introductory Microcomputer Concepts for Teachers 3 hrs. This course is designed to provide teachers with a minimum foundation in computer concepts and programming. Emphasis is on the use of the BASIC language to perform a variety of practical applications on microcomputers. Computer terminology and capabilities are explored as well as the significance of computers in contemporary society. Students will write a number of programs and will receive an introduction to the use of standard system software. Flowcharting is introduced. Examples of Computer Assisted Instruction will be given. Not for Computer Science majors and minors (except teaching). Prerequisite: MATH 150 or equivalent.

CS 503 Programming the Microcomputer for Teachers 3 hrs. A course in programming at an intermediate level for teachers. An introduction to file handling and graphics on small computers will be provided. Flowcharting, top-down design and the development of algorithms are stressed. Some programming projects in each teacher’s area of interest will be assigned. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 502 or equivalent experience.

CS 504 Advanced Microcomputer Concepts for Teachers 3 hrs. A course which will provide teachers with an understanding of how microcomputer software is developed to fit the hardware. A review of number systems and an introduction to machine and assembly languages is given. Programs will be written in these low level languages. An introduction to several data structures is provided. Concepts in graphics and file handling will be extended. Not for Computer Science majors or minors (except teaching). Prerequisite: CS 503.

CS 506 Scientific Programming 3 hrs. An introduction to solving scientific and engineering problems on computers. The topics include root-finding, matrix calculations, numerical integration and the numerical solution of differential equations. The FORTRAN language and various library software packages will be used. Prerequisite: MATH 230 or MATH 374, and CS 201 or CS 306. Jointly listed with Mathematics and Statistics.

CS 518 Introduction to Computer Modeling and Simulation 3 hrs. This course provides an overview of both modem development and computer simulation. A methodology is introduced which is generally applicable to simulation projects. The relationships between real systems, models, and simulation are presented, and the concept of experimental frames is discussed. General purpose simulation languages (e.g., Simscript, GPSS, CSMP, Simul) and the formalisms they support are presented. An introduction to random variables and elementary frequency distributions is provided. Simulation as a tool for exploring ill-defined systems will also be discussed. Several small programs and a simulation project will be assigned the student. Prerequisite: CS 331 and a course in probability or statistics.

CS 527 Theory of Computer Graphics 3 hrs. A first course in the design of interactive computer graphics systems. Currently available hardware and software systems are described. Emphasis is on theoretical considerations in the design of interactive computer graphics software systems. Prerequisites: MATH 230 and CS 331.

CS 543 Principles of Database Management Systems 3 hrs. The fundamental concepts of database design and efficient usage are presented. Topics include: an overview of databases; the three data models—relational, hierarchial, and network; conceptual, logical, and physical database design and evaluation. The design theory of relational data models will be emphasized. Query languages, query optimization, security, integrity, and concurrency protocols will be covered. A student may not receive credit for both CS 443 and CS 543. Prerequisite: CS 342.

CS 544 Software Systems Development 3 hrs. Advanced computer programming techniques used in the specification, design and implementation of large software systems. Testing and maintenance of software systems. Modular programming, top down structured design, composite design, HIPPO, project management. Emphasis is placed on the solution of large software system problems using a team approach. Prerequisite: CS 331.

CS 545 Operating Systems 3 hrs. Fundamentals are stressed. A historical survey of the development and growth of operating systems is given to lend perspective to the ideas that follow. Basic concepts and terminology will be emphasized. Programming assignments leading to the construction of a simple operating system are required. Processes, communication and synchronization, shared resources, memory management, resource allocation, scheduling, deadlock, file management, and protection are discussed. Applications to a real system are investigated to motivate the ideas presented in the text and lectures. Prerequisite: CS 331.

CS 555 Computer Networks and Distributed Systems 3 hrs. The design and evaluation of computer networks using current hardware and software are explained. Various types of computer buses, local area networks, and long haul networks are defined. Case studies of popular networks are presented. Layered network models are studied. A lab work with local area and long haul networks. Prerequisite: CS 224 and CS 331.

CS 580 Theory of Computation 3 hrs. Provides an introduction to the theory of computation in the framework of programming languages. Basic definitions and concepts dealing with algorithms, sets, relations, functions, induction operations on functions and cardinality are covered. Primitive and partial recursive functions are defined and their properties are 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.
ECONOMICS
Werner Siegel, Chair
Sisay Asefa
Phillip Caruso
Robert Christopherson
Kevin Collins
Wayland Gardner
Bassam E. Hakim
Salm E. Hakim
Emily Hoffman
Wei-Chiao Huang
Timothy L. Hunt
William S. Kern
Gangaram K. Kripalani
Jon Nell
Michael R. Payne
Susan Pozo
Myron Ross
Raymond E. Zelder
Charles Stull
Raymond E. Zelder
Jared Wend
Sisay Asefa
Kevin Collins
Robert Christopherson
Phillip Caruso
ECONOMICS

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 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 the Chair of the department.

GROUP SOCIAV SCIENCE
Students in the secondary education curriculum who major in economics must also complete a minor in group social science and HIST 490 or GEOG 460. Refer to the "Interdisciplinary Program" section of this catalog for a description of the minor requirements.

Courses By Topic
PRINCIPLES AND GENERAL THEORY
100 Contemporary Economic Problems
201 Principles of Economics
202 Principles of Economics
203 Principles of Economics
306 Income Analysis and Policy
400 Managerial Economics

501 Studies in Economic Problems: Variable Topics
502 Economic Statistics
504 Introduction to Mathematical Economics
505 History of Economic Thought
509 Econometrics

LABOR AND RESOURCE ECONOMICS
313 Poverty and Economic Security
316 The Economics of Medical Care
319 Environmental Economics
410 Labor Problems
512 Collective Bargaining
515 Economics of Human Resources
516 Collective Bargaining in Public Employment
517 Economics of Health and Human Services

MONEY, CREDIT AND FINANCE
420 Money and Credit
424 Federal Government Finance
507 Monetary Theory and Policy
525 State and Local Government Finance

INDUSTRIAL ORGANIZATION AND PUBLIC CONTROL
404 The Structure and Performance of Industry
445 Corporations and Public Policy

INTERNATIONAL ECONOMICS
480 International Economics
484 Comparative Economic Systems
487 Studies in Asian Economics
588 Economic Development

SPECIAL STUDIES
500 Continuing Education in Economics: Variable Topics
591, 592 Guest Economist Seminar
598 Readings in Economics

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

ECON 100 Contemporary Economic Problems
3 hrs. Fall, Winter, Spring
An introduction to microeconomics, the study of the firm and factor pricing. Prerequisites: ECON 201 and 202.

ECON 201 Principles of Economics
3 hrs. Fall, Winter, Spring, Summer
An introduction to microeconomics, the study of the price system and resource allocation, problems of monopoly, and the role of government in regulating and supplementing the price system. Prerequisite: ECON 201.

ECON 202 Principles of Economics
3 hrs. Fall, Winter, Spring, Summer
An introduction to macroeconomics, the study of total output and employment, inflation, economic growth, and introduction to international trade and development. Prerequisite: ECON 201.

ECON 305 Price Theory
3 hrs. Fall, Winter, Spring, Summer
A study of the importance of price changes in 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.

ECON 306 Income Analysis and Policy
3 hrs. Fall, Winter, Spring, Summer
An examination of the role of money and its impact on the economy—on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and 202.

ECON 307 Money and Credit
3 hrs. Fall, Winter, Spring, Summer
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

ECON 311 Labor Problems
3 hrs. Fall, Winter
An introduction to the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

ECON 312 Money and Credit
3 hrs. Fall, Winter, Spring, Summer
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

ECON 313 Poverty and Economic Security
3 hrs. Fall or Winter
The course relates such risks as old age and disability to the general problem of income distribution and poverty in the United States. The welfare and social security systems are compared to proposed alternatives such as a negative income tax or guaranteed income.

ECON 314 The Economics of Medical Care
3 hrs. Fall or Winter
This course is designed to familiarize the student with the basic economic problems that exist in the field of health care. It introduces to the student some basic economic tools which are useful in analyzing these problems. The demand for medical care, the supply of health services, the role of health insurance, and pricing and output decisions are analyzed. Various policy questions are also raised, and the pros and cons of alternative policies are presented. Finally, the role of planning in the organization and delivery of medical care services is discussed. Prerequisites: ECON 201 and 202, or permission of instructor.

ECON 315 Environmental Economics
3 hrs. Fall, Winter
The study of economic aspects of environmental problems. Benefit-cost analysis is to be introduced and applied to problems in the management of air, water and other natural resources. Environmental problems of selected industries—including transportation and electric power—economic growth, population and environmental quality are analyzed. Prerequisite: ECON 201.

ECON 400 Managerial Economics
3 hrs. Fall, Winter, Spring, Summer
An introductory examination of the application of tools of economic analysis to management problems and decision making. The basic concepts include marginalism and cost analysis, demand pricing, capital budgeting, and selected optimality models. Prerequisites: ECON 201 and 202, MATH 116, and MGMT 200, or equivalent.

ECON 404 The Structure and Performance of Industry
3 hrs. Fall, Winter
This course deals with the ways in which the organization of sellers affects the performance of industrial markets and thus the nation's economic welfare. The role of government in maintaining competition in American industry is examined. Each student is required to study a particular industry to determine its current structure, conduct and performance. Prerequisite: ECON 201.

ECON 410 Labor Problems
3 hrs. Fall, Winter
An analysis of the nature and underlying causes of the problems facing the worker in modern economic society. Includes an examination of unions, collective bargaining, labor legislation, wages, unemployment and economic insecurity. Prerequisites: ECON 201 and 202.

ECON 420 Money and Credit
3 hrs. Fall, Winter, Spring, Summer
An analysis of the role of money and its impact on the economy—on inflation, unemployment, interest rates, income, and foreign exchange. The operations and relationships of commercial banks and the Federal Reserve are examined. Prerequisites: ECON 201 and 202.
ECON 424 Federal Government Finance
3 hrs. Fall, Winter
Practices, effects, and policy issues in federal government budgeting, spending, taxation, borrowing and debt, with particular attention to individual and corporate income taxation. Prerequisites: ECON 201 and 202.

ECON 445 Corporations and Public Policy
3 hrs. Fall, Winter
A study of the organization of economic enterprise, particularly large corporations. The history, financing, and control of these enterprises is studied in an effort to determine how the public interest is affected and how public control has protected and can protect the public interest. Prerequisites: ECON 201 and 202.

ECON 480 International Economics
3 hrs. Fall, Winter, Spring
A study of the fundamentals of international trade and related problems, with special reference to the implications of the international economic policies of the United States both for the economy and for the firm. Prerequisites: ECON 201 and 202.

ECON 487 Studies in Asian Economics
3 hrs. Fall or Winter
The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as a basis of comparison to the other Asian economies. Prerequisites: ECON 201 and 202.

ECON 500 Continuing Education in Economics: Variable Topics
1-3 hrs.
Application of economic principles and analysis to selected topics of interest to students in Continuing Education courses and workshops. Topics will vary and course may be repeated twice. May not be counted in fulfilling economics major, minor, or M.A. requirements.

ECON 501 Studies in Economic Problems: Variable Topics
3 hrs.
An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, the war industry, farm problems, misallocation of resources, welfare programs, unemployment and others. May be repeated for credit with a different topic. Prerequisites: ECON 201 and 202.

ECON 502 Economic Statistics
4 hrs., Fall, Winter
An introduction to statistical methods used in the analysis of economic data. Topics include descriptive statistics, probability theory, regression analysis, and hypothesis testing (including parametric and nonparametric methods). Prerequisites: ECON 201 and 202; MATH 118 or consent of instructor.

ECON 504 Introduction to Mathematical Economics
4 hrs. Fall
An introductory course to acquaint the student with the application of basic mathematical concepts to economic analysis, including such topics as revenue curves, cost curves, capital assets, growth models, and multipliers and accelerators. Prerequisites: ECON 201 and 202, MATH 122 or consent of instructor.

ECON 505 History of Economic Thought
3 hrs. Fall or Winter
A survey of the origin and development of economic thought from early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties, special emphasis will be placed on the contributions of significant economic thinkers and the influence of various schools of thought on national policy and economic development. Prerequisites: ECON 201 and 202.

ECON 507 Monetary Theory and Policy
3 hrs. Fall or Winter
This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing international trade and financial relationships. Prerequisite: ECON 420.

ECON 509 Econometrics
3 hrs. Fall or Winter
The application of econometric techniques to the estimation of economic models, properties of estimating procedures, and time series analysis. Prerequisites: ECON 201, 202, and 502 or equivalent.

ECON 512 Collective Bargaining
3 hrs. Fall or Winter
An analysis of the major problems in present day collective bargaining including the negotiation of collective agreements, the practical aspects and the economic implications. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 515 Economics of Human Resources
3 hrs. Fall or Winter
The course examines the development and utilization of manpower in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. Prerequisites: ECON 201 and 202.

ECON 516 Collective Bargaining in Public Employment
3 hrs.
This course examines collective bargaining developments in local, state and federal governments, including bargaining units, negotiations, grievance procedures, strikes and dispute settlements. Prerequisites: ECON 201 and 202, or consent of instructor.

ECON 517 Economics of Health and Human Services
3 hrs.
Economic problems of health and human services will be considered. Alternative policy solutions are viewed from the economist's point of view. Not open to Economics graduate students.

ECON 525 State and Local Government Finance
3 hrs.
Practices, effects and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisites: ECON 201 and 202.

ECON 586 Economic Development
3 hrs. Fall
An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural patterns and economic reasons for lack of development and the steps necessary to promote economic progress. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. Prerequisites: ECON 201 and 202.

ECON 591, 592 Guest Economist Seminar
1 hr. Fall, Winter
Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 201 and 202.

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

Shirley Clay Scott, Chair
Thomas Bailey
Minam Bat-Ami
Ellen Brinkley
Norman Carlson
William Combs
John Cooley
Seamus Cooney
Nancy Cutbirth
Clifford Davidson
Robert Davis
Stephanie Demetrakopoulos
Rollin Douma
Kathleen Drzick
Stuart Dybek
Philip Egan
Gwendolyn Elter-Lewis
C.J. Gianakis
Martin Gingerich
Clare Goldfarb
Russell Goldfarb
Maryellen Hains
Bradley Hayden
Robert Hinkel
Edward Jayne
Paul Johnston
W. Arnold Johnston
Elise B. Jorgens
Katherine Joslin
Tom Minehart
John Murphy
William Olsen
David Pugh
Herbert Scott
Thomas Seiler
Robert Shaffer
Thomas Small
John Stropuje
Larry Syndergaard
Constance Weaver
John Woods

The Department of English serves students in two principal ways: In developing their power to communicate and express themselves and in enhancing their ability to participate in and understand the experiences of other people, real and imaginary, past and present.

Courses and programs offered by our department—in writing, English language, and literature (including film)—enable students to concentrate in English, complement their other studies, or simply explore and sample the disciplines of language and literature. As a department we are traditionally engaged in training teachers and preparing students for graduate study. We are equally concerned with serving those students preparing for the many professions in which humane perceptions and the skills of communication, especially writing, are important.

Special Note to Non-Majors

The Department of English offers many courses, including a variety of writing courses, suitable for students not majoring in English: 105 Thought and Writing, 107 Good Books, 110 Literary Interpretation, 111 Contemporary Topics in Literature, 112 Literary Classics, 150 Literature and Other Arts, 210 Film Interpretation, 223 Black American Literature, 252 Shakespeare, 264 News Writing, 266 Writing Fiction and Poetry, 282 Children's Literature, 305 Practical Writing, 307 Good Books II, 311 Perspectives Through Literature, 312 Western World Literature, 313 Asian Literature, 314 African 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 Sprau Tower (phone 387-2575).

Majors and Minors

1. The requirements for the English majors (listed below) are flexible enough to allow students to follow individualized courses of study. As soon as students decide to major in English they should confer with one of the English 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 majors. 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 (387-2575) about transferring credit in English courses from other colleges. An early conference will enable students to bypass some of the department's basic requirements as listed below. It is departmental policy to accept no more than 20 hours of transferred credit toward a major and no more than 12 hours of transferred credit toward a minor.

6. An English language course (371, 372, or 373) may be included in this total; for instance, the two * courses which emphasize literature written before 1950.

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 (either 371 Structures of Modern English or 372 Development of Modern English, or 572 American Dialects or 574 Grammar for Teachers);

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 as a Psycholinguistic Process;

4. Two literature courses in addition to 110 and 282;

5. One 400 or 500 level course (other than 497, 597, or 589). 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—292 Children's Literature, 283 Literature for Adolescents, and 582 Studies in Children's Literature—may count toward the 30 hours. An alternative option for the 282, 369, 373core 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 course work under this option.

Students with this English major should not register for courses in the teaching of English (380) without consulting with an English adviser.
English Major With Writing Emphasis

Minor slips required. Transfer students who wish to enter these programs should see an adviser as soon as possible after admission.

English Major With Creative Writing Emphasis

110 Literary Interpretation: Entry to the program. Prerequisite to all literature courses but does not count toward the major (may be counted in AREA I of the General Education Program).
1. 266 Writing Fiction and Poetry (prerequisite to all other writing courses);
2. 12 hours from the following courses:
   - 366 Advanced Fiction Writing;
   - 367 Advanced Poetry Writing;
   - 368 Playwriting;
   - 566 Creative Writing Workshop. (366, 367, 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. 12 hours (three courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences Major. See above;
7. Electives to make 30 hours.

The English Major with Practical Writing Emphasis may be expanded from 30 to 44-46 hours by taking 3-4 courses from the following cognate options. GE means that the courses listed carry General Education Credit.

COMMUNITY JOURNALISM PROGRAM

COGNATE OPTIONS
- COM 359 Broadcast Journalism (3 cr. hr.)
- COM 541 Mass Communications Law (3 cr. hr.)
- COM 544 Mass Communication, News and Public Affairs (3 cr. hr.)
- ED 550 Photography Workshop (3 cr. hr.)
- GEOG 311 Geography of Michigan (3 cr. hr. GE)
- GHUM 316 Mass Media: Messages and Manipulation (4 cr. hr.; GE)
- HIST 310 History of Michigan (3 cr. hr.)
- PAPR 150 Graphic Arts (3 cr. hr.)
- PSCI 202 State and Local Government (4 cr. hr.)

One English course to be selected in consultation with the department adviser.

English Major With Community Journalism Emphasis

110 Literary Interpretation. Entry to the program. Prerequisite to all literature courses but does not count toward the major (may be counted in AREA I of the General Education Program).
1. 264 News Writing (prerequisite to other writing courses in this major);
2. 265 News Writing;
3. 363 Reporting;
4. 463 Reporting Community Affairs (prerequisite: 264 and 363);
5. 461 Form in Non-Fiction;
6. 12 hours (three courses at the 300-500 level) chosen from the core requirements (No. 1-4) of the Arts and Sciences Major. See above;
7. Electives to make 30 hours.

The English Major with Community Journalism Emphasis may be expanded from 30 to 44-46 hours by taking 3-4 courses selected from the following cognate options. GE means that the courses listed also carry General Education Credit.

PRACTICAL WRITING PROGRAM

COGNATE OPTIONS
- COM 104 Public Speaking (3 cr. hr.) or
- COM 358 TV and Film Scripting (3 cr. hr.) or
- COM 359 Broadcast Journalism (3 cr. hr.)
- COM 547 Organizational Uses of Radio and TV (3 cr. hr.)
- ED 548 Audiosvisual Media I (3 cr. hr.) or
- ED 550 Photography Workshop (3 cr. hr.)
- GEOG 311 Geography of Michigan (3 cr. hr. GE)
- GHUM 315 Human Communication (4 cr. hr.; GE)
- GHUM 316 Mass Media: Messages and Manipulation (4 cr. hr.; GE)
- HIST 204 Business History (3 cr. hr. GE) or
- HIST 310 History of Michigan (3 cr. hr.)
- PAPR 150 Graphic Arts (3 cr. hr.)
- MATH 366 Introduction to Statistics (4 cr. hr.; GE)

One English course to be selected in consultation with the department 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.

Arts and Sciences, Liberal Arts, Other Non-Teaching Curricula

Required: 110 Literary Interpretation; at least 8 hours of coursework in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

For English minors in non-teaching curricula, only one specific course (110) is required, in order that the minor program may be individualized to supplement or complement a major in virtually any other field of study—business, technology, fine arts, the sciences, social sciences, or humanities. To discuss these possibilities, see an English adviser (387-2575).

Secondary Education Curriculum

Required: 110 Literary Interpretation; either 371 Structures of Modern English or 372 Development of Modern English or 572 American Dialects or 574 Grammar for Teachers; an American literature course; at least 8 hours of course work in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

The course in the methods of teaching English (380) does not count toward the English minor, but it will strengthen a student’s professional preparation.

The department strongly recommends that minors in secondary education see an English adviser before completion of the first twelve hours of the minor.

Elementary Education Curriculum

Required: 110 Literary Interpretation; 373 Reading as a Psycholinguistic Process; 369 Writing for Elementary Teachers; 285 Children’s Literature, plus electives to complete the 20 hours.

No more than one of the following courses may be counted toward the 20 credits required in the minor: 282 Children’s Literature, 283 Literature for Adolescents, 582 Studies in Children’s Literature.

An alternative option for the 282, 369, 373 core listed above is the ILAM/ENGL 375-376 sequence plus one course selected from 282, 369, or 373. Both 375 and 376 must be taken, or no credit toward the minor will be given under this option. This option requires a minor slip. The student should see an adviser before completing the first eight hours of coursework under this option.

Elementary education minors should not register for the course in the teaching of English (380).

English Minor With Writing Emphasis

Students in the Arts and Sciences, Liberal Arts, or other non-teaching curricula may elect to take a practical writing minor, consisting of a cumulative series of upper-level courses in writing and analyzing English. 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: 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.

Arts and Sciences, Liberal Arts, Other Non-Teaching Curricula

Required: 110 Literary Interpretation; at least 8 hours of coursework in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

For English minors in non-teaching curricula, only one specific course (110) is required, in order that the minor program may be individualized to supplement or complement a major in virtually any other field of study—business, technology, fine arts, the sciences, social sciences, or humanities. To discuss these possibilities, see an English adviser (387-2575).

Secondary Education Curriculum

Required: 110 Literary Interpretation; either 371 Structures of Modern English or 372 Development of Modern English or 572 American Dialects or 574 Grammar for Teachers; an American literature course; at least 8 hours of course work in 300, 400, or 500 level courses; plus electives to complete the 20 hours.

The course in the methods of teaching English (380) does not count toward the English minor, but it will strengthen a student’s professional preparation.

The department strongly recommends that minors in secondary education see an English adviser before completion of the first twelve hours of the minor.

Elementary Education Curriculum

Required: 110 Literary Interpretation; 373 Reading as a Psycholinguistic Process; 369 Writing for Elementary Teachers; 285 Children’s Literature, plus electives to complete the 20 hours.

No more than one of the following courses may be counted toward the 20 credits required in the minor: 282 Children’s Literature, 283 Literature for Adolescents, 582 Studies in Children’s Literature.

An alternative option for the 282, 369, 373 core listed above is the ILAM/ENGL 375-376 sequence plus one course selected from 282, 369, or 373. Both 375 and 376 must be taken, or no credit toward the minor will be given under this option. This option requires a minor slip. The student should see an adviser before completing the first eight hours of coursework under this option.

Elementary education minors should not register for the course in the teaching of English (380).
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 and II, and III below have prerequisites. See course listings.

Minor slips are required: see an English adviser (387-2575).

BASIC REQUIREMENTS
1. 264 News Writing;
2. 265 News Editing;
3. 363 Reporting;
4. Electives to complete the 20 hours, selected in consultation with the adviser, from at least two of the following three groups:
   GROUP I: SPECIALIZED COURSES IN JOURNALISTIC WRITING
   ENGL 364 Feature and Article Writing
   ENGL 365 Reviewing for the Press
   ENGL 463 Reporting Community Affairs
   COM 359 Broadcast Journalism

   GROUP II: RELATED COURSES IN WRITING
   ENGL 266 Writing Fiction and Poetry
   ENGL 305 Practical Writing (any option)
   ENGL 462 Advanced Writing
   ENGL 464 Professional Writing
   COM 358 TV and Film Scripting

   GROUP III: RELATED COURSES IN MEDIA AND COMMUNICATIONS
   COM 240 Broadcast Communication
   COM 540 Studies in Mass Communication (where topic is applicable and with permission of adviser)
   GHUM 316 Mass Media: Messages and Manipulation

World Literature Minor
The Department of English and the Department of Languages and Linguistics offer jointly a world literature minor (20) hours. For description and requirements see the "Interdisciplinary Programs" listing in the College of Arts and Sciences section of this catalog; or consult Dr. Combs, 721 Sprau (387-2903).

Integrated Language Arts Minor
The Department of English is one of several participating departments in the integrated language arts minor—a program designed particularly for preservice elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternate learning styles. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section of the College of Arts and Sciences or listing in the College of Education or the College of Health and Human Services or call the English Department (387-2575).

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

ENGL 100 Basic Writing Skills
4 hrs. (Credit/No Credit)
A writing course designed to help students develop basic writing skills. Emphasis is on English usage, sentence structure, and paragraph development. Does not count toward English major or minor. Credit for the course will not apply to the number of credits needed for graduation.

ENGL 105 Thought and Writing
4 hrs.
A writing course in which the students will work closely with the instructor to develop their sense of language as a means of shaping and ordering their experiences and ideas, and to develop imagination, thought, organization, and clarity in their written work. Does not count as a credit towards English major or minor. Fulfills the University Intellectual Skills college level writing requirement.

ENGL 107 Good Books
4 hrs.
An exploration of good literature, selected from all times and countries experienced in a variety of ways—as fantasy and adventure, as imaginative response to fundamental human experience such as death or evil, as social criticism and analysis, as revelation of character and psychology, as experience of unfamiliar customs and cultures.

A course for the general student rather than the student who plans to specialize in the study of literature. Credit towards English major or minor by permission of the department only.

ENGL 110 Literary Interpretation
4 hrs.
An introduction to the study of literature, aimed at developing sensitivity and skill in the critical interpretation of poetry, drama, and prose fiction. Designed for entry to any English major program; does not count toward the 30 hours required in a major but may be counted in AREA I of the General Education Program.

ENGL 111 Contemporary Topics in Literature
4 hrs.
Exploration of fiction, poetry, drama, and film related to current concerns. Topics are: A. Myth and Folk Literature; B. Man, Woman and Marriage in Literature.

An exploratory course for the general student rather than the student who plans to specialize in the study of literature. Credit toward English major or minor by permission of the department only.

ENGL 112 Literary Classics
4 hrs.
Readings in selected literary masterpieces from Homer to the present. The works studied are chosen to introduce students to the rich and diverse literary traditions which represent an invaluable aspect of their heritage. Recommended for the general student as well as for potential English majors or minors; does not, however, count for English major or minor credit.

ENGL 150 Literature and Other Arts
4 hrs.
Study of literature through its relationship to other arts. The course approaches literature by relating novels, stories, poems, or plays to their representations in other media and art forms, particularly film (including TV), music and song, dramatic representation, and painting.

ENGL 210 Film Interpretation
4 hrs.
Studies in the motion picture as art form.

ENGL 222 American Literature and Culture
4 hrs.
A study of some of the recurrent themes in American life as seen in American literature.

ENGL 223 Black American Literature
4 hrs.
A survey of important black American writers and the historical development of the black image and experience in American literature and culture.

ENGL 252 Shakespeare
4 hrs.
A survey of Shakespeare’s art through study of selected tragedies, histories, and comedies.

ENGL 264 News Writing
4 hrs.
Introduction to journalistic principles with an emphasis on writing news stories and learning news style. Students should be able to type.

ENGL 265 News Editing
4 hrs.
Instruction and extensive practical experience in copy editing, rewrite, typography, headline writing, handling wire copy and photographs, and layout. Prerequisite: ENGL 264 News Writing.

ENGL 266 Writing Fiction and Poetry
4 hrs.
Study and practice in writing of fiction and poetry, intended to develop the student’s understanding of formal techniques and skill in the use of these techniques.

ENGL 282 Children’s Literature
4 hrs.
An exploration of the human and literary values in the best of children’s books. Emphasis is on critical sensitivity and techniques necessary for interpreting and evaluating works representative of the major forms of children’s literature—folklore and fantasy, fiction and non-fiction, myth and poetry.

If this course is counted toward the English major or minor, 283 Literature for Adolescents may not be counted, except by middle school and junior high school education English majors.

ENGL 283 Literature for Adolescents
4 hrs.
A practical course for juniors and seniors who wish to develop their skills in writing. Emphasis is on understanding the writing forms of non-fictional prose such as research papers and reports; personal writing, and pre-professional writing (for students planning careers in business, social service, industry, law, the arts, or other professions). Topics vary and will be announced each year. May be repeated for credit, but may be counted only once toward fulfillment of General Education requirements, and counted only once for major/minor credit, except for the practical writing minor.

ENGL 307 Good Books II
4 hrs.
An advanced version of ENGL 107 Good Books; more challenging books for more experienced readers. No prerequisite. Does not count toward English major or minor.
ENGL 310 Literary History and Criticism
4 hrs.
Discussion of important topics and problems, both historical and critical, involved in the study and teaching of literature. Emphasis includes study in the chronology of English literature, its development and continuity, and an introduction to the nature and uses of formal literary criticism. Prerequisite: ENGL 110.

ENGL 311 Perspectives Through Literature
4 hrs.
Exploration of an important realm of human nature and action through the special perspective provided by literature. The literary perspectives may be supplemented by materials from other arts or disciplines. Topics are A. The Quest for the Self. B. Science Fiction and Fantasy. C. Man's Place in Nature. A non-technical course for the general student rather than the student specializing in the study of literature; does not count as credit towards an English major or minor.

ENGL 312 Western World Literature
4 hrs.
Study of works selected from the Western literary tradition, excluding those from Great Britain and the U.S.A. Selections may range from biblical literature and great works of Greece and Rome through classics of the Middle Ages and Renaissance to major works of the present. Works will be studied in English. Approved for General Education under Area I.

ENGL 313 Asian Literature
4 hrs.
Study of works selected from the great literature of Asia, especially the Chinese, Japanese, and Indian traditions. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

ENGL 314 African Literature
4 hrs.
Study of works selected from the great literature of Africa, including both traditional and contemporary material. Works will be studied in English. Approved for General Education under Area IV (Non-Western World).

ENGL 315 The English Bible as Literature
4 hrs.
Study of selections from the Old and New Testaments and the Apocrypha. Some attention will be given to the influence of the English Bible on a few representative writers, musicians, and artists, but emphasis will be on the poetic, philosophical, and narrative elements of the Bible itself.

ENGL 322 American Literature: Major Writers
4 hrs.
Intensive reading of representative works of major American writers. Prerequisite: ENGL 110.

ENGL 340 Development of English Verse
4 hrs.
A historical study of English poetry, from its beginnings to the present, emphasizing the development of poetic techniques, major verse forms and styles, and their relation to theories of poetry. Prerequisite: ENGL 310.

ENGL 363 Reporting
4 hrs.
Instruction and practice in covering news beats, writing complex news stories, and developing good interviewing skills. Prerequisite: ENGL 264.

ENGL 364 Feature and Article Writing
4 hrs.
Study and practice in writing feature and news articles, with attention to contemporary techniques and styles in documentary and personal reportage. Prerequisite: A previous college-level writing course.

ENGL 365 Reviewing for the Press
4 hrs.
Theory and practice in reviewing books, drama, films, television, concerts, and exhibitions for various kinds of mass-audience publications. Prerequisite: Previous course work in journalism, creative writing, literature, or media.

ENGL 366 Advanced Fiction Writing
4 hrs.
An advanced course in the writing of fiction, with emphasis on class discussion and criticism of each student's writing. Prerequisite: ENGL 266 or permission of the department.

ENGL 367 Advanced Poetry Writing
4 hrs.
An advanced course in the writing of poetry, with emphasis on class discussion and criticism of each student's writing. Prerequisite: ENGL 266 or permission of the department.

ENGL 368 Playwriting
4 hrs.
An introductory course in the writing of drama, with class discussion and criticism of each student's writing, and including study of selected examples of drama in print and in production. Prerequisite: ENGL 266 or permission of the department.

ENGL 369 Writing for Elementary Teachers
4 hrs.
A course intended to develop the writing skills of prospective teachers and to explore the means by which the writing ability of elementary school children can be encouraged, developed, and evaluated.

ENGL 371 Structures of Modern English
4 hrs.
Examines the structures of the English language and surveys major grammatical theories. Emphasizes syntactic analysis of oral and written English to develop an understanding of the diversity of forms, meanings, and stylistic choices available in the language.

ENGL 372 Development of Modern English
4 hrs.
Traces the development of modern English from its beginnings to the present, examining historic and linguistic influences on change in both spoken and written English. Explores theories of language development, with emphasis on their practical implications.

ENGL 373 Reading As A Psycholinguistic Process
4 hrs.
Focuses on the nature of the reading process and the development of reading ability in children. Particular attention is given to how the natural acquisition of literacy parallels the acquisition of oral language, and to the close relationship between the development of reading and writing ability. Emphasizes the application of current research in the elementary classroom.

ENGL 375 Acquisition of Literacy and the Early Elementary Child
4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing processes, 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.)

ENGL 376 Acquisition of Literacy and the Later Elementary Child
4 hrs.
This course focuses on the psycholinguistic nature of the reading and writing processes, emphasizing how children can be helped to develop their reading and writing abilities. Particular attention is paid to literature for children and how that literature can further not only their reading and writing but also their development of artistic and human values. Deals with the child from seven through twelve years. (This course is required for the integrated language arts minor.)

ENGL 379 Writing for the Secondary Teacher
4 hrs.
A course developing the abilities of prospective teachers to control language in the writing process and exploring means by which the writing ability of secondary students can be encouraged, developed and evaluated.

ENGL 380 Teaching of Literature in the Secondary Schools
4 hrs.
A study of techniques and theories of teaching literature to young adults. Prerequisite: ED 301 Teaching and Learning—Secondary. Students in the elementary education curriculum must obtain permission from a department adviser before enrolling in this course. Does not count as credit toward the major or minor.

ENGL 410 Special Topics in Literature
4 hrs.
A study in historical perspective of selected literary works of the English speaking world or international literature in translation. May be repeated for credit as long as the topics are different. Prerequisite: ENGL 110.

ENGL 418 Women in Literature
4 hrs.
A study of literature of different periods and cultures to identify the images of women and to interpret the search for self as experienced by women protagonists and women writers. Prerequisite: ENGL 110.

ENGL 442 Modern Drama
4 hrs.
Studies in the major styles and forms of modern drama from Ibsen to the present. Prerequisite: ENGL 110.

ENGL 452 Shakespeare Seminar
4 hrs.
Intensive study of selected aspects of Shakespeare's poetic and dramatic art. Prerequisite: ENGL 110 or 252.

ENGL 461 Form in Non-Fiction
4 hrs.
A literary analysis of the form and development of non-fiction. Prerequisite: ENGL 110.

ENGL 462 Advanced Writing
4 hrs.
Practice in writing articles, essays, biographical and critical prose, with emphasis on development of the student's individual style and elimination of obstacles to clear and vital expression.

ENGL 463 Reporting Community Affairs
4 hrs.
Practice in the covering and reporting of the police, the courts, and other governmental units. Some stress on investigative and in-depth reporting. Prerequisites: ENGL 264 and 363.

ENGL 464 Professional Writing
4 hrs.
Practice in developing the forms and techniques of writing, editing, and researching required in business, industry, and government. Students should take this course as their capstone experience in practical writing. Prerequisite: two writing courses.
ENGL 496 English Honors Seminar
4 hrs.
Special studies in selected topics. Open only to majors working for honors in English, or by permission of the instructor.

ENGL 497 Studies in English: Variable Topics
1-3 hrs.
Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

ENGL 510 Special Topics in Literature
4 hrs.
Study of a literary movement, theme, or genre, such as classicism, the Arthurian tradition, the lyric. May be repeated for credit as long as the topics are different. Prerequisite: ENGL 110 or permission of the department.

ENGL 530 Medieval Literature* 4 hrs.
Readings in the medieval literary tradition. Some Middle English works will be studied in the original; works in Old English and continental literature will be mainly in translation. Prerequisite: ENGL 110.

ENGL 532 English Renaissance Literature* 4 hrs.
Readings in representative writers of the period 1500-1660. Prerequisite: ENGL 110.

ENGL 534 Restoration and 18th Century Literature* 4 hrs.
(British Literature 1660-1800) Readings in representative writers of the period, focusing on the diversity of literary forms in the period. Prerequisite: ENGL 110.

ENGL 536 Nineteenth Century British Literature* 4 hrs.
Readings in representative writers focusing on one or more principal movements of the century. Prerequisite: ENGL 110.

ENGL 538 Modern Literature* 4 hrs.
Readings in representative writers in the period 1890-1945, not exclusively in British and American literature. Prerequisite: ENGL 110.

ENGL 540 Contemporary Literature
4 hrs.
Readings in representative writers who have come to prominence chiefly since 1945. Prerequisite: ENGL 110.

ENGL 544 The British Novel* 4 hrs.
A study of the novel as a literary form reflecting, in its development and diversity, changes in human consciousness. Emphasis will be on development of the British novel from the eighteenth to the early twentieth century. Prerequisite: ENGL 110.

ENGL 555 Studies in Major Writers* 4 hrs.
Study of the works of classical, European, British or American writers. Limited to one or two authors. Prerequisite: ENGL 110.

ENGL 566 Creative Writing Workshop
4 hrs.
A workshop and conference course in the writing of poetry, fiction, or drama, with emphasis on refinement of the individual student's style and skills. May be repeated for credit. Prerequisite: Six hours of creative writing, graduate standing, or permission of the department.

ENGL 572 American Dialects
4 hrs.
A study of regional and social varieties of American English from sociolinguistic perspectives, focusing on the forces which influence different types of language variation. Examines issues of linguistic bias, and offers a multi-cultural perspective on the role of language in daily life.

ENGL 574 Grammar for Teachers
4 hrs.
Focuses on that aspect of linguistics known as "grammar." the grammar that we know intuitively, the descriptive grammars devised by modern linguists, and the "traditional" grammar which prescribes the rules of usage and mechanics. Emphasizes practical applications of these varied concepts in secondary and elementary English classrooms.

ENGL 582 Studies in Children's Literature
4 hrs.
A study in depth of significant themes, movements, types in children’s literature. Prerequisite: ENGL 282 or permission of the department.

Only one of the three courses 282, 283, 582 may be counted toward the elementary education English minor, and only two of these three courses may be counted toward the middle school and junior high school education English major.

ENGL 587 Studies in English: Variable Topics
1-3 hrs.
Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the schedule of classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

ENGL 598 Readings in English
1-4 hrs.
Individual reading project available to advanced students by special permission from the appropriate departmental adviser (undergraduate or graduate). Prerequisite: ENGL 110. Credit will be determined by department and the staff member who will supervise the study. Normally, permission is granted only to students who have well thought-out projects dealing with authors or materials not being covered currently in the schedule. Permission is usually not granted to students who want to use the course simply to get one or two hours credit to complete an English major or minor.

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

FRENCH
See "Languages and Linguistics" in the College of Arts and Sciences.

GEORGE VUCICH
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 four courses (GEOG 105, 205, 265, 303) are required of majors. A non-teaching major in geography with specialization provides for a minimum of 32 hours. It is recommended that 6 additional hours of work from the complementary disciplines be taken in support of the area of specialization. An internship for variable credit (GEOG 412) may be arranged in this program. For those who intend to pursue graduate work, it is recommended that courses in mathematics and foreign languages be considered as electives.

The department will accept, toward the major or minor, credits earned at community and junior colleges which correspond to the 100-, 200-, 300-level offered by this department.

However, transfer students should meet with the undergraduate 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 (phone 387-3410) for information concerning the departmental major, minor, honors program, or financial assistance.

Geography Major
32 hours credit
105 Physical Geography 4 hrs.
205 Human Geography 3 hrs.
265 Map, Chart and Air Photo Reading 3 hrs.
303 Geographic Inquiry 4 hrs.
Two courses from Group I at 200-level or above
One course from Group II
One course from Group III

Geography Minor
20 hours credit
105 Physical Geography 4 hrs.
or
205 Human Geography 3 hrs.
and
One of the following: GEOG 265, 303, 375, 566, or 582
Remaining courses to be selected with consent of adviser.
Undergraduate Adviser, Department of Geography, Room 321 Wood Hall, Western Michigan University, Kalamazoo, Michigan 49008.

**Required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>105</td>
<td>Physical Geography</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>205</td>
<td>Human Geography</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>265</td>
<td>Map, Chart and Air Photo Reading</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>303</td>
<td>Geographic Inquiry</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>310</td>
<td>Research and Regulations/ Tourism</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>408</td>
<td>Geography of Travel and Tourism</td>
<td>4 hrs.</td>
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</tbody>
</table>

At least two of the following regional courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>311</td>
<td>Geography of Michigan</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>380</td>
<td>United States and Canada</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>381</td>
<td>South America</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>382</td>
<td>Mexico and the Caribbean</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>383</td>
<td>Western and Southern Europe</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>384</td>
<td>Soviet Peoples</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>385</td>
<td>The Pacific Realm</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>386</td>
<td>Sub-Saharan Africa</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>389</td>
<td>Monsoon Asia</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>

Electives: In consultation with the approval of the program adviser, Tourism and Travel Majors are to select two additional courses in geography. Professional Practice (GEOG 412) is recommended as one of the two.

The tourism major is required to take a minor from the Haworth College of Business or Department of Languages and Linguistics (Modern and Classical Languages). Science and Mathematics Teaching Minor

The Department of Geography participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the “Interdisciplinary Programs” section in the College of Arts and Sciences.

**Science Credit**

The geography courses 100, 105, 204, 225, 265, 306, 350, 375, 521, 553, 554, 555, 557, 558, 560, and 582 are acceptable for science credit in appropriate science sequences.

**Courses by topic**

**SYSTEMATIC GEOGRAPHY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/102</td>
<td>World Ecological Problems and Man</td>
<td>3 hrs.</td>
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<tr>
<td>105</td>
<td>Physical Geography</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>204</td>
<td>National Park Landscapes</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>225</td>
<td>Introduction to Meteorology and Climatology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>237</td>
<td>Environmental Earth Science</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>244</td>
<td>Geographical Patterns of Economic Activity</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>306</td>
<td>The Atmospheric Environment and Society</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>356</td>
<td>Introduction to City and Regional Planning</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>408</td>
<td>Geography of Travel and Tourism</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>521</td>
<td>Studies in Climatology and Meteorology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>544</td>
<td>Studies in Economic Geography</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>545</td>
<td>Studies in Human Geography</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>553</td>
<td>Water Resources Management</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>554</td>
<td>Outdoor Recreation: Resources and Planning</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>555</td>
<td>Contemporary Issues in Resources Management</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>556</td>
<td>Studies in Urban and Regional Planning</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>
GEOG 303 Geographic Inquiry 4 hrs. Students will be introduced to geography as a field of study, research and professional opportunity. Students will have an opportunity to investigate social and environmental problems through data collection, analysis, and graphic and written representation. The emphasis throughout will be on the application of inquiry models to geographic problems. For Geography majors and minors only. Course meets University Baccalaureate Writing Requirement. Prerequisite: CS 105 or equivalent.

GEOG 306 Atmospheric Environment and Society 3 hrs. (Science credit) The study of the atmospheric environment as it interacts with humans and society. Special emphasis is given to the following: the role of weather and climate in affecting the successful outcome of plans and economic decisions; the dynamics of changing climates and their role in affecting the course of history, human physiological and psychological responses to weather and climate; weather forecasting and its value to society; and the hazards to life, health, and property posed by severe weather. Students should expect to achieve a sufficient understanding of the atmospheric environment so that they may make informed decisions involving weather topics.

GEOG 309 Studies in Regional Geography 2-3 hrs. An investigation of topics in physical and human geography of selected areas within major world regions. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment.

GEOG 310 Research and Regulation in Tourism 4 hrs. This course introduces the research methods and data sources for the analysis of tourism and travel. The use of flow patterns and the predictive modeling of spatial interaction as well as geographic theories related to diffusion and effects of regulations on flow patterns will be investigated.

GEOG 311 Geography of Michigan 3 hrs. An introduction to the physical and cultural patterns in Michigan with emphasis upon an understanding of the distribution of population, resources, and forms of economic activity. Attention is also focused upon relevant current State problems.

GEOG 350 Conservation and Environmental Management 3 hrs. (Science credit) A critical evaluation of the management of selected natural resources in North America. Conflicts between environmental and economic interests are examined in both historical and contemporary contexts.

GEOG 356 Introduction to City and Regional Planning 3 hrs. Intended to provide the student with an introduction to planning thought and professional practice: examination of the evolution from traditional physical land-use planning to the comprehensive planning process which incorporates physical, social, and economic elements; consideration of the impact of planners and planning movements of the 19th and early 20th centuries such as the "New Towns" programs; relationship of planning to zoning; the emergence of regional administrative units and regional planning programs.

GEOG 361 Population: The Crowding World 3 hrs. Population distribution and settlement patterns are examined geographically. Population topics include mapping and analysis, theories of population change, and types of migration. Emphasis is also placed on functions and structure of urban and rural settlements in selected world regions.

GEOG 375 Principles of Cartography 4 hrs. (Science credit) Introduction to map construction with primary emphasis on planning and designing maps as communication medium. Lectures and laboratory assignments familiarize the student with techniques of lettering, symbolization and drafting, map layout and design, methods and materials of map reproduction, the computation of map projections, procedures of map compilation and the production of thematic maps. Prerequisite: GEOG 265 or equivalent.

GEOG 380 United States and Canada 3 hrs. A study of the physical environment north of the Rio Grande followed by an analysis of the spatial structure of the area's population and economy. The basis for the regional differentiation of the USA and Canada is considered, followed by a region-by-region analysis of each of these unique integrations of physical and cultural phenomena.

GEOG 381 South America 3 hrs. Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included.

GEOG 382 Mexico and the Caribbean 3 hrs. Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social and political trends of the region.

GEOG 383 Western and Southern Europe 3 hrs. Intensive regional study of those Western European nations situated west of the Iron Curtain. The physical elements (climate, landforms, resources, etc.) are examined and the derivative cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Western Europe.

GEOG 384 Soviet Peoples and Landscape: Continuity and Change 3 hrs. A general examination of the most important aspects of the Soviet peoples and landscape set in a spatial framework. Topics discussed include: The physical environment, population distribution and dynamics, the Soviet strategy of economic development (both national and regional), problems of agricultural development, industrial and transport patterns, and problems of environmental deterioration.

GEOG 385 The Pacific Realm 3 hrs. Selected studies of the relationships between human beings and the environment in Australia, New Zealand, Melanesia, and Polynesia.
GEOG 386 Sub-Saharan Africa: Man, Environment, Resources 3 hrs.
Survey of the principal physical and political patterns of Africa south of the Sahara; followed by studies of the significant elements of the major realms and states, e.g., population distribution, patterns of subsistence, commercial agriculture, status of mineral and power resource development, transportation routes, regional development programs.

GEOG 387 The Middle East and North Africa 3 hrs.
Study of the diversity and uniformity—both physical and cultural—of the Middle East and North Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab reunification movements, and the impact of the Muslim World on the current political scene.

GEOG 389 Monsoon Asia 3 hrs.
Systematic survey of the physical and human (socio-economic) environments of the southeastern rim of Asia (Pakistan in the west to Japan in the east). Geographical background necessary to interpret present conditions is included.

GEOG 408 Geography of Travel and Tourism 4 hrs.
The student studies global environments and transportation systems to analyze travel and travel trends and opportunities. An examination of resort areas, tourist frequency patterns to various resorts, cultural opportunities, and perception of places through travel brochures and literature are included in the course. Theoretical assumptions underlying perceptions of place and mental maps of tourism and travel preferences are examined.

GEOG 412 Professional Practice 2-4 hrs.
Provision for an advanced student to benefit by supplementary practical experiences in a particular branch of geography, either by assisting faculty engaged in research or by working in a departmentally-approved off-campus agency. Specific assignments are arranged in consultation with departmental advisers during the semester preceding that in which the student expects to enroll in 412. The student may enroll for one additional semester, but no student will be allowed more than six hours total credit for 412. Prerequisite: Junior standing and consent of Department Chair.

GEOG 460 Concepts and Strategies in the Teaching of Geography 3 hrs.
Study of objectives, tools, organization and presentation of material, methods of evaluation, and scrutiny of textual material in the field of geography.

GEOG 521 Studies in Climatology and Meteorology 3 hrs.
(System credit) Studies at an advanced level in meteorology and climatology. Topics of current interest to atmospheric scientists are examined in depth. Regional climatic phenomena and their relation to atmospheric circulation patterns are also investigated. Prerequisite: GEOG 225 or consent of department.

GEOG 544 Studies in Economic Geography 2-3 hrs.
Present world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors:

1. Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

2. Industry. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

3. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport-modes in differing political systems.

Prerequisites: GEOG 205 and GEOG 244 or consent of department.

GEOG 545 Studies in Human Geography 2-3 hrs.
Each course listed under this general title is a concentrated study of one of the principal subdivisions of human geography. The scope and principal themes of each specialized field are reviewed, with consideration given to current research on selected problems. Prerequisite: GEOG 203, or GEOG 205 or GEOG 244, or consent of instructor. Course may be repeated for credit.

1. Cultural Geography. Techniques of spatial analysis applicable to the study of humans and their environment. The place of origin, diffusion, and present distribution of 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 ecological geography.

GEOG 553 Water Resources Management 3 hrs.
(System 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 (desalinization, inter-basin transfers), water administration and policies, and various water problems together with their solutions.

GEOG 554 Outdoor Recreation: Resources and Planning 3 hrs.
(System 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 self-designed and executed individual studies provide professional orientation.

GEOG 555 Contemporary Issues in Resources Management 3 hrs.
(System credit) Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

GEOG 556 Studies in Urban and Regional Planning 3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.

1. Urban Planning and Zoning. A survey of American planning thought and practice: the background of planning and zoning in American municipalities; traditional and contemporary approaches to the comprehensive plan; elements of land use and transportation planning; the legal foundations of zoning; and the organization of the planning agency.

2. Regional Planning. Organization and plans of regional planning agencies.

3. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands. Prerequisite: GEOG 356 or consent of department.

GEOG 557 Environmental Impact Assessment 3 hrs.
(System credit) Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. This course provides an introduction to the analysis and preparation of environmental impact statements. Prerequisites: Senior standing and GEOG 350 or permission.

GEOG 566 Field Geography 2-4 hrs.
The theory and application of geographic techniques and instruments of field investigations: collection and analysis of field data, preparation and presentation of materials. The course is based primarily upon field observations. Prerequisite: GEOG 265 or 375, and 582, or consent of department.

GEOG 567 Computerized Geodata Handling and Mapping 4 hrs.
Principles and procedures involved in structuring and using computerized geographic data systems (applicable to land use analysis, impact assessments, and urban and regional planning), and in representing these data by computer mapping methods. Equivalent applications of these methods will be made to both microcomputers and larger main-frame computer systems. Prerequisite: Senior or graduate standing.

GEOG 586 Quantitative Methodology 3 hrs.
The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography, ranging from the use of common statistical techniques to alternate
methods of model formation and the analysis of spatial problems. Prerequisite: GEOG 567 or the consent of department.

GEOG 570 Cities and Urban Systems
3-4 hrs.
Study of processes and forms of urban settlement highlighting problems relating to (1) political and geographical realities or urbanized regions, (2) factors in city growth (or decline), (3) the sizes, functions, and geographical distribution of cities, and (4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography.

GEOG 580 Advanced Cartography
4 hrs.
(Science credit) A review of current trends and philosophies of cartography. A combination of lectures, demonstrations, and independent projects provide the advanced cartography student with opportunities to practice state-of-the-art map design, multicolor production, photoreproduction, and computer-assisted mapping. It is recommended that GEOG 567 be taken before 580. Prerequisite: GEOG 375 or equivalent.

GEOG 582 Remote Sensing of the Environment
3 hrs.
(Science credit) The student will acquire proficiency in the fundamental techniques and skills of photogrammetry and photo-interpretation during the first part of the course. The remainder of the semester will be spent in interpreting photos dealing with such topics as geomorphology, archaeology, vegetation and soils, water resource, rural and urban land use as well as topics adapted to the interest and anticipated future work of the student.

GEOG 597 Readings in Geography
1-3 hrs.
Designed for highly qualified majors and graduate students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Repeatable for credit. Prerequisite: Consent of department adviser and instructor.

GEOLOGY

W. Thomas Straw, Chair
David Barnes
Ronald B. Chase
Gerry W. Clarkson
John D. Grace
William B. Harrison, III
Duane Hampton
Alan Kehew
Richard N. Passero
Christopher J. Schmidt

Geology Major
Minimum 35 Hours

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>GEOL 130 Physical Geology</td>
<td>4</td>
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<tr>
<td>GEOL 131 Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 335 Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 336 Optical Mineralogy</td>
<td>3</td>
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<tr>
<td>GEOL 430 Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 433 Invertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 440 Petrology and Petrography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 532 Surficial Processes and Groundwater Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 535 Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 560 Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

A minimum of a “C” is required in each of the required Geology courses, and a “C” average in all cognate courses.

Supporting required courses:
CHEM 101 or 120; PHYS 110 and 111, or 210 and 211; BICS 101 or as arranged by counselor; and MATH 122 and 123 and CS 105 Introduction to Computers. Some modification of these requirements may be made in consultation with the student’s departmental counselor. A summer field course in geology is strongly recommended for all geology majors and is indispensable for students planning professional careers. In addition, at least one year of foreign language is recommended.

Geology majors should elect minors in mathematics, computer science, chemistry, physics, or biology. Students electing one of the above minors must still complete all other supporting required courses. Students not electing one of the above minors may elect the group science minor for geology majors (see below).

Suggested four-year program of study for geology majors including all required supporting courses.

FRESHMAN YEAR
Fall
GEOL 130
MATH 122
(Students with insufficient high school mathematics may have to take MATH 118 prior to 122.)
Winter
GEOL 131
MATH 123
BICS 101

SOPHOMORE YEAR
GEOL 335
CHEM 101 or 102
GEOL 433
CHEM 120

JUNIOR YEAR
GEOL 336
GEOL 430
PHYS 210 or 110
GEOL 440
PHYS 211 or 111
CS 105

Summer Field Course in Geology

SENIOR YEAR
GEOL 535
GEOL 532
GEOL 560

Geology Minor
Minimum 18 Hours
The geology minor is designed as a supporting minor for students preparing to do professional work in the fields of chemistry, physics, engineering, zoology, botany, and geography. It cannot be combined with earth science as a major-minor or double minor relationship. A student may design a geology minor for his/her specific need.

Required Courses

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>GEOL 130 Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131 Earth History and Evolution</td>
<td>4</td>
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</tbody>
</table>

One of the following options is recommended:

- GEOL 335 Mineralogy
- GEOL 336 Optical Mineralogy
- GEOL 440 Petrology/Petrography
- GEOL 301 Minerals and Rocks
- GEOL 433 Invertebrate Paleontology

6 additional hours in geology

Course substitution from other geology offerings can be made with the consent of counselor (e.g., a geography major minor in geology might elect Surficial Processes and Groundwater Geology, or Glacial Geology).

Geophysics Major
The Geology and Physics Departments offer a program of study leading to a major in geophysics. Students choosing this program of study are also required to take mathematics courses which correspond to a minor in mathematics. Students contemplating a geophysics major should contact the Geology Department as early as possible for advising.

Total Major Hours: 44-49
Major Core: 35-38

Geology (GEOL) (17 hours)

<table>
<thead>
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<tbody>
<tr>
<td>GEOL 130 Physical Geology</td>
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<tr>
<td>GEOL 131 Earth History and Evolution</td>
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</tr>
<tr>
<td>GEOL 301 Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 430 Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 560 Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

Physics (PHYS) (15-16 hours)

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>PHYS 210 Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211 Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212 Introductory Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 342 Electronics</td>
<td>3-4</td>
</tr>
</tbody>
</table>

One of the following (3-4 hours)

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 330 Thermodynamics and Kinetic</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 352 Optics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 540 Electricity and Magnetism</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>GEOG 225</td>
<td>Introduction to Meteorology</td>
</tr>
<tr>
<td>PHYS 104</td>
<td>Introductory Astronomy</td>
</tr>
<tr>
<td>GEOG 225</td>
<td>Introduction to Meteorology and Climatology</td>
</tr>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Earth History and Evolution</td>
</tr>
<tr>
<td>GEOL 300</td>
<td>Oceanography</td>
</tr>
<tr>
<td>GEOL 307</td>
<td>Teaching of Earth Science</td>
</tr>
</tbody>
</table>

**Earth Science: Non-Teaching Major and Minor**

The non-teaching earth science major and minor programs are broad and flexible courses 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-related courses from the Departments of Geology, Engineering, Biological Sciences, Geography, Chemistry, Physics, and others. Courses are selected in consultation with the earth science advisor in order to design programs that will satisfy students' needs and professional objectives. A complete list of approved courses is available from the Department of Geology. A minimum of 15 credit hours in Geology is required for a major and 10 credit hours for a minor including GEOL 130, 301 and/or 539.

**Hydrogeology Major**

Core: 39-40 hrs., Total: 74-75

The hydrogeology major is designed to give individuals at the bachelor's level a strong background in geology, hydrogeology, supporting sciences, mathematics, and computer science. This program will prepare students to enter graduate programs and the job market as hydrogeologists.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 430</td>
<td>Structural Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 512</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 532</td>
<td>Geomorphology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 535</td>
<td>Sedimentation and Stratigraphy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 536</td>
<td>Field Studies in Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 544</td>
<td>Environmental Geology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 560</td>
<td>Introduction to Geophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

At least 4 credit hours selected from the physical or biological sciences with approval of the student's advisor.

**Field Hydrogeology Major**


The Field Hydrogeology program is designed to educate individuals in a cluster of skills that are required to gather and process hydrogeological information. The program is designed so graduates may enter first-level positions in a wide range of engineering firms and governmental agencies.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>GEOL 130</td>
<td>Physical Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 131</td>
<td>Earth History and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 265</td>
<td>Map, Chart and Air Photo Reading</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 301</td>
<td>Minerals and Rocks</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 375</td>
<td>Principles of Cartography</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 512</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 586</td>
<td>Field Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 529</td>
<td>Field Hydrogeology</td>
<td>4</td>
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</tbody>
</table>

**Elective**

1 of the following pairs of courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 557</td>
<td>Water Quality and Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 564</td>
<td>Field Geophysics</td>
<td>3</td>
</tr>
<tr>
<td>PAPP 350</td>
<td>Water Quality and Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PAPP 353</td>
<td>Wastewater Treatment Systems</td>
<td>4</td>
</tr>
</tbody>
</table>

**MINORS**

Students must elect one of the following minors: Biology, Computer Science, Chemistry, Mathematics, Geography, or Group Science for Geology Majors.

**RECOMMENDED ADDITIONAL COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM 222</td>
<td>Quantitative Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 598</td>
<td>Readings Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 274</td>
<td>Introduction to Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 364</td>
<td>Statistical Methods</td>
<td>4</td>
</tr>
<tr>
<td>CS 201</td>
<td>Programming in FORTRAN</td>
<td>2</td>
</tr>
<tr>
<td>COM 104</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>COM 170</td>
<td>Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 305</td>
<td>Practical Writing</td>
<td>4</td>
</tr>
</tbody>
</table>

A minimum of a "C" is required in each of the required Geology courses, and a "C" average in all cognate courses.
Science and Mathematics Teaching Minor

The Department of Geology participates in the science and mathematics teaching minor for students in the elementary curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Geology Courses (GEOL)

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

GEOL 100 Earth Studies 4 hrs. Fall, Winter, Spring

Students are introduced to the materials of which the earth is made, to the processes which have created the earth as we know it and to the geological hazards which affect our lives. Included are such topics as rocks and minerals, earthquakes and the structure of the earth, water occurrences and resources, glaciers, volcanoes, oceanography, mineral resources and fossil fuels, plate tectonics and continental drift, and the origin and evolution of life. Students intending to major or minor in earth science or related sciences should take GEOL 130.

GEOL 107 Planetary Science in Elementary Education 4 hrs. Fall, Winter

An interdisciplinary study of the earth, atmosphere, solar system and universe, and their relationships and interactions. Taught by cooperating faculty from four departments, the course will provide a survey of geology, meteorology and climatology, and astronomy. Students will study each of the three topics for five weeks with different instructors. Classes will be limited to 30 students in order that instructors may use techniques which emphasize the relevancy of their disciplines in elementary education and its significance in the present and future lives of children. (No prerequisites) Not recommended for science majors.

GEOL 129 Physical Geology Laboratory 1 hr.

A laboratory experience covering minerals and rocks, and the interpretation of topographic and geologic maps. Prerequisite: Minimum 3 hours of non-laboratory geology.

GEOL 130 Physical Geology 4 hrs. Fall, Winter, Spring

A study of the common rocks and minerals and the geologic processes acting upon these materials that form the structure and surface features of the earth. Three lectures and a two-hour laboratory period.

GEOL 131 Earth History and Evolution 4 hr. Fall, Winter, Spring

Geologic time, evolution of prehistoric life, and principles of earth history with case examples from North America. Prerequisite: GEOL 130 or consent of department.

GEOL 237 Environmental Earth Science 4 hrs. Fall

An interdisciplinary environmentally oriented science offering for students in the Science and Mathematics Teaching minor. The course integrates the environmental aspects of meteorology and geology. The students spend 7½ weeks in environmental geology and 7½ weeks in environmental meteorology. Techniques for presenting the content of the course will model the ways in which environmental earth science can be presented to elementary students. The course is taught by cooperating faculty from Geography and Geology. Prerequisite: GEOL 107.

GEOL 300 Oceanography 3 hrs. Fall, Winter, Spring

Survey of oceanographic sciences including physical, chemical, biological, and geological oceanography. Lecture 5 hours a week.

GEOL 301 Minerals and Rocks 4 hrs. Winter

A one semester course covering hand specimen mineralogy and petrology; includes introduction to crystallography, physical and chemical properties of minerals, and rock description and genesis. Will not count toward a major in geology. Prerequisite GEOL 100 or 130.

GEOL 307 Teaching of Earth Science 2 hrs.

Methods, educational philosophy, objectives, activities, professionalism and problems related to teaching earth science in the junior and senior high school. Taught for Earth Science majors and minors. One hour lecture and two hours of lab. Prerequisites: 16 hours of Earth Science (including GEOL 100 or GEOL 130) or consent of the instructor.

GEOL 312 Geology of the National Parks and Monuments 2-3 hrs.

A study of the origin of geologic features and the development of landscapes through geologic time in selected National Parks and Monuments. Students will be expected to read extensively in the available literature. Lecture 2 hours per week (2 credits).

GEOL 335 Mineralogy 4 hrs. Fall

Introduction to crystallography, crystal chemistry, and determinative mineralogy. Physical and chemical properties, occurrence, uses and determination of about 100 minerals. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 100 or 130 and General Chemistry or consent of department.

GEOL 336 Optical Mineralogy 1 hr. Fall

Principles and methods of optical crystallography. Study of minerals in crushed grains and in thin sections. Lecture 2 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 335 (may be taken concurrently).

GEOL 430 Structural Geology 3 hrs. Fall

Development of rock structures and mechanics of rock deformation. Structural interpretation of geologic maps, cross-sections, and aerial photographs. Lecture 2 hours a week. Laboratory 2 hours a week. Prerequisites: GEOL 131 or consent of department.

GEOL 433 Invertebrate Paleontology 4 hrs. Winter

Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: GEOL 131 or consent of department.

GEOL 434 Problems in Geology 1-3 hrs.

Intensive reading and research on a topic in geology under the direction of a member of the geology faculty. Prerequisite: 16 hours in Geology and permission of department.

GEOL 440 Petrology and Petrography 3 hrs. Winter

Classification, origin, and description of igneous, sedimentary, and metamorphic rocks. Laboratory study of rocks and thin sections. Lecture 3 hours a week. Laboratory 3 hours a week. Prerequisite: GEOL 336.

GEOL 502 Problems in Geology and Earth Science 1-3 hrs. Fall, Winter

Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: Consent of department.

GEOL 512 Hydrogeology 3 hrs.

The study of surface and groundwater with special emphasis on its chemistry, movement, and relation to the geologic environment. Prerequisite: Senior standing.

GEOL 513 Wetland Hydrology 3 hrs.

Introduction to hydrologic functions of wetlands, wetlands classification, and the relationship between hydrology and soil and plants. Emphasis will be placed on the use of these parameters in wetlands delineation. Prerequisite: Senior standing.

GEOL 520 Economic Geology 3 hrs.

Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Lecture 3 hours a week. Prerequisite: GEOL 335, or consent of department.

GEOL 529 Summer Field Hydro 1-6 hrs.

The course will emphasize state-of-the-art techniques for sampling, monitoring, and evaluating groundwater systems and surface-groundwater interactions. Particular consideration will be given to contaminated systems, aquifer testing, and selected geophysical methods. The course will provide students with a variety of experiences in applied hydrology. Prerequisites: GEOL 512.

GEOL 530 Plate Tectonics and Earth Structure 3 hrs. Fall

Major tectonic features and internal structure of the earth in relation to plate tectonics, critical examination of the tenets of plate tectonics. Prerequisites: GEOL 131, 301 or 335.

GEOL 532 Geomorphology 3 hrs.

Detailed consideration of the earth's surficial processes including transformation of fluvial, glacial, mass-wasting, eolian, and coastal landforms. Laboratory exercises involve interpretation of topographic maps, geology maps, and air photographs. Prerequisite: GEOL 130.

GEOL 535 Sedimentation and Stratigraphy 4 hrs. Fall

Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope, and 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.

GEOL 536 Glacial Geology 3 hrs. Spring

A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: GEOL 131 and consent of department.

GEOL 539 Field Studies in Geology 1-6 hrs.

Field study of specific subjects in Geology. Subject offered will be announced in advance.
and selected from field mapping, stratigraphy and sedimentation, and regional geology. GEOL 539 is required in the Earth Science teaching major and is normally taught the two weeks of summer prior to the fall semester. Students planning to take this course should consult the Earth Science adviser in the Department of Geology. Prerequisite: Eight hours of geology, earth science, or consent of department.

GEOL 544 Environmental Geology 3 hrs. Fall Geology related to human affairs and land use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required. Prerequisite: GEOL 131 or consent.

GEOL 545 Carbonate and Evaporite Depositional Systems 3 hrs. Processes, characteristics, and relationships of modern and ancient platform and basinal carbonate and evaporite facies. Course includes an 11-day field trip (Spring Vacation) to investigate Holocene, Pleistocene, and Tertiary carbonate environments and facies in Florida, and a 3-day trip to northern Indiana and Ohio to examine Silurian Platform carbonates. Student projects include logging description and interpretation of core and slabs at the mesoscopic level. Two 2-hour meetings per week. Prerequisites: GEOL 433, GEOL 535 and consent.

GEOL 555 Clastic Deposition System 3 hrs. Description and analysis of clastic depositional systems and the discussion of sediment that they produce with stratigraphic and seismic analysis. Prerequisite: GEOL 535 or consent of department.

GEOL 560 Introduction to Geophysics 3 hrs. Winter Seismology, gravity, geomagnetism, electrical resistivity, and heat measurements applied to the determination of the internal structure of the earth. Two lectures and 3 hrs. practical laboratory-introduction to geophysical instrumentation. Prerequisites: GEOL 130, MATH 122, two semesters of college physics.

GEOL 561 Reflection Seismology 3 hrs. Reflection seismology and related techniques as applied to petroleum exploration and deep crustal exploration. Theoretical background, data collection, data processing and interpretation will be discussed. Prerequisites: GEOL 560, CS 306, and MATH 123.

GEOL 562 Shallow Exploration Geophysics 3 hrs. Geophysical techniques (excluding electrical methods) used for shallow exploration: gravity, magnetics, seismic refraction and shallow seismic reflection. Theory, data collection, processing, and interpretation using analytical solutions, computer modeling and other techniques. Methods considered having particular applications to hydrogeology, civil engineering and mineral exploration. Two lectures and 3 hours practical laboratories, field exercises and problems. Prerequisites: GEOL 560, CS 306, and MATH 123.

GEOL 563 Electrical Methods 3 hrs. Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and 3 hr. laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560, CS 306, MATH 123, and PHYS 540 (recommended).
Major Requirements:
1. Basic Courses: 100, 101, 201, 210, 211 ... 15
2. Advanced courses: at least 15 hours in courses numbered 300 through 563, including at least 9 hours in courses numbered 520 through 527 and at least one course in European history.
3. Theory and practice: 505, 511 ... 6
4. At least 36 hours of course work in history.

History majors in the public history curriculum must take an approved minor along with the above major. One option is to complete a minor in public history (see minor requirements below). A second option is to complete only the required courses in the public history minor and take a minor in one of the following fields: anthropology, art history, communication, earth science, general industrial education, geography, interior design, or public administration. The public history curriculum requires certain emphases in some of these minors, and courses therein must be approved by the undergraduate adviser in the Department of History. (In special cases other minors may be permitted with prior approval.)

Each student in the curriculum also must complete 6-9 hours of credit in an approved internship experience (HIST 599).

<table>
<thead>
<tr>
<th>History Major</th>
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<tbody>
<tr>
<td>SECONDARY EDUCATION CURRICULUM (SED)</td>
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<tr>
<td>The secondary teacher preparation program conforms to the Guidelines for the Certification of Teachers of History established by the American Historical Association.</td>
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Major requirements:
1. Basic courses: 100, 101, 201, 210, 211 ... 14
2. Theory and practice: 390 or 591 ... 5-6
3. Advanced courses: at least 9 hours in course work numbered 300 through 563, including at least 9 hours numbered 520 through 563, distributed as follows:
   - North America (310-317, 375, 520-527) ... 6
   - Non-Western (370-372, 381-389) ... 3
   - Pre-Modern (349-354, 549-554) ... 3
   - Europe (361-369, 556-563) ... 3
   - Elective (any field) ... 3
4. At least 35 hours of course work in history. To be approved for directed teaching, students must complete at least 6 hours of course work numbered 520-563 with grades of "B" or better.

In addition to the history major, students must also complete the following:
1. A group social science minor of at least 28 hours including:
   - ANTH 120 or 220 or 240 ... 3
   - ECON 201, 202 ... 6
   - GEOG 102 or 105 or 205 ... 3
   - PSCI 200 ... 3
   - one course on American Indian cultures or prehistory: ANTH 300, 322, 500, 501 ... 3
   - approved electives from above departments at 300-level or above ... 6-7
2. One approved literature course in the Department of English at the 200-level or above.
3. One approved course in philosophy or religion, or in the history of political, economic, or ethnographic theory, at the 200-level or above.

History Major
LIBERAL ARTS CURRICULUM (LA)
The history major and associated course work in the liberal arts curriculum is designed to prepare students for graduate studies leading to careers in higher education and research.

Major requirements:
1. HIST 201 ... 1
2. Two courses in theory and practice, one of which must be 390 or 591 ... 5-6
3. Advanced courses: 21 hours of course work at the 300-level and above, including at least 12 hours numbered 520 through 563.
4. HIST 470 Senior Thesis ... 3
5. At least 30 hours of course work included in the major.

In addition to the major, students in the liberal arts curriculum pursue a course of study providing a knowledge base in the social sciences and humanities, as well as foreign languages and research skills appropriate to graduate work. The general requirements for the liberal arts curriculum may be found elsewhere in this catalog in the section describing the programs of the College of Arts and Sciences. Specific cognate sequences for the curriculum are included in the department's undergraduate handbook.

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<th>History Major</th>
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<tr>
<td>ARTS AND SCIENCES (ASC) AND OTHER CURRICULA</td>
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<tr>
<td>Major requirements:</td>
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<tr>
<td>Basic courses: 100, 101, 201, 210, 211 ... 15</td>
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| Advanced courses: at least 15 hours in course work numbered 300 through 563, including at least 9 hours numbered 500 through 563. At least one course each from any three of the following areas:
   - North America (310-317, 375, 520-527)
   - Europe (349-369, 549-563)
   - Non-Western (370-372, 381-389)
   - General (301-325, 420)
3. Theory and practice: two courses, chosen from 390, 470, 505, 511 ... 5-6
4. At least 34 hours of course work in history.

Minors
Ronald Davis, Undergraduate Adviser
4075 Friedmann Hall (383-1731)

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<tr>
<th>Public History Minor</th>
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<tbody>
<tr>
<td>PUBLIC HISTORY CURRICULUM (PUH)</td>
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<tr>
<td>1. HIST 315, 512, 513 ... 9</td>
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<tr>
<td>2. ANTH 210, 290 ... 7</td>
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<tr>
<td>3. Electives approved by adviser ... 12</td>
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<tr>
<td>Including at least one course in social science research methods and/or computer applications. A maximum of 3 hours of additional course work in history, exclusive of HIST 599, may be included in the minor.</td>
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<td>4. Minor must include at least 28 hours of course work, with all grades &quot;C&quot; or better.</td>
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<tr>
<td>OTHER CURRICULA</td>
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<tr>
<td>1. HIST 201, 315, 512, 513; ANTH 210 ... 13</td>
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<td>2. HIST 505 or 511 ... 3</td>
</tr>
<tr>
<td>3. One course in United States history (520-527) ... 3</td>
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<tr>
<td>4. Electives approved by adviser ... 9</td>
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<tr>
<td>5. Minor must include at least 28 hours of course work, with all grades &quot;C&quot; or better.</td>
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<td>SECONDARY EDUCATION CURRICULUM (SED)</td>
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<tr>
<td>1. Basic courses: 100, 101, 201, 210, 211 ... 14</td>
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</table>
| 2. Advanced courses: at least 9 hours in course work numbered 300 through 591, including at least 3 hours numbered 500 through 591. One course each in at least two of the following areas:
   - North American (310-317, 375, 520-527)
   - Europe (349-369, 549-563)
   - Non-Western (370-372, 381-389)
   - General (301-325, 420)
3. Theory and Practice (390, 505-513, 591) ... 3 |
| 4. At least 23 hours of course work in history. |
| 5. To be approved for directed teaching, students must complete at least 6 hours of course work at the 300-level or above with grades of "B" or better, including at least 3 hours numbered 505 through 591. |

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<tr>
<th>Courses By Topic</th>
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<tbody>
<tr>
<td>BASIC COURSES</td>
</tr>
<tr>
<td>100 The Early Western World</td>
</tr>
<tr>
<td>101 The Modern Western World</td>
</tr>
<tr>
<td>102 History Through Literature</td>
</tr>
<tr>
<td>103 History and Current events</td>
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<tr>
<td>106 Historical Writing</td>
</tr>
<tr>
<td>201 Historians in the Modern World</td>
</tr>
<tr>
<td>204 Business History</td>
</tr>
<tr>
<td>210 United States to 1877</td>
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<tr>
<td>211 United States Since 1877</td>
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<tr>
<td>275 Introduction to Canadian Studies</td>
</tr>
<tr>
<td>298 Directed Reading in History</td>
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<tr>
<th>NORTH AMERICA</th>
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<tbody>
<tr>
<td>310 History of Michigan</td>
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<tr>
<td>313 History of United States Foreign Relations</td>
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<td>314 Black American History</td>
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<tr>
<td>315 Popular Art and Architecture in America</td>
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<tr>
<td>317 The History of the United States Constitution</td>
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<tr>
<td>375 Canadian History</td>
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<tr>
<td>520 Colonial America</td>
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</table>
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.

HIST 102 History Through Literature 3 hrs.
The written works of any age reveal the moods, tensions, interests, outlook, tastes, and problems of that period. This course shows specifically how the effects of wars, revolutions, depressions, machines, and social conditions are reflected in novels and other writings. How people have reacted to their problems in the past will suggest how we may deal with those of the present.

HIST 103 History and Current events 3 hrs.
The mass media supply modern man with such a wealth of information on current social, political, and economic developments that confusion often results. Nevertheless the citizen of a democratic state is expected to make well-considered choices. This course will show how history can contribute to a clearer and deeper understanding of great contemporary problems such as the relationship between the West and the Third World, the balance of power between the U.S., the U.S.S.R., and China, the stabilization of Europe, and the new ecological situation.

HIST 106 Historical Writing 3 hrs.
This course teaches writing in the context of studying historical material. Although it considers in a general manner some of the problems historians face in writing about the past, its primary purpose is to teach good writing. Hence, all work and all discussion are directed to the preparation, execution, and analysis of writing assignments. Fulfills the University Intellectual Skills college-level writing requirement.

HIST 201 Historians in the Modern World 1 hr.
A survey of the historical professions and the academic preparation needed to enter them.

HIST 204 Business History 3 hrs.
This course will focus on business and business leaders as an integral part of society. Extensive use will be made of the case study method and business biography to explore questions of production, distribution, finance, management, and industrial and public relations in a variety of historical settings. The case study topics will cover the whole range of Western history with a special emphasis on the American experience, one which cannot be properly understood without taking business and its development into account.

HIST 210 United States to 1877 3 hrs.
This is an introductory course, but not the traditional, narrative survey. Emphasis is placed upon basic interpretations, political, economic, and social influences that have shaped American life. Selected themes that reveal continuities in the American experience are used to demonstrate the American heritage.

HIST 211 United States Since 1877 3 hrs.
The story of how modern America was shaped with an emphasis upon the emergence of the United States as a world power and the consequences of this development. The focus is upon selected themes such as urbanization, industrialization, and reform that reveal continuities in the American experience. Particular attention is given to various attempts to interpret twentieth century American development.

HIST 275 Introduction to Canadian Studies 3 hrs.
An interdisciplinary survey of contemporary Canada taught by a faculty team from various departments of the University.

HIST 298 Directed Reading in History 1-3 hrs.
Designed for students with special interests. Registration requires a minimum 2.6 GPA, sophomore standing, approval of the supervising faculty member and the Department Chair. May be repeated to a maximum of 3 semester hours.

HIST 300 Issues in History 1-3 hrs.
Selected topics in historical studies. Topics announced in the Schedule of Courses. Course may be repeated under different topics.

HIST 301 Law and Justice in Western History 3 hrs.
The theorist who devises the ritual of the law, the advocate who argues it, and the judge who pronounces it; the philosopher who examines ethical principle and the moralist who expresses it; the investigator of crime, the criminal, and the punisher; the ordinary person who is sustained, ennobled, abandoned or oppressed by the moral customs of his fellows. All are familiar figures in any organized society, and their activities and the manner in which these interact help establish the tone and quality of life of that society. The course examines and analyzes these activities on a comparative basis over the centuries of Western history.

HIST 302 History of Medicine and Medical Care 3 hrs.
A study of the development of medicine throughout history. Medicine will be covered as (1) a science, (2) a healing agency, and (3) a social institution. Topics under (1) will include Near Eastern medicine, Hippocratic medicine, medical science at Alexandria, Galen and Greek medicine at Rome, the transmission of Greek medicine through the 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.

HIST 303 Women in the Western World 3 hrs.
A study of the condition of women in various periods of European and American history from ancient Greece to America of the 80s. Attention will be given to women's roles and status in each period in order to come to some conclusions about women's contributions to Western history and culture.

HIST 310 History of Michigan 3 hrs.
The development of Michigan from a primitive wilderness to an industrial state, with emphasis...
on the relation of the history of the state to that of the nation.

HIST 313 History of United States Foreign Relations
3 hrs.
While this course traces the full scope of American foreign relations, from the American Revolution to the present, it emphasizes diplomacy of the twentieth century. The course gives attention to major diplomatic problems, but it also considers such themes as the effect of personality and politics on foreign policy, and the various "schools" of diplomatic thought.

HIST 314 Black American History
3 hrs.
A survey of the Black American experience from African origins to the contemporary American scene. Although the changing cultural and historical framework will be ignored, attention will center on what Black Americans did, said, and thought. Individual reading assignments on the lives of outstanding figures from Phillis Wheatley to Eldridge Cleaver will be utilized.

HIST 315 Popular Art and Architecture in America
3 hrs.
Introduction to popular themes in American history, shown in paintings, buildings, cartoons, and commercial art. While issues will vary, the topics will include the Middle Americans, the Environment, the Frontier, the City, and Industrialization. Extensive use will be made of local illustrations which could be adapted to elementary and secondary teaching.

HIST 317 The History of the United States Constitution
3 hrs.
A study of the nature of the United States Constitution, of constitutional issues in American history, and of the role of the Supreme Court and its major decisions.

HIST 321 Topics in the History of War
3 hrs.
Selected topics in the history of modern war such as America and war, military technology, impact of war on society, etc. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 325 Jewish History
3 hrs.
The tale of the Jews in the Moslem and Christian worlds; the French Revolution and the emancipation of Western European Jewry; the history of Russian, Polish, and Rumanian Jewry; rise of Zionism and the beginnings of Jewish colonization in Palestine; post-World War I: Europe and the fragmentation of European Jewry; spread of Fascism and Nazism; World War II, the Holocaust, the emergence of Israel and her struggle for survival in the Arab world; World Jewry since 1945.

HIST 349 The Ancient Near East
3 hrs.
Archaeology, prehistory, and the cradles of civilization in Mesopotamia and the Nile Valley. Survey of ancient Sumerian, Babylonian, Egyptian, Hittite, Phoenician, and Hebrew cultures, as well as the emergence of the Assyrian, Neo-Babylonian, and Persian empires.

HIST 350 Ancient Greece
3 hrs.
Origins of the ancient Greeks and their role in the Aegean civilizations of Crete, Troy, and Mycenae; the Homeric Age, and development of the polis. Examination of the contrasting city-states of Athens and Sparta, as well as the unique cultural achievements and legacy of Hellenism. The course concludes with Alexander the Great and the Hellenistic world.

HIST 351 Ancient Rome
3 hrs.
The early Italic, Etruscan, and Greek cultures of ancient Italy prior to the founding of Rome; rise of the Roman republic and conquest of the Mediterranean; civil wars and emergence of the Roman Empire. Cultural achievements and ultimate decline and fall of Rome.

HIST 354 Medieval History
3 hrs.
History of medieval Europe from the fall of Rome to the 14th and 15th centuries. Attention will be given to the following themes: the development of the European nations and political systems; the agricultural and commercial foundations of medieval civilization; social classes, especially the aristocracy; the formation of the medieval world view as reflected in the rise of the church, monasticism, the schools and universities and in medieval art and architecture.

HIST 361 British History
3 hrs.
A survey of the history of Great Britain from the 16th century to the present with emphasis on the development of constitutional government; emergence of the empire and commonwealth; the economic and socialist revolutions and their consequences in the 20th century.

HIST 369 The Soviet Union
3 hrs.
This survey course is designed to give the student a knowledge and appreciation of the various facets of the history of the Union of Soviet Socialist Republics from 1917 to the present. Aspects of the U.S.S.R. that are studied include Marxism-Leninism, the Communist Party, the Government, foreign policy, planned economy, the systems of health and education, and contemporary art, literature, and music.

HIST 370 History of Latin America
3 hrs.
A survey is undertaken of the historical development of the Latin American region from its pre-Columbian origin and Iberian ancestry to its contemporary expression in national entities. Attention is given to people and motives as well as institutions and attitudes intrinsic as each of them determined the character of a given epoch and contributed to the pattern of overall development.

HIST 371 Modern Latin America
3 hrs.
There is undertaken here an analysis of contemporary Latin America, a world area of immediate and future critical import in the affairs of humanity. An effort is made to gauge the origins, depth, and intensity of the dynamic forces and impulses which are inexorably wrenching Latin America out of a tradition-encrusted mold and forming it anew.

HIST 372 History of Mexico and the Caribbean
3 hrs.
Two of the three most profound social revolutions in Latin American history have occurred in Middle America. The Mexican and Cuban revolutions 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.

HIST 375 Canadian History
3 hrs.
A survey of Canada from the 16th century to the present. Special attention to the sources of Anglo-French discord and Canada's changing relationship with the United States.

HIST 381 The Modern Far East
3 hrs.
A survey of the international relations of China, Japan, and Korea; reform and revolutionary movements in East Asia; aims and techniques of modernization and Westernization; the rise and fall of militaristic Japan; political and social upheavals, and the emergence of communism in China; and the rise of two Korea.

HIST 386 Introduction to African History and Civilization
3 hrs.
An overview of the major aspects of African civilization in the context of the development from pre-colonial times to the present. Emphasis upon those elements which contribute to the cultural and historical unity and uniqueness of the African experience.

HIST 389 Modern Middle East
3 hrs.
The Middle East since the collapse of the Ottoman Empire at the close of World War I. Emphasis is upon the history of the Arab-Israeli conflict, which may be seen as thematic of the clash of the major forces shaping the modern Middle East, including Arab nationalism, Zionism, and colonialism.

HIST 390 Introduction to the Study of History
2 hrs.
Through the ages man has asked why heroes, dynasties, and empires rise and fall, revolutions occur, populations grow and recede, and ever new ways have been devised to "make a living." Man has tried hard to find order and meaning in the maze of events. This course deals with the many human attempts first to reconstruct what happened and then with the interpretations given to make sense of the past.

HIST 420 War in the Modern World
3 hrs.
Select topics in modern war and current military developments. Topics for each semester will appear in the Schedule of Classes. The course may be repeated for separate credit as long as the topic varies.

HIST 470 Senior Thesis
2-3 hrs.
Written preparation and defense of a supervised research project. The thesis must be supervised and approved by at least two faculty members. Two copies of the final draft must be filed with the Department of History. Registration requires junior standing, a declared major in History, and approval of the supervising faculty members and the Undergraduate Adviser.

HIST 490 Teaching Methods for Secondary Schools
3 hrs.
Theories and techniques for effective teaching of history at the secondary level. Evaluation and selection of reading assignments; selection and preparation of instructional materials; experience in oral presentation; methods of evaluating cognition of historical facts and concepts; applications of audio-visual and interactive media; course organization and learning activities for students of varying backgrounds and abilities; examination of the role of history in social science and humanities education in secondary schools, and of history in curriculum leaders. Prerequisite: ED 301.

HIST 500 Studies in History
3 hrs.
Selected topics in historical studies. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 505 Local and Regional History
3 hrs.
Studies of small areas in great detail frequently precede, modify, or augment historical studies.
of wider scope. Local historians rely heavily on primary sources such as archives, manuscript collections, genealogy, oral history, archaeological and ethnographic data. This course is an introduction to the sources and techniques of local historians and their application to a variety of research objectives.

HIST 511 Introduction to Archives
3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

HIST 512 Introduction to Museum Studies
3 hrs.
A survey course dealing with the history, philosophy, organization, and practice of museums. The course will examine the organization and structure of various types of museums, and will cover such topics as: collecting theory, conservations and security, care of collections, display techniques, historic preservation, registration and cataloguing, and museum ethics.

HIST 513 Historic Preservation
3 hrs.
Examination of problems in developing historic sites and districts. Topics include documenting historic sites, registration procedures, preservation law, funding sources, history of the preservation movement, social issues in urban rehabilitation, public, private and citizen interaction.

HIST 520 Colonial America
3 hrs.
The American colonies as part of the British empire; their founding, and their political, social, and economic growth to the eve of the American Revolution.

HIST 521 Era of the American Revolution, 1763-1789
3 hrs.
Causes, characteristics and consequences of the American Revolution. Emphasis on factors which induced the British to alter existing relationships with the American colonies, and the nature of American responses. Efforts by both British and American leaders to preserve the imperial connection are studied along with the American movement to independence. The course also covers military and diplomatic aspects of the Revolution, and societal changes brought by American independence.

HIST 522 The Age of Democracy and Expansion, 1789-1848
3 hrs.
Deals with the establishment of the Federal Government, the origin and development of political parties, the causes and consequences of the War of 1812, territorial expansion and the westward movement, and the increasing sectional conflict between North and South. 

HIST 523 The American West
3 hrs.
A study of the exploration and settlement of the North American continent. Topics include Indian relations, utilization of land and resources in the fur trade, mining, and cattle ranching, and the establishment of law and order on the frontier.

HIST 524 The Civil War and Reconstruction
3 hrs.
Examines the origins of the Civil War, the reasons for Northern victory and Southern defeat, and the conflicts over Reconstruction policy and the status of Black Americans.

HIST 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 toward values, the problems of generalization, and the anonymous American.

HIST 526 United States, 1914-1945
3 hrs.
This course deals with four periods of recent American history: the Great War and Peace Conference of 1914-1919, the 1920s, the Depression, and American participation in World War II. Focus is on major social, political and economic trends, problems and personalities of the era, and the vastly changed position of the United States in world affairs.

HIST 527 United States Since 1945
3 hrs.
This course deals with the efforts of the nation, and groups within the nation, to cope with the enormous social, political, and economic problems of the decades after World War II. It traces the growth of American involvement in foreign affairs as a world power.

HIST 549 Topics in Ancient History
3 hrs.
Selected topics in ancient history such as 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.

HIST 550 Topics in Medieval History
3 hrs.
Selected topics in medieval history such as the History of the Medieval Church, Daily Life in the Middle Ages, etc. Topic to be announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 554 Renaissance and Reformation
3 hrs.
Major developments in the period: activities of merchant venturers; rise of the modern state; cultural achievements of the Italian Renaissance; religious thoughts of Luther, Calvin and Zwingli; renewal of the Roman Catholic Church, Anglicanism; the Radical Reformation; religious wars, and cultural activities in the Reformation.

HIST 556 Studies in Modern European History
3 hrs.
The topics will be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics will be chosen from those areas of European history which are not adequately covered by regularly scheduled courses.

HIST 559 Independent Reading in History
3 hrs.
Research supervised by a faculty member. Registration requires a minimum of 6.0 GPA, junior standing, a declared major in History, and a research proposal developed by the student and the supervising faculty member. Registration also requires approval by the Undergraduate Adviser and the Department Chair.

HIST 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.

HIST 580 Studies in Modern European History
3 hrs.
Selected theoretical, technical, and interpretive issues in the field of history. Topics include philosophy of history, computers in historical research, interaction between history and such disciplines as archaeology, psychology, and climatology, new forms and techniques of historical documentation, and major historical interpretations current before the academic world and the public. Topics announced in the Schedule of Classes. Course may be repeated under different topics.

HIST 591 Independent Study
Variable hours
Professional internship experiences in museums, historical administration, historic preservation, editing, etc. Normally restricted to students enrolled in the Public History curriculum. Registration requires junior standing, a minimum 2.7 GPA, prior completion of theory and practice courses appropriate to the internship experience, and approval of the undergraduate adviser and the Department Chair. Graded on a credit/no credit basis.

INTEGRATED LANGUAGE ARTS MINOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.

INTERNATIONAL AND AREA STUDIES PROGRAM
See "Interdisciplinary Programs" in the College of Arts and Sciences.
Modern and Classical Languages

For students majoring or minoring in a modern foreign language a course in modern European history is desirable. For Latin majors and minors a course in Roman history is recommended. A student in the Arts and Sciences curriculum (ASC) may apply 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 during each registration period and scores are posted in time for registration. Students must register according to their placement score. The department considers one year of high school work equivalent to one semester of University work.

Consequently:
1. A student underplacing receives no more than 8 hours of University credit and no more than 4 hours credit towards a major or minor until the required level is reached.
2. A student may overplace by one or two courses. This student is allowed to decide on whether to omit the course overplaced. If the student chooses to omit the course, he/she is eligible to receive credit, but must check with the Placement Director.

Native speakers of a given language must consult with a departmental advisor before registering for courses up through the 300 level. A student planning a language major should consult with a departmental advisor as early as possible and obtain a recommendation form to insure proper planning and avoid subsequent difficulties.

The undergraduate major consists of a minimum of 30 credit hours (minimum of 20 credit hours for an undergraduate minor) beyond the 100-level (basic) courses. At least two 500-level courses must be included in a modern language major.

Teaching certification is approved for majors or minors in secondary and middle school and junior high school education for the following languages: French, German, Latin (secondary only), Russian (minor only), and Spanish. A language methods course is required for all teaching majors and minors in the foreign languages. Exceptions to the patterns may be granted only by departmental permission. For courses in Independent Study, consult listings under the individual language concerned.

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

Majors and Minors

FRENCH MAJOR
Thirty hours beyond the 100 level, to include French 316, 317, 322 or 323 (or both), 325, 560 and one additional course at the 500 level. Language 558 is required of education majors and minors.

FRENCH MINOR
Twenty hours beyond 100-level to include 316 and 317. Modern Language Instruction 558 may not be counted toward a minor.

GERMAN MAJOR
Thirty hours beyond 100-level to include 316, 317, 322, 325, and at least two 500-level courses other than 558. Students in the secondary education curriculum are required to take Modern Language Instruction 558.

GERMAN MINOR
Twenty hours beyond the 100-level to include 316, 317, 322, 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, 252, 350, 375, 450 and GREK 100 and 101. Teaching majors must include LAT 200, 201, 324, 550, 557, and 560.

LATIN MINOR
Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series which may include LANG 250, 252, 350, 375, and 450. Teaching majors must include LAT 200, 201, and 557.

LATVIAN MAJOR
Thirty-seven hours beyond LATV 200 competency, to include: 201, 316, 317, 320, 322, 325, 551, 560, and 597; and PSCI 549.

LATVIAN MINOR
Twenty-five hours beyond LATV 200 competency to include: 201, 316, 317, 320, 322, 325, and 597; and PSCI 549.

RUSSIAN MAJOR
Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series.

RUSSIAN MINOR
Twenty hours including 100-level (basic) courses or equivalent; remaining hours from 200-500 series.

SPANISH MAJOR
Thirty hours beyond the 100 level to include 322 or 323, 325, and three 500-level courses (to include 3 hrs. of 526, 527, 528, 529, or 560). Students in the secondary education curriculum are required to take Modern Language Instruction 558, which will be accepted in place of one 500-level non-literature course.

SPANISH MINOR
Twenty hours beyond 100-level to include 6 hrs. of 322, 323 or 325. Modern Language Instruction 558 may not be counted toward a minor.

WORLD LITERATURE MINOR
The Department of Languages and Linguistics and the Department of English offer jointly a world literature minor (20 hours). For description and requirements, see the "Interdisciplinary Programs" listing in the College of Arts and Sciences section of this catalog, or consult Dr. Felkel, 515 Sprau.

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, collocvia, or comparable work to be determined by the department.

Language Courses (LANG)

Foreign Literature in English Translation

(Courses described in italics are approved for General Education)

These courses will survey literary masterpieces of other countries in English translation. They are open to any student and there is no foreign language prerequisite. The courses will be taught entirely in English by specialists in the areas.

LANG 375 Foreign Literature in English Translation
3 hrs. The content of the course will stress the observation and experience of another society and culture as depicted in some of the great writings of foreign literature through reading in English. Universal themes about the human condition and insight into their treatment by representative native writers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various literary works and the social-historical background for each of the selections. This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. The course may be taken in more than one language area.

LANGUAGES AND LINGUISTICS 113

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. Felkel, 515 Sprau.

Translation Center

The Translation Center offers applied foreign language assistance to business and industry, the WMU community, professionals, and private individuals. The center serves its clients by arranging translations for information and publication, notarized translations of legal documents, interpretation, terminology searches, and assessment of translation quality, and by providing information, advice, referral, and research in the field of applied foreign language.

For further information, contact Dr. Peter W. Krawutschke, director, Translation Center, Sprau Tower, 387-3026.

Foreign Credits

Credits for language study at a foreign university may be granted on official proof that the student has completed the coursework successfully. For courses where no examination or grades are given, the student may be recommended for appropriate credit upon his/her return to Western on the basis of papers, collocvia, or comparable work to be determined by the department.

Language Courses (LANG)

Foreign Literature in English Translation

(Courses described in italics are approved for General Education)

These courses will survey literary masterpieces of other countries in English translation. They are open to any student and there is no foreign language prerequisite. The courses will be taught entirely in English by specialists in the areas.

LANG 375 Foreign Literature in English Translation
3 hrs. The content of the course will stress the observation and experience of another society and culture as depicted in some of the great writings of foreign literature through reading in English. Universal themes about the human condition and insight into their treatment by representative native writers will be presented. The course will consider the differences in treatment of individuals and society and will offer a comparison to contemporary life through various literary works and the social-historical background for each of the selections. This course does not apply toward a major or minor in French, German, or Spanish, but it may apply toward a major or minor in Latin or a minor in Russian. The course may be taken in more than one language area.
Representative topics which may be treated in this course include:

Classical Literature in English Translation
Selected works from the literature of ancient Greece and Rome, including masterpieces by Homer, the Greek dramatists, Vergil and Ovid.

French Literature in English Translation
A thematic and stylistic analysis of major French writers from LaFayette to the present, to include Stendahl, Balzac, Flaubert and Proust.

German Literature in English Translation
A comparative study of literary themes and techniques of major German writers from Goethe to 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 Dario and Modernismo) to the contemporary writers of Hispanic America.

Classics Courses in English
(Courses described in italics are approved for General Education.) All courses listed below will be taught entirely in English, have no foreign language requirement, and are open to any student.

LANG 250 Ancient Modern Studies
3 hrs.
The course is designed to examine the Greco-Roman world and its influence on the modern world in as many perspectives as possible. Examples: the rebirth of society, concepts of justice, ancient literary criticism, ancient and modern technology. Topics vary and will be announced each year. May be repeated for credit with different topics.

LANG 252 Classical Origins of English Vocabulary
3 hrs.
This course gives the student—even the student without any knowledge of a foreign language—an understanding of how Greek and Latin elements, which make up over half of our English vocabulary, operate in both literary and scientific usage. Attention is paid to how words acquire their meaning and to enriching each student's working vocabulary.

LANG 350 Classical Art and Architecture of the Aegean World
3 hrs.
A course dealing with the classic forms of art and architecture as they developed from the Cretan civilization to the height of Greek culture and as they were reflected in later Roman civilization. No prerequisite.

LANG 450 Classical Greek and Roman Mythology
3 hrs.
Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music and sculpture. No prerequisite.

LANG 550 Independent Study in Classics
1-3 hrs.
Directed, individual study of a specific topic related to Classical languages, literature, and/or culture. Departmental approval required for admission. May be repeated for credit.

Foreign Languages for Special Purposes

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

Language Teaching Course

LANG 558 Modern Language Instruction (In French, German, Spanish, or other language)
3 hrs.
Required for modern language teaching majors and minors (but the hours may not be counted toward the minor). This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance-oriented program, students will learn theory and practice related to teaching the listening, speaking, reading and writing skills, as well as the culture component. Preferably, students should complete this course before beginning directed teaching. This course will be offered regularly.

The comparable methods course for Latin is LAT 557. Teaching of Latin; for Latvian, LATV 515, Methods of Teaching Latvian.

Classics
See Greek, Latin, and Classics Courses in English.

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

FREN 100 Basic French I
4 hrs.
Fundamentals of French with audiolingual emphasis. French cultural readings.

FREN 101 Basic French II
4 hrs.
Continuation of 100. Prerequisite: FREN 100 or equivalent.

FREN 104 Mini-French for Fashion Merchandising Majors
1 hr.
This course is specifically designed for students with careers in fashion merchandising and will include exposure to relevant fashion terminology, cultural images, and practice in written and spoken French.

FREN 200 Intermediate French I
4 hrs.
The development of spoken and written expression in the French language with an emphasis on grammar review. Prerequisite: FREN 101 or two years of high school French, or equivalent.

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

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

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

FREN 320 French Phonetics
3 hrs.
Study and practice to correct typical difficulties encountered by students of French with Anglo-American patterns of pronunciation; also to study the teaching of French patterns. Prerequisite: FREN 200 or equivalent. (FREN 320 may be taken concurrently with FREN 201.)

FREN 322 French Civilization
3 hrs.
This course will emphasize the contributions of France to the Western World from the medieval period to the present day and will explore both historical and artistic accomplishments. Prerequisite: FREN 201 or permission of Department.

FREN 323 Contemporary Francophone Society
3 hrs.
An introduction to today's multifaceted French-speaking world. Geographical locations may range from continental France to francophone Africa. Particular emphasis will be placed on societal structures, such as the family, religion, and education. Prerequisite: French 201 or permission of Department.

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

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

FREN 400 Elementary French for Reading Proficiency
4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure a "C" card. No oral work. This course does not count toward a major or minor in French.
FREN 477 Foreign Study
1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer
Student participation in a departmentally approved program of study abroad.
Repeatable for credit up to 32 credit hours.
Prerequisite: Prior permission of departmental adviser and chairperson.
FREN 550 Independent Study in French
1-3 hrs.
Directed individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.
FREN 551 Advanced French Grammar and Composition
3 hrs.
Intensive review of French structure and practice in composition. Prerequisite: FREN 316 and 317 or equivalent.
FREN 552 Advanced French Conversation
3 hrs.
Intensive practice with spoken French. Prerequisite: FREN 316 and 317 or equivalent.
FREN 560 Advanced Readings in French
3 hrs.
Topics of literary, cultural, or linguistic merit will be analyzed. Topics will vary from semester to semester. May be repeated for credit. Prerequisites: FREN 316, 317, 325, or permission of instructor.

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

GER 100 Basic German I
4 hrs.
Fundamentals of German with audiolingual emphasis. German cultural readings. Does not count toward a major or a minor.
GER 101 Basic German II
4 hrs.
Continuation of 100. Prerequisite: GER 100 or equivalent. Does not count toward a major or a minor.
GER 200 Intermediate German I
4 hrs.
The development of spoken and written expression in the German language with an emphasis on grammar review. Prerequisite: GER 101 or two years of high school German, or equivalent.
GER 201 Intermediate German II
4 hrs.
The continued development of spoken and written expression in the German language through readings and discussions of civilization and culture materials. Prerequisite: GER 200 or equivalent.
GER 316 German Composition
3 hrs.
Emphasis upon increasing the student's command of written German. Prerequisite: GER 201 or equivalent.
GER 317 German Conversation
3 hrs.
Emphasis upon increasing the student's command of spoken German. Prerequisite: GER 201 or equivalent.
GER 322 German Life and Culture
3 hrs.
Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. Prerequisite: GER 201 or equivalent.
GER 325 Introduction to the Study of German Literature
3 hrs.
An appreciation of German literature through reading and critical interpretation of selected works of various literary types. Prerequisite: GER 201 or equivalent.
GER 400 Elementary German for Reading Proficiency
4 hrs.
Intensive grammar and elementary reading for translation and research purposes. The course is primarily for the graduate student who has had little or no study in the language. However, undergraduates who desire a thorough reading knowledge may also apply. Undergraduates must secure permission of Department. No oral work. This course does not count toward a major or minor in German.
GER 477 Foreign Study
1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer
Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental adviser and chairperson.
GER 528 Survey of German Literature
3 hrs.
A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316, 317, 322 or 325 or equivalent.
GER 529 Survey of German Literature
3 hrs.
A comprehensive study of German literature from German Realism to the present. Prerequisites: GER 316, 317, 322 or 325 or equivalent.
GER 550 Independent Study in German
1-3 hrs.
Directed individual study of a specific topic in German literary or linguistic area. Departmental approval is required for admission. Repeatable for credit. Prerequisite: One 500-level course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.
GER 552 Advanced German Composition
3 hrs.
Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 316 and 317.
GER 553 Advanced German Conversation
3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317.
GER 559 History of the German Language
3 hrs.
Survey of the development. Prerequisite: 6 hours of 300-level German or above.
GER 560 Studies in German Literature
3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: GER 316, 317, 322 or 325 or equivalent. Representative topics which may be treated in this area include: The Novelle—Survey of the development with representative selections; Lyric Poetry—Survey of the development with significant examples; Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann; Twentieth Century Drama—Representative selections.

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

GREK 100 Basic Greek I
4 hrs.
Fundamentals of classical Greek; readings emphasize Greek thought, culture, and civilization.
GREK 101 Basic Greek II
4 hrs.
Continuation of 100. Prerequisite: GREK 100 or equivalent.

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

LAT 100 Basic Latin I
4 hrs.
Fundamentals of Latin; readings emphasize Roman thought, culture, and civilization.
LAT 101 Basic Latin II
4 hrs.
Continuation of 100. Prerequisite: LAT 100 or equivalent.
LAT 200 Vergil
4 hrs.
Intermediate Latin. Development in use of fundamental language skills and the understanding and appreciation of the thought and style of the Aeneid. Prerequisite: LAT 101 or equivalent.
LAT 201 Lyric Poetry
4 hrs.
Intermediate Latin. Readings from Latin lyric poems, with special attention to development in use of fundamental language skills, prosody, literary style and appreciation. Prerequisite: LAT 101 or equivalent.
LAT 324 Latin Literature
4 hrs.
Selections from Latin prose and poetry. Since specific readings vary according to genre, author, or period, this course may be repeated for credit. Prerequisite: LAT 200 or 201 or equivalent.
LAT 477 Foreign Study
1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer
Student participation in a departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental adviser and chairperson.
LAT 557 Teaching of Latin
3 hrs.
The purpose of the course is to acquaint the prospective teacher with theory and practice appropriate to the teaching of the Latin language, literature, and culture in its classical content and as it relates to the modern world. Required of Latin teaching majors and minors.
LAT 560 Medieval Latin
3 hrs.
A study of the period 500-1500 A.D. when Classical Latin was evolving into new vernacular forms which would eventually become the modern Romance Languages. Prose and poetry readings include a variety of
themselves reflecting the intellectual, cultural, and religious thinking of the times. Prerequisite: One of LAT 200, LAT 201, LAT 324 or equivalent or permission of the department.

**Latvian (LATV)**

LATV 100 Basic Latvian I 4 hrs. Introduction to the structure of the Latvian language on its various levels. Programmed and individual exercises in phonetics and spoken Latvian. Principles of Latvian orthography. Controlled vocabulary building. Basic sentence structures. Introduction to constructional and semantic idioms and their usage. Exercises in various grammatical aspects. LATV 101 Basic Latvian II 4 hrs. Continuation of 100. Prerequisite: LATV 100 or equivalent. LATV 200 Intermediate Latvian I 4 hrs. Continuation of 101, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Analysis of the structure of Latvian literature and various periods of 19th and 20th century Latvian literature. Topics will be announced in the Schedule of Classes. Course may be repeated for credit under different topics. Prerequisite: LATV 201 or equivalent, or instructor’s permission. LATV 477 Foreign Study 1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer. Student participation in departmentally approved program of study abroad. Repeatable for credit up to 32 credit hours. Prerequisite: Prior permission of departmental adviser and chairperson. LATV 515 Methods of Teaching Latvian 2 hrs. Examination of different Latvian language teaching methods: principles, problems, current practice. Opportunities to tutor beginning Latvian students, engage in student teaching in the Kalamazoo Latvian School and/or work on language-teaching materials. Prerequisite: LATV 201 or equivalent, or instructor’s permission. LATV 550 Independent Study in Latvian 1-3 hrs. Directed individual study of a specific topic in a Latvian language and literature, or culture area. Department approval required for admission. Repeatable for credit. Prerequisite: Instructor’s permission. LATV 551 Advanced Latvian Grammar and Composition 3 hrs. Intensive review of Latvian structure and practice in composition. Prerequisite: LATV 316 or equivalent. LATV 560 Studies in Latvian Literature 3 hrs. Topic varies according to genre, author, or period and will be announced. May be repeated for credit under different topics. Prerequisite: LATV 325 or instructor’s permission. LATV 587 Seminar in Latvian Linguistics 2-4 hrs. Each seminar will deal with a selected topic relating to Latvian linguistics, e.g. the development of the Latvian literary language— from folk literature to the present-day idiom. May be repeated for credit with a different topic. Prerequisite: Instructor’s permission. LATV 597 Directed Individual Study 1-3 hrs. May be repeated for credit. Prerequisite: Instructor’s permission. LATV 598 Independent Study in Latvian 1-16 hrs. Fall-Winter; 1-8 hrs. Spring-Summer. Specific language tasks are assigned during the program. In addition, each student submits a term paper and takes an examination at the end of the study program. May be repeated for credit. Prerequisite: Instructor’s permission.

**Russian (RUSS)**

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

RUSS 100 Basic Russian I 4 hrs. Fundamentals of Russian with audiolingual emphasis. RUSS 101 Basic Russian II 4 hrs. Continuation of RUSS 100. Prerequisite: RUSS 100 or equivalent. RUSS 104 Scientific Russian 4 hrs. Basic grammar and practice in translation of scientific and technical material from Russian to English. Course is intended for undergraduates who are declared majors in physical or social sciences and desire a knowledge of Russian for reading purposes only. Course is open on a non-credit basis to graduates and interested faculty and staff. RUSS 200 Intermediate Russian I 4 hrs. Level two Russian. Review and furthering of oral and reading skills based upon increasingly advanced oral and written exercises. Prerequisite: RUSS 101 or equivalent. RUSS 201 Intermediate Russian II 4 hrs. Continuation of RUSS 200 with a focus on development of spoken and written expression in the Russian language through readings and discussion of civilization and culture. Prerequisite: RUSS 200 or equivalent. RUSS 310 Russian Civilization 3 hrs. A study of selected aspects of Russian life and culture and their historical settings. Course taught in English and open to all students. RUSS 316 Russian Composition 4 hrs. Emphasis on increasing the student’s command of written Russian. Prerequisite: RUSS 201 or equivalent; required for minors. RUSS 317 Russian Conversation 4 hrs. The course includes exercises to develop ease and accuracy in the use of everyday Russian. Emphasis on oral aspects of the language. Prerequisite: RUSS 201 or equivalent. RUSS 344 Summer Study in the Soviet Union 4 hrs. A summer study-abroad program of Russian language, literature, and culture. The course includes a series of lectures and discussions prior to departure. The tour of the Soviet Union will be accompanied by full explanations of all areas visited. Students plan and outline a project which they complete and submit after their return. Specific language tasks are assigned during the program. In addition, each student submits a term paper and takes an examination at the end of the study program. May be repeated for credit. Prerequisite: Instructor’s permission.

**Spanish (SPAN)**

(SPAN 100 Basic Spanish I 4 hrs. Fundamentals of Spanish with audiolingual emphasis. SPAN 101 Basic Spanish II 4 hrs. Continuation of 100. Prerequisite: SPAN 100 or equivalent. SPAN 200 Intermediate Spanish I 4 hrs. The development of spoken and written expression in the Spanish language with an emphasis on grammar review. Prerequisite: SPAN 101 or two years of high school Spanish, or equivalent. SPAN 201 Intermediate Spanish II 4 hrs. The continued development of spoken and written expression in the Spanish language through readings and discussions of civilization and culture. Prerequisite: SPAN 200 or equivalent. SPAN 316 Spanish Composition 3 hrs. Emphasis upon increasing the student’s command of written Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 316 may be taken concurrently with SPAN 201.)
SPAN 317 Spanish Conversation
3 hrs.
Emphasis upon increasing the student's command of spoken Spanish. Prerequisite: SPAN 201 or equivalent. (SPAN 317 may be taken concurrently with SPAN 201.)

SPAN 322 Life and Culture of Spain
3 hrs.
A study of Spanish civilization in terms of its geography, history and art, and how these factors illuminate the character and tradition of the Spanish people. Prerequisite: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 322 with permission of Spanish adviser).

SPAN 325 Life and Culture of Latin America
3 hrs.
A study of Latin-American life and culture based on ethnic, historical, social, religious and literary considerations. Prerequisites: SPAN 316 and 317 or equivalent (316 and 317 may be taken concurrently with 325 with permission of Spanish adviser).

SPAN 326 Survey of Spanish Literature to the 18th Century
3 hrs.
A survey of Spanish literature from its origin to, and including, the eighteenth century. Prerequisites: SPAN 316, 317 and 325.

SPAN 327 Survey of Spanish Literature from the 18th Century to the Present
3 hrs.
A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317 and 325.

SPAN 328 Survey of Spanish American Literature to Modernismo
3 hrs.
A survey of Spanish American literature from its origin to the era of Modernismo (late 19th century). Prerequisites: SPAN 316, 317, and 325.

SPAN 329 Survey of Spanish American Literature from Modernismo to the Present
3 hrs.
A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

SPAN 500 Independent Study in Spanish
1-3 hrs.
Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission. Repeatable for credit. Prerequisite: One 500-level literature course in the major; a minimum grade point average of 3.0 in the major. Not open to minors.

SPAN 552 Advanced Spanish Grammar and Composition
3 hrs.
An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression in Spanish at an advanced level. Prerequisites: SPAN 316, 317 and one additional 300-level course. At least 3 hours of 526, 527, 528, or 529 are recommended.

SPAN 553 Advanced Spanish Conversation
3 hrs.
Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317, and one additional 300-level course. At least 3 hours of 526, 527, 528, or 529 are recommended.

SPAN 560 Studies in Spanish Literatures
3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: 3 hours of SPAN 526, 527, 528, 529 or departmental permission. Representative topics which may be treated in this area include: Cervantes—Don Quixote and other works of Cervantes, together with his life and thought. Seventeenth Century Theater—Main works of Lope de Vega through Calderon de la Barca. Nineteenth Century—The Romantic Movement. Nineteenth Century Novel—Development of the regional novel from Feria to Caballero by Ibarra. Generation of '86—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado. Contemporary Theater—Evolution and analysis of the characteristics. Spanish-American Short Story—Significant short stories along with the cultural and social background. Contemporary Spanish-American Novel—The new Spanish-American novel along with the cultural and social background.

**Linguistics and Critical Languages**

Linguistics is the scientific study of language—its diversified structures and their dialectal variants, its acquisition by children and non-native speakers, its systems of writing and transcription, its cultural role in the speech community, and its application to other areas of human knowledge. The Linguistics program at Western Michigan University is responsible for maintaining an undergraduate major and minor program in general linguistics, for teaching English as a second language to foreign students at the University, and for offering up to six semesters of study in a number of "critical" (neglected) languages. The linguistics major is intended either as a "second" major for undergraduates with a major in another department or as a "first" major for those who expect to pursue a career in linguistics. The major program requires 24 hours of credit in Linguistics courses and up to 6 hours in "cognate" courses. One college year of a foreign language, or its equivalent, is required. The linguistics minor is intended as a supporting minor for undergraduates with a major in another related department. Its purpose is to complement and strengthen the program that the student has chosen for his/her major or concentration. The minor program requires completion of 20 hours of credit in the five undergraduate "core" courses: 105, 321, 331, 421, 597.

Both majors and minors are required to consult with the advisor, 411 Sprague Tower, to receive a signed recommendation for their program. The advisor is authorized to grant a limited number of substitutions for "core" requirements. Only those linguistics courses in which a “C” or better is obtained may be counted toward a major or minor. Linguistics is suggested as a supporting major or minor for majors in anthropology, communication, English, French, German, philosophy, psychology, sociology, Spanish, and speech patholoy and audiology. Linguistics has been approved by the State Board of Education as a minor or second major in the secondary education curriculum, as a second major in the junior high school curriculum, and as a minor in the elementary curriculum. A critical language minor is available for those undergraduates who wish to specialize in one of a limited number of neglected languages. This minor is open only to those persons who are not in an Education curriculum. Interested students must consult with the critical languages supervisor to determine which languages are eligible and to receive a signed recommendation for their program.

**Linguistics Programs**

**Linguistics Major and Minor**

I. **CORE COURSES IN LINGUISTICS**
(20 hrs. required for both majors and minors)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>105</td>
<td>The Nature of Language</td>
<td>.4</td>
</tr>
<tr>
<td>321</td>
<td>Phonology and Morphology</td>
<td>.4</td>
</tr>
<tr>
<td>331</td>
<td>Syntax and Semantics</td>
<td>.4</td>
</tr>
<tr>
<td>421</td>
<td>Development of Language: History and Dialects</td>
<td>.4</td>
</tr>
<tr>
<td>597</td>
<td>Seminar in Linguistics</td>
<td>2.4</td>
</tr>
</tbody>
</table>

II. **ELECTIVE COURSES IN LINGUISTICS**
(Majors must take at least 4 hrs.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Basic Critical Languages</td>
<td>.4</td>
</tr>
<tr>
<td>511</td>
<td>Methods of Teaching English as a Second Language</td>
<td>.4</td>
</tr>
<tr>
<td>512</td>
<td>Principles of TESL</td>
<td>.4</td>
</tr>
<tr>
<td>515</td>
<td>Methods of Teaching Critical Languages</td>
<td>.2</td>
</tr>
<tr>
<td>540</td>
<td>Generative Grammar</td>
<td>.4</td>
</tr>
<tr>
<td>551</td>
<td>Psycholinguistics</td>
<td>.4</td>
</tr>
<tr>
<td>552</td>
<td>Sociolinguistics</td>
<td>.4</td>
</tr>
</tbody>
</table>

III. **COGNATE COURSES IN OTHER DEPARTMENTS**
(Majors may take up to 6 hrs.)

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>Culture and Communication</td>
<td>.3</td>
</tr>
<tr>
<td>Communication</td>
<td>Communication Theory</td>
<td>.3</td>
</tr>
<tr>
<td>372</td>
<td>Intro. to General Semantics</td>
<td>.3</td>
</tr>
<tr>
<td>572</td>
<td>Non-Verbal Communication</td>
<td>.4</td>
</tr>
<tr>
<td>574</td>
<td>Intercultural Communication</td>
<td>.3</td>
</tr>
<tr>
<td>English</td>
<td>Structures of Modern English</td>
<td>.4</td>
</tr>
<tr>
<td>372</td>
<td>Development of Modern English</td>
<td>.4</td>
</tr>
<tr>
<td>373</td>
<td>Reading as Psycholinguistic Processes</td>
<td>.4</td>
</tr>
<tr>
<td>572</td>
<td>American Dialects</td>
<td>.4</td>
</tr>
<tr>
<td>574</td>
<td>Grammar for Teachers</td>
<td>.4</td>
</tr>
</tbody>
</table>
Integrated Language Arts Minor

The Department of Languages and Linguistics is one of five participating departments in the integrated language arts minor—a program designed particularly for preservice elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternative learning styles. For a full description of the program consult its listing under the “Interdisciplinary Programs” section of the College of Arts and Sciences or its listing in the College of Education or the College of Health and Human Services.

Courses By Topic

GENERAL LINGUISTICS COURSES

105 The Nature of Language
321 Phonology and Morphology
331 Syntax and Semantics
421 The Development of Language: History and Dialects
500 Introduction to Linguistics
511 Methods of Teaching English as a Second Language
512 Principles of Teaching English as a Second Language
515 Methods of Teaching Critical Languages
540 Generative Grammar
551 Psycholinguistics
552 Sociolinguistics
597 Seminar in Linguistics—Variable Topics
598 Readings in Linguistics

CRITICAL LANGUAGES COURSES

A “critical” language is a foreign language which is not described in the Undergraduate Catalog as a regular offering in Modern and Classical Languages. Critical language credit can be used to satisfy most undergraduate foreign language requirements.

100 Basic Critical Languages I
101 Basic Critical Languages II
200 Intermediate Critical Languages I
201 Intermediate Critical Languages II
315 Reading Critical Languages
316 Writing Critical Languages

Linguistics Courses (LING)

Courses described in italics are approved for General Education.

LING 100 Basic Critical Languages I

Study of a critical language at the elementary level with emphasis on conversation. The writing system will be introduced at an appropriate time, depending on the nature of the individual language.

LING 101 Basic Critical Languages II

Continuation of 100. Prerequisite: LING 100 or equivalent.

LING 105 The Nature of Language

A broad introduction to the nature and development of language in human society and to the interdisciplinary aspects of current studies of language and language behavior.

LING 111 Standard American English: Intermediate

Intermediate-level instruction in oral and written Standard American English for speakers of other languages. An attempt will be made to provide individual tutoring where necessary. Credit/No Credit only.

LING 112 Standard American English: Advanced

Advanced-level instruction in oral and written Standard American English for speakers of other languages. A continuation of LING 111, with emphasis on advanced reading and writing skills. Prerequisite: LING 111 or equivalent. Credit/No Credit only.

LING 200 Intermediate Critical Languages I

Continuation of LING 101, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Prerequisite: LING 101 or equivalent.

LING 201 Intermediate Critical Languages II

Continuation of 200. Prerequisite: LING 200 or equivalent.

LING 315 Reading Critical Languages

Intensive practice in reading literature, newspapers, and other literary materials in the critical language, including sources from the student’s major field of study. Prerequisite: LING 201 or equivalent.

LING 316 Writing Critical Languages

Intensive practice in writing a critical language to improve the student’s ability to express himself/herself effectively and to develop an individual style of composition. Prerequisite: LING 201 or equivalent.

LING 321 Phonology and Morphology

An introduction to the study of sound systems (phonology) and word systems (morphology) and to the principles and methods of their analysis and description. Prerequisite: One linguistically-related course.

LING 331 Syntax and Semantics

An introduction to the study of sentence systems (syntax) and meaning systems (semantics) and to the principles and methods of their analysis and description. Prerequisite: One linguistically-related course.

LING 421 The Development of Language: History and Dialects

An examination of the processes of language change and dialect development and the principles which govern the historical and comparative study of languages and dialects. Prerequisite: one linguistically-related course.

LING 500 Introduction to Linguistics

An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

LING 511 Methods of Teaching English as a Second Language

Study of the application of linguistics and other disciplines to the teaching of Standard American English to speakers of other languages, with emphasis on current methods and materials for instruction and testing. Course work will include tutorial experience.
LING 512 Principles of Teaching English as a Second Language 4 hrs.
Study of the linguistic theory and historical development of the teaching of English to speakers of other languages, as well as an examination of second language acquisition and the various aspects of bilingualism. Prerequisite: an introductory course in linguistics.

LING 515 Methods of Teaching Critical Languages 2 hrs.
Study of the application of linguistics to the teaching of one or more "critical" languages. Emphasis will be on modern and traditional methods and materials for instruction and testing. Course work will include tutorial experience. May be repeated for credit for a different language. Prerequisite: LING 201 or equivalent.

LING 540 Generative Grammar 4 hrs.
An examination of the theories of Transformational Grammar and Generative Semantics, and a study of their origins, development, modification, and applications. Prerequisite: LING 500 or equivalent.

LING 551 Psycholinguistics 4 hrs.
A study of linguistic systems as they connect language and thought—and relate competence to performance—in the acquisition, production, and perception of language.

LING 552 Sociolinguistics 4 hrs.
A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

LING 597 Seminar in Linguistics—Variable Topics 2-4 hrs.
Each seminar will deal with a selected topic relating to language and/or linguistics. Since content will vary from semester to semester, students are advised to check course descriptions in the Department office. The Department will welcome suggestions for seminar topics from students. Prerequisite: major or minor status or permission of instructor.

LING 598 Readings in Linguistics 1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics program. Repeatable for credit. Prerequisite: Permission of instructor and chairperson.

Translation Program Minor in Translation

Translation Program
Minor in Translation

ADMISSION TO THE PROGRAM AND PREREQUISITES

1. The minor in translation requires the completion of the courses or their equivalents in one of the following languages as prerequisites at specific levels of the program:

In French:
- 316 French Composition
- 317 French Conversation
- 326 Introduction to French Prose
- 551 Advanced French Grammar and Composition

In German:
- 316 German Composition
- 317 German Conversation

2. The prerequisite Language courses must have been completed with a "C" average prior to enrolling in the program.

3. Translation courses (TRNS) may not be counted toward a major or minor in Foreign Languages.

4. Students with a strong background in one foreign language will be encouraged to begin study of a second foreign language.

5. Students will be expected to demonstrate the ability to type at a reasonable speed.

TRNS 310 Introduction to Translation 3 hrs.
Survey of the history and theories of translation. Discussion of the importance of translation in international commerce, international political organizations, scientific research, and the transfer of technology and culture. Other topics include the tools of the trade, institutions for advanced training, employment opportunities, free-lance work, and rate of compensation.

TRNS 510 Translation Seminar 4 hrs.
Intensive practice in translation, primarily of non-literary documents, into English. The course will also include some practical work in lexicography, error analysis, translation quality assessment, and general problem solving. Prerequisites: LING 105, ENGL 305, TRNS 310, FREN 316, 317, 328, 551, or GER 316, 317, 325, 551, or LATV 316, 317, 325, 551, or SPAN 316, 317, 325, 552.

TRNS 590 Translation Practicum (2 X 3 hrs.) 6 hrs.

Contact hours per week, 3 credit hours per semester, total of 6 credit hours) or in a single semester (32 contact hours per week, 6 credit hours). Prerequisite: TRNS 510.

LATIN

See "Languages and Linguistics" in the College of Arts and Sciences.

LATVIAN

See "Languages and Linguistics" in the College of Arts and Sciences.

LINGUISTICS

See "Languages and Linguistics" in the College of Arts and Sciences.
Mathematics and Statistics Department provides a wide variety of courses and programs in both theoretical and applied areas. There are four majors available: Applied, General, Secondary Teaching in Mathematics, and the Science and Mathematics Teaching Minor. These major and minor programs incorporate emphasis on computer methods, mathematical modeling, and problem solving.

The various mathematics and statistics majors all require two semesters of calculus as well as introductory computer science courses. Students may begin coursework in these areas while deciding on a branch of mathematics in which to specialize. During the first year interested students should contact Barbara Treadwell, student adviser/assistant to the chair, through the Mathematics and Statistics Department. Phone (616) 387-4510 or write: Mathematics and Statistics Department, Western Michigan University, Kalamazoo, MI 49008. All majors must contact a faculty adviser in mathematics and statistics during their second year of study. All minors, except General Math minors, must contact an adviser. 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

There is a growing need for people who combine knowledge of mathematics and science to formulate and solve practical problems. The intent of the Applied Mathematics Option is to provide a broad range of computational and analytical skills, practice in mathematical modeling and some fundamental knowledge of a scientific discipline. Computational and applied mathematicians are employed in a variety of positions in industry, business, and government. Students must complete a minor in one of Biomedical Sciences, Chemistry, Computer Science, Physics, or Statistics. Students should select their minor in the area in which they intend to apply their mathematical talents, and then they should select electives that are particularly suited to the problems in that area.

Mathematics Teaching Minor

Statistics

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.

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. Statisticians frequently work with 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.

Mathematics Minor Options

General Mathematics Minor Option

Students interested in the General Mathematics Minor Option may plan their program using the
Honors in Mathematics
Note: The following requirements for graduation with Honors in Mathematics are under review with a possible link to the Honors College requirements being considered.

Qualified students may plan a program to graduate with honors in mathematics or statistics. The requirements are:
1. Grade point average of at least 3.7 in mathematics and statistics courses
2. Overall grade point average of at least 3.25
3. Completion of two of the following:
   — an honors seminar (can be the Putnam Seminar)
   — an upper-level theoretical course
   — an approved independent study project leading to a paper or presentation

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.

Statistics Minor Option
MATH 250 3
MATH 230 4
MATH 257 or 258 4-3
MATH 314 2
MATH 350 2
Approved electives (MATH 330 or 340) 3-4

Statistics Courses

Middle School and Junior High School Teaching
Minor Option
Students in a Middle School and Junior High School curriculum must contact a mathematics advisor for information on available mathematics programs.

Mathematics and Statistics Courses (MATH)
Students who fail to earn a "C" or better grade in a prerequisite course will not be permitted to enroll in the next sequence course.

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

MATH 101 Trigonometry 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 trigonometric 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.

MATH 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 will take an exam on this material unless exempted on the basis of ACT Mathematics score. Students who do not pass the exam are required to take this course and enrollment in this course is restricted to these students. Credit for the course will not apply to the number of credits needed for graduation.

MATH 110 Algebra I 3 hrs.
A course in algebra at the level usually covered in high school. Review and practice with basic algebraic skills. Topics include arithmetic foundations of algebra, properties of real numbers, linear equations and inequalities, and systems of linear equations. This is a continuous progress, mastery-based course. Credit for MATH 110 will not be granted to anyone having already received credit with grade of "C" or better in any of MATH 101, 111, 116, 118, 122, or 200 or equivalent transferable courses. Prerequisite: MATH 109 or satisfactory score on placement test.

MATH 111 Algebra II 3 hrs.
A continuation of MATH 110. Topics include polynomials, fractional and radical equations, logarithmic and exponential functions, complex numbers, quadratic equations, and systems of quadratic equations. Credit for MATH 111 will not be granted to anyone having already received credit with 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.

MATH 116 Finite Mathematics with Applications 3 hrs.
This course is designed to give the student a background in the elements of finite mathematics. Included will be a discussion of: sets, relations and functions; systems of linear equations and inequalities; vectors and matrices; concepts of probability; random variables and distribution; applications of linear algebra and probability. Prerequisite: MATH 110, or 2 years of college preparatory mathematics and satisfactory score on placement test.

MATH 118 Precalculus Mathematics 4 hrs.
This course is designed to provide the student with basic algebraic and trigonometric concepts necessary for calculus. Topics include: real numbers, inequalities, coordinate systems, functions, polynomials, solutions of polynomial equations, exponential and logarithmic functions, trigonometric functions and trigonometric functions. Prerequisite: MATH 111, or at least 3 years of college preparatory mathematics and satisfactory score on placement test. Students cannot receive full credit for both MATH 101 and 118.

MATH 122 Calculus I 4 hrs.
The first of a two-semester sequence in differential and integral calculus. Functions, limits, continuity, techniques and applications of differentiation, integration, logarithmic, trigonometric and exponential functions. Prerequisite: MATH 118, or grade of "C" or better in any of the previous college preparatory mathematics including trigonometry and satisfactory score on placement test. Students cannot receive full credit for MATH 122 and 200.

MATH 123 Calculus II 4 hrs.
A continuation of Calculus I. Techniques and applications of integration, trigonometric functions, sequences and series, indeterminate forms, improper integrals, applications to elementary differential equations. Prerequisite: MATH 122, (CS 105 or 106 recommended). Students will not receive full credit for MATH 123 and 200.

MATH 145 Discrete Mathematical Structures 3 hrs.
Sets, functions, relations, graphs, digraphs, trees, recursion, mathematical induction and other proof techniques, counting techniques, Boolean Algebra and asymptotic analysis of algorithms. The relationship of these concepts with computer science will be emphasized. Prerequisite: MATH 122, and an introductory programming course.

MATH 150 Structure of Arithmetic 4 hrs.
This course is designed to provide the elementary teacher with a minimum foundation in the structure of arithmetic. Included will be a
discussion of sets, relations, and properties of natural numbers, integers, rational numbers and real numbers, as well as selected topics from number theory and algebra. This course can only be applied to the mathematics requirements of a program leading towards elementary teacher certification. Prerequisite: MATH 110 or adequate performance on placement test.

MATH 151 Geometry for Elementary Teachers 3 hrs.
This course is devoted to an analysis of geometric figures in the plane and space and to an investigation of geometric and topological transformations, their invariants and related topics, including symmetry, symmetry groups and measurement. Emphasis will be on the active participation of the student in the process of discovering and communicating mathematical ideas. Prerequisite: MATH 150.

MATH 190 Survey of Mathematical Ideas 4 hrs.
A survey of significant, active areas of mathematics with the emphasis on concepts rather than calculations. The historical origin and development of certain mathematical ideas will be included. The areas of mathematics investigated will include topics from set theory, probability, number theory, computer mathematics, and graph theory. This course will not satisfy any program requirements in mathematics.

MATH 200 Calculus With Applications 4 hrs.
A terminal one semester course in calculus with emphasis on techniques and applications. Topics include functions, limits, differentiation, integration and applications. This course should not be elected by those students taking courses in the MATH 122-123 sequence. Prerequisite: MATH 111, or 1½ years high school algebra and 1 year high school geometry and satisfactory score on placement test. Students will not receive full credit for MATH 200 and 122 or 123.

MATH 216 Business Statistics 3 hrs.
A applications-oriented study of statistical concepts and techniques. The course focuses on the student as a user of statistics who needs a minimal understanding of mathematical theory and formula derivation. Major topics of study are statistical description, central tendency, dispersion, distributional shapes, sampling, confidence levels, probability, comparison tests, association tests, regression and time series. The objectives of the course are to develop the skill to apply these concepts in conjunction with computer usage and make appropriate decisions regarding actual business problems. Students can receive credit for only one of MATH 216, 260, 364, or 366. Prerequisite: MATH 116, BIS 102.

MATH 230 Elementary Linear Algebra 4 hrs.
Vectors and geometry in two and three dimensions, systems of linear equations, matrix algebra, linear transformations in \( \mathbb{R}^n \) and \( \mathbb{R}^p \), generalizations to the vector spaces \( \mathbb{R}^n \), inner products, determinants. Some emphasis on proofs. Prerequisite: MATH 122 (MATH 123 recommended).

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.

MATH 260 Elementary Statistics 4 hrs.
The purpose of this course is to introduce students to the rudiments of statistics. Basic concepts, rather than detailed derivation, are stressed. Topics include: probability, discrete random variables, means and variances; binomial, hypergeometric, normal, chi-square, F distributions, interval estimates; tests of hypotheses. Students can receive credit for only one of MATH 216, 260, 364, or 366. Prerequisite: MATH 200 or 122.

MATH 261 Engineering Statistics 3 hrs.
Introduction to statistical methodology, emphasizing applications in engineering. Topics include descriptive and inferential statistics, least squares curve fitting, correlation, and analysis of variance. Prerequisite: MATH 123 and a course in the use of computers. Cross listed with IE 261.

MATH 262 Probability for Engineers 3 hrs.

MATH 285 Probability and Statistics for Elementary Teachers with Computer Applications 4 hrs.
The topics in this course will include the organization of statistical measures, probability and decision making, testing hypotheses, and correlation. Students will learn a programming language and subsequently use computer techniques to assist in data analysis. The problems of teaching probability and statistics to elementary school children will be considered. Prerequisite: MATH 151.

MATH 272 Vector and Multivariate Calculus 4 hrs.
Vector calculus, functions of several variables, partial differentiation, multiple integration. Prerequisite: MATH 123.

MATH 274 Introduction to Differential Equations 3 hrs.
Techniques of solving differential equations. Prerequisite: MATH 123.

MATH 314 Mathematical Proofs 3 hrs.
The prime objective of this course is to involve 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 axioms, systems. MATH 314 and 145 may not both be used for the same major or minor. Prerequisite: MATH 123, and 230 or 374.

MATH 330 Modern Algebra 4 hrs.
Introduction to groups, rings, integral domains, fields. Emphasis will be placed on the integers and polynomial rings over a field. Prerequisite: MATH 314 or consent of instructor.

MATH 340 Fundamental Concepts of Geometry 3 hrs.
A critical re-examination of plane and solid euclidean geometry followed by euclidean geometry of four dimensions and noneuclidean geometry. Prerequisite: MATH 314.

MATH 350 Teaching of Junior High Mathematics 2 hrs.
In this course consideration is given to curriculum problems and trends in junior high school mathematics and to specific problems of teaching mathematics effectively to junior high school pupils. Activity and laboratory approaches for teaching mathematics will be emphasized. Prerequisite: MATH 314 or consent of instructor.

MATH 362 Probability 4 hrs.
Discrete probability spaces, conditional probability, discrete and continuous random variables, expectations, joint distributions, special distributions. Prerequisite: MATH 123.

MATH 364 Statistical Methods 4 hrs.
This course treats both the theory and applications of statistics. Topics include: empirical distributions, discrete probability, random variables and probability distributions, special distributions, the central limit theorem, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, correlation and regression, the design of experiments. Students can receive credit for only one of MATH 216, 260, 364, or 366. Prerequisite: MATH 123.

MATH 366 Introduction to Statistics 4 hrs.
An introductory course in statistics for upper level students possessing a limited mathematics background. The emphasis is on the use of statistical tools rather than on their theoretical development. Topics will include probability distributions, means and variances, interval estimates, tests of hypotheses, correlation and regression. This course will not count toward a mathematics major. Students can receive credit for only one of MATH 216, 260, 364, or 366.

MATH 374 Introduction to Linear Algebra and Differential Equations 4 hrs.
This course covers elementary linear algebra and differential equations, applying techniques of linear algebra to the solution of differential equations. Topics chosen from: first order equations and applications, matrices, vector spaces, linear transformations, linear differential equations, systems of differential equations, and series solutions. Students cannot receive credit for both 274 and 374, or 230 and 374. Prerequisite: MATH 272.

MATH 390 Undergraduate Seminar 1 hr.
This seminar features student participation covering mathematical topics not normally included in regular major programs. May be repeated for credit. Prerequisite: permission of Department.

MATH 391 Statistical Consulting 1 hr.
Provides undergraduates with the opportunity to observe and participate with statistical consultants on real projects. Students are exposed to the statistical consulting experiences from data manipulation and analysis to the design of the statistical aspects of a project and from interaction and effective communication with a client to the production of a final written report on the statistical aspects of the project. May be taken for credit at most
three times. Prerequisites: At least one of MATH 563, 566, 567, or 568.

MATH 395 Practicum in Mathematics 1 hr.
Students enrolled in this course will normally work in the modular math program. The course may be repeated. Prerequisite: Consent of instructor.

MATH 402 Mathematical Modeling 3 hrs.
An introduction to the methods of mathematical modeling. The major aim of this course is to teach the formulation of mathematical problems from real world practical situations. The representation of a practical or scientific problem in mathematical terms may give a more precise understanding of its significant properties, and may allow prediction of future events. Case studies considered will involve many areas of application and several different mathematical techniques. The computer will be used as a tool in pursuing some of these problems. Prerequisite: MATH 272, 274, or MATH 272 and 274, and a computer programming course.

MATH 408 Linear Programming 3 hrs.
Linear inequalities, convex geometry, optimization in linear systems, zero-sum games. Applications. Prerequisites: MATH 230 or 374.

MATH 440 Graphs and Mathematical Models 3 hrs.
Elements of graph theory, including the study of Eulerian graphs, Hamiltonian graphs, planar graphs, trees, digraphs, and the applications of graphs as models. Emphasis will be on proofs and proof techniques. Examples of other discrete models may be considered. Prerequisite: MATH 145 or MATH 314 or consent of instructor.

MATH 445 Algorithmic and Applied Combinatorics 3 hrs.
An algorithmic approach to combinatorics including graph theory, enumeration, and applications. Prerequisites: MATH 145 or MATH 314 (CS 111 recommended).

MATH 452 Mathematical Problem Solving for Elementary Teachers 4 hrs.
This course will provide experiences in mathematical problem solving for prospective elementary teachers. Students will become familiar with a variety of problem solving strategies such as analyzing patterns, simplifications, etc. The use of computer methods in problem solving will be a major consideration. Prerequisite: MATH 111 or satisfactory score on placement exam, and MATH 265.

MATH 460 Introduction to Mathematical Statistics 3 hrs.
Topics to be included are multivariate probability distributions, sampling distributions, asymptotic theory, theory of estimation, and likelihood ratios. Prerequisites: MATH 230, 272, 362, and 364.

MATH 490 Topics in Mathematics 3 hrs.
The content of this course varies with the semester offered and with the instructor. The course is intended to introduce the student to significant topics not ordinarily encountered and to present more variety in his undergraduate program. May be taken more than once with the approval of the student's adviser. Prerequisite: Approval of Department.

MATH 506 Scientific Programming 3 hrs.
An introduction to solving scientific and engineering problems on computers. The topics include root-finding, matrix calculations, numerical integration and the numerical solution of differential equations. The FORTRAN language and various library software packages will be used. Prerequisites: MATH 230 or MATH 374, and CS 201 or CS 306. Jointly listed with Computer Science.

MATH 507 Numerical Analysis I 3 hrs.
The analysis and use of numerical algorithms for the solution of nonlinear equations, systems of linear equations, interpolation, numerical differentiation and approximation. Prerequisite: (MATH 230, MATH 272 and MATH 274) or MATH 374 and MATH/CS 506. Cross listed with Computer Science.

MATH 510 Applied Matrix Algebra 3 hrs.
An introduction to the study of methods to solve linear systems of equations, least squares approximation problems, and eigenvalue problems. Topics covered include the algebra of real and complex matrices with particular emphasis on LU-decompositions, QR-decompositions, singular value decompositions, generalized inverses, Hermitian symmetric matrices, positive definite matrices and the Spectral Theorem. Applications from multivariate calculus will be discussed. Prerequisites: either MATH 230 and MATH 272, or MATH 374.

MATH 530 Linear Algebra 3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330.

MATH 540 Advanced Geometry 3 hrs.
Topics to be selected from projective geometry, algebraic geometry, differential geometry, or non-Euclidean geometry. Prerequisite: Consent of instructor.

MATH 550 Teaching of Secondary Mathematics 3 hrs.
In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. This course may be taken in conjunction with ED 301 through participating in the Cooperative Mathematics Program conducted during winter semester. Contact the departmental office at least one semester in advance for additional information. Prerequisite: MATH 330 and 350.

MATH 552 Teaching of Elementary Mathematics 3 hrs.
Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Computer terminology and applications of computers in elementary mathematics classrooms will be integral parts of this course. Prerequisite: MATH 265 or consent of department.

MATH 553 Participation in Elementary Mathematics Teaching 2 hrs.
Students will work cooperatively with an elementary school teacher in an elementary classroom in various aspects of helping children learn mathematics. The course will provide the prospective elementary teacher with an opportunity to work with small groups of young children and to observe them in mathematics learning. The student will be required to maintain a journal and meet weekly with a staff member supervising the course. Can be elected on Credit/No Credit basis only. Prerequisite: MATH 552.

MATH 560 Applied Probability 3 hrs.
A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and production problems, and Markov chain methods. Prerequisite: MATH 272.

MATH 561 Applied Multivariate Statistical Methods 3 hrs.
An applied treatment of multivariate procedures is presented. Classical procedures such as Hotelling's $T^2$-squared methods are discussed for the one and two sample problems and MANOVA for standard designs. Topics that will be accentuated are principal components, discriminant analysis, factor analysis, and factor analysis. Emphasis will be on graphical methods and applications. Prerequisites: an introductory course in statistics and a course in linear algebra.

MATH 562 Statistical Analysis I 4 hrs.
The first course in the sequence 562, 662 or applied statistics which combines both theory and applications. Topics include: elementary theory of estimation and hypothesis testing; the use of the normal, binomial, chi-square, $F$ and $t$ distributions in statistics problems involving means and variances; simple linear regression and correlation, one way analysis of variance; and fixed effects models. Prerequisite: MATH 560 or 362.

MATH 563 Sample Survey Methods 3 hrs.
This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-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.

MATH 564 Introduction to Statistical Computing 2 hrs.
An introduction to the use of statistical computer software. The emphasis will be on how to use existing software effectively. Statistical packages discussed will include MINITAB, SAS, SPSS, and BMDP. Statistical work treated will include: data entry, editing, statistical analysis of the one and two sample problems, analysis of variance, and regression analysis. Prerequisites: WMU's computer literacy requirement and an introductory statistics course.

MATH 566 Nonparametric Statistical Methods 3 hrs.
This course presents a broad overview of nonparametric 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, ranking methods, measures of rank correlation, efficiency. Emphasis will be on the application
of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course.

MATH 567 Statistical Design and Analysis of Experiments
4 hrs.
A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: complete randomized, randomized complete block, latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. The course is molded around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

MATH 568 Regression Analysis
3 hrs.
An applied course in regression analysis; simple and multiple linear regression; resolution of fit of a model, including residual analysis, precision of estimation, and tests of general hypotheses; model building; step-wise regression; use of indicator variables; non-linear regression. Prerequisite: An introductory statistics course.

MATH 570 Advanced Calculus
3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisites: MATH 272 and 314 (330 recommended).

MATH 572 Vector Calculus and Complex Variables
4 hrs.
Functions of several variables, implicit and inverse functions, Jacobians, multiple integrals, Green’s Theorem, divergence, curl, the Laplacian, Stoke’s Theorem, analytic functions, Laurent expansions, residues, argument principle, and conformal mapping. Prerequisites: MATH (230, 272 and 274) or 374.

MATH 574 Advanced Differential Equations
3 hrs.
Series solutions at ordinary and singular points of linear ordinary equations, Bessel and Legendre functions, self-adjoint boundary value problems, Fourier series, solution of partial differential equations by separation of variables. Prerequisites: (MATH 230, 272, and 274) or (MATH 374).

MATH 580 Number Theory
3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

MATH 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.

MATH 599 Independent Study in Mathematics
1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of chairperson of Department.

MEDIEVAL INSTITUTE PROGRAM
See “Interdisciplinary Programs” in the College of Arts and Sciences.

PHILOSOPHY
Arthur Falk, Chair
John Dilworth
Joseph Elin
Michael Pritchard
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 advisers to students wishing to construct concentrations that involve philosophy. The Philosophy Department offices are located on the fifth floor of Friedmann Hall.

Students are invited to visit the department office and the offices of faculty at any time. Office hours are posted beside each instructor’s door. Before preregistration each term, the faculty prepare brief written descriptions of the courses to be offered. These descriptions are posted on the department bulletin board outside the department office and additional copies may be obtained in the office. The department also announces its tentative course offerings a year in advance. Hence before preregistration for the semester, the student can know which courses will probably be offered in the following fall, winter, spring, and summer.

Robert Friedmann
Philosophy Prize
A prize named in honor of Dr. Friedmann, the first person to teach philosophy at Western, is awarded annually to an outstanding senior philosophy student.

Honors Program
Applications to the departmental honors program are invited from qualified students. A student wishing to enter the program must submit a proposal for independent research to a faculty committee. Normally, the honors candidate works in close association with a professor of his/her choice and submits a paper (or other project of philosophic merit) to the department. To achieve honors in philosophy the candidate’s academic record must be of high quality and the project must be outstanding. Interdisciplinary work involving faculty from other departments is encouraged. Normally, but not necessarily, the honors student is a senior major; in exceptional cases non-seniors or non-majors may be considered.
Philosophy Major

Because the Department of Philosophy believes that there is no single correct approach to the study of philosophy, but that, as much as possible, each student under the guidance of a faculty member should design a program in accordance with his/her interests, ability, and intellectual maturity, there are no required courses in philosophy. Instead, students majoring in philosophy must plan their program with a faculty adviser. Every faculty member serves as a student adviser and normally students may select any adviser they prefer. The adviser works closely with the student in planning a program of studies and helps the student make an informed and intelligent choice of courses.

The student should select an adviser as soon as he/she is fairly certain that he/she intends to major in philosophy. Normally this would not occur until after he/she has taken at least one, and possibly two philosophy courses. Every major must choose and consult with an adviser no later than the completion of 12 hours of philosophy courses; no hours beyond the 12th will be credited towards a Philosophy major unless the approval of an adviser has been obtained. Students are encouraged to see their advisers frequently, but consultation should occur at least once every academic year. A major consists of a minimum of 28 hours in philosophy. PHIL 100 and 200 cannot both be taken towards a major or minor.

Cognates: Appropriate courses in other departments may be used towards a philosophy major (not a minor) up to a maximum of four hours. Consult with the department chairperson.

Minor in Professional and Applied Ethics

Minimum of 18 credit hours. Minor Slip required. Required Philosophy courses are:
1. ONE of the following (4 credit hours): PHIL 200, 220, 300, 301
2. TWO of the following (8 credit hours): PHIL 201, 303, 310, 311, 313, 314, 534
3. PHIL 510: Professional Ethics (4 credit hours)

The remaining credit hour requirements may be satisfied in a variety of ways. The student may complete the minor by doing additional course work within the Department of Philosophy. Any courses, including PHIL 498: Independent Study, are applicable. Also, the student may apply up to four credit hours from an ethics-related course in another department, subject to approval of the Department of Philosophy.

Students Not Majoring or Minoring in Philosophy

Students not majoring or minoring in philosophy find that philosophy adds intellectual depth to their major field of study. Philosophy by its nature touches on many areas of life and thought, frequently from a perspective that students find valuable and exciting. Non-majors often consider their philosophy courses an essential element in their general intellectual growth.

In recognition of this, the department offers a wide range of courses for non-majors/minors. Students interested in a general introduction to philosophy should consider PHIL 100 or 200; students interested in a philosophical approach to a more specialized area should consider PHIL 201, 220, or some upper-level cognate. Students interested in a more technical appreciation of the central problems of philosophy should consider such courses as PHIL 332 (Theory of Knowledge) and PHIL 333 (Metaphysics). Many students will find it advisable to begin with either PHIL 100, 200 or 201, and then continue on the upper level.

Professional and Applied Ethics Concentration

Philosophy majors who have a special interest in the study of ethics may have their major identified as a Professional and Applied Ethics Concentration, provided that the following course requirements are met:
1. A minimum of 28 hours in Philosophy
2. ONE of the following (4 hrs.): PHIL 200, 220, 300, 301
3. Two of the following (8 hrs.): PHIL 201, 303, 310, 311, 313, 314, 534
4. PHIL 510 Professional Ethics (4 hrs.)

The remaining credit hour requirements may be satisfied in a variety of ways, subject to the approval of the student's adviser. The student may apply up to four credit hours from an ethics-related course in another department, subject to the approval of the Department of Philosophy.

Philosophy Minor

A minor consists of at least 16 hours in philosophy. Minors may choose any courses they find suitable. Minors are strongly urged to consult with advisers (preferably after completing 8 hours), but this is not required.

For further information, students should read the Philosophy Department Student Handbook or see any faculty member. The handbook is available in the department office, 5011 Friedmann Hall.

Students Not Majoring or Minoring in Philosophy

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Repeating Courses for Credit

Since philosophy courses may vary widely in content from year to year, a student may be occasionally justified in repeating a course for credit. Students who wish to do so must obtain permission of the instructor before they register. If the student requests, the department will have the student's record indicate that the course when repeated differed substantially in content from the identical numbered course previously completed.

Philip Courses (PHIL)

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

INTRODUCTORY COURSES

PHIL 100 Critical Thinking and Writing 4 hrs.
A seminar for students who wish to improve their ability to think analytically, argue logically, and express a train of thought carefully and cogently in writing. There will be frequent writing assignments which will focus on issues raised by readings of broad philosophical interest. Class time will be about equally divided between discussion of the readings and critical analysis of the student's own writings. Fulfills the University Intellectual Skills college-level writing requirement.

PHIL 200 Introduction to Philosophy 4 hrs.
An introduction to the nature of philosophy by a consideration of major types of philosophical questions, such as the principles of rational belief, the existence of God, the good life, the nature of knowledge, the problem of truth and verification. Selected texts from representative philosophers are used to define these questions and to present typical answers.

PHIL 201 Introduction to Ethics 4 hrs.
An introduction to the philosophical study of morality. Deals with questions such as: What is the good life? Why should I be moral? What is the meaning of right and wrong?

PHIL 220 Elementary Logic 4 hrs.
A study of the rules and techniques of deductive reasoning and the sources of some common fallacies. Topics include a study of syllogisms and the logic of propositions. Open to first-year students.

300-LEVEL COURSES

Each semester detailed course descriptions are posted outside room 5011 Friedmann Hall prior to pre-registration. If you are in doubt whether you have adequate background for taking a course, talk with the instructor.

PHIL 300 Ancient and Medieval Philosophy 4 hrs.
A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized.

PHIL 301 History of Modern Philosophy 4 hrs.
A survey of modern philosophy from the Renaissance through Kant, with emphasis on Descartes, Leibnitz, Locke, Berkeley, Hume, and Kant.

PHIL 303 Existentialist Philosophies 4 hrs.
A concentrated study of leading thinkers in modern philosophical existentialism: Kierkegaard, Nietzsche, Jaspers, Sartre, and Camus.

PHIL 307 Phenomenology 4 hrs.
A systematic study of the origins and developments of the phenomenological movement. The writings of several major phenomenologists will be considered, e.g. Husserl, Heidegger, Merleau-Ponty, etc.

PHIL 310 Moral Philosophy 4 hrs.
A study of some basic problems in moral philosophy. Special attention is given to the question of the relationship between the justification of actions, and motives, excuses, intentions, consequences. Contemporary works are emphasized.

PHIL 311 Political Philosophy 4 hrs.
An examination of fundamental problems arising from political and social relationships. The main emphasis is on such political value concepts as liberty, equality, human rights and justice. Topics that might be considered include, but are not necessarily restricted to: the nature and basis of political authority and obligation; civil disobedience; tolerance and dissent; the arms of political institutions; law and morality.

PHILOSOPHY 125
PHIL 312 Philosophy of Art
4 hrs.
An analysis of the nature of art and esthetic experience, and its significance in human life. The course may cover all forms of art, or concentrate on a few, for instance, literature, drama and music.

PHIL 313 Philosophy of Law
4 hrs.
This course considers the nature of law and the goals, policies and limitations of a legal system. The connections between law and justice, law and freedom, and law and morality will be examined.

PHIL 314 Philosophy and Public Affairs
4 hrs.
A philosophical examination of principles and values underlying contemporary social issues. The course will focus on specific issues such as racial and sexual equality, abortion, privacy, censorship, violence, and goals and methods of social change, as well as social movements such as Manxam, the women's movement, and various utopian ideas. Topics to be announced in the Schedule of Classes.

PHIL 320 Introduction to Formal Logic
4 hrs.
The study of general methods of analyzing and validating deductive reasoning. Arguments expressed in everyday language are analyzed and translated into the symbolic notation of logic, and calculations are performed in this notation to check the validity of the arguments. The course may include a brief consideration of the application of logic to computers. Open to qualified first-year students.

PHIL 324 Philosophy of the Sciences
4 hrs.
A critical examination of the concepts, methods, presuppositions and conclusions of the natural and social sciences.

PHIL 332 Theory of Knowledge
4 hrs.
An examination of basic problems concerning knowledge and belief, discussing traditional approaches but stressing recent analyses. Possible topics: skepticism and certainty, knowing and believing, perception, memory, “a priori” vs. “a posteriori” knowledge, self-knowledge, knowledge of others.

PHIL 333 Metaphysics
4 hrs.
A study of basic metaphysical questions, discussing traditional solutions but emphasizing recent approaches. Questions will be selected from such topics as: substances, qualities and relations, universals and particulars, identity, space and time, causation, mind and body, persons, free will.

PHIL 334 Philosophical Problems of Psychology
4 hrs.
Problems in the philosophy of mind with emphasis on recent analysis and solutions. Among the possible topics are the definition of “mind” and its relation to “the body,” to “behavior,” and to “experience,” teleological and mechanistic explanations of behavior, including behaviorism, and functionalism, machine-modes 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

PHIL 470 Seminar in Philosophy—Variable Topics
2-4 hrs.
Seminars deal with selected advanced topics in philosophy. Since content varies from semester to semester, students are advised to check course descriptions which are available in the department office. Suggestions for seminar topics from students are welcomed. Seminars may be set up to be taken for variable credit and to last more or less than a semester’s length.

PHIL 498 Independent Study
2-4 hrs.
Independent study is for those students who have attained a degree of competence in philosophy and wish to embark upon a project to be carried out without the usual close guidance of the instructor in the classroom. Independent study may not be elected as a substitute for a regularly scheduled course. Prerequisite: Permission of the instructor with whom the student wishes to work.

PHIL 510 Professional Ethics
4 hrs.
A philosophical examination of the foundations of ethics in the professions. Topics to be considered include the professions and professionalism, relationships between professional and ordinary ethics, social responsibilities of the professions, professional/client relationships, regulation of the professions, and codes of ethics.

PHIL 520 Mathematical Logic
3 hrs.
This course covers the basic ideas in modern mathematical logic. First the fundamentals of the propositional and quantificational calculi (including the symbolization of English sentences) are discussed. Next comes a study of the basic features of formal languages and axiomatic theories with special emphasis on the notions of formal proofs in, and models for, such systems. Finally, the course includes an introduction to the metamathematics of formal theories through a study of such topics as consistency and completeness, the deduction theorem, recursive functions, the Godel and Church theorems, decidable vs. undecidable theories. Prerequisite: MATH 310 or MATH 314, or permission of instructor.

PHIL 525 Decision Theory
4 hrs.
Can there be a formal theory of what it is to be rational in one’s beliefs and actions? This course is an introduction to decision theory, which claims to be just such a theory of rationality. Attention will be given to both its mathematical development and the issues it raises in the philosophy of science, the theory of knowledge, and action theory. No prerequisite. A working knowledge of high school algebra is assumed.

PHIL 534 Moral and Philosophical Foundations of Health Care
4 hrs.
In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aims of the health sciences; the interplay of fact and value in health care; competing images of humankind embedded in health science, patient autonomy, dignity, and medical paternalism. This is a cross-college interdisciplinary course which is team taught with faculty from the General Studies Science Area.

PHIL 570 Philosophical Topics
1-4 hrs.
An examination of special philosophical topics. Topics to be listed in the Schedule of Classes.

PHIL 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

John Tanis, Chair
Larry Oppelger, Associate Chair
Eugene Kamber
Sung Chong
Dean Halderson
Gerald Hardie
Emanuel Kamber
Dean Kaul
Arthur McGurn
Alvin Rosenthal
Robert Shamu
Michitoshii Soga

The Department of Physics offers three programs of study leading to a major in physics. Two physics major programs in the arts and sciences curriculum (ASC Major and ASC Major with Electrical Engineering Option) prepare students for graduate study or professional employment in physics. The secondary education (SED) physics major program prepares students to teach physics at the high school level. A geophysics major program, sponsored jointly by the Geology and Physics Departments, is also available, enabling students to prepare for a career in an important area of applied physics.

Any student contemplating majoring in physics should contact the Physics Department as early as possible. This is especially true for the transfer students from community colleges in regard to transfer credit opportunities, and graduate study in physics.

Any physics major may qualify for departmental honors in physics by fulfilling the following requirements:
1. Complete the courses recommended for students planning to enter graduate school.
2. Attain by the end of the semester preceding the student's graduation an accumulated honor point ratio of at least 3.5 (BA) in his/her physics courses and an accumulated honor point ratio of 3.0 or more in his/her other courses.

Minor programs are also available in the ASC and SED curricula, and there is a Science and Mathematics Teaching Minor for students in the elementary education curriculum.

The Physics Department is concerned about the science education of all University students and offers several introductory-level courses approved for General Education credit. The descriptions of such approved courses are italicized in the course listings below. A conference with the department chairperson or the undergraduate adviser will ensure a selection appropriate to the student's interest and experience.

ASC Physics Major

The courses required for the ASC Physics major are:

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</td>
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<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 330</td>
<td>Thermodynamics and Kinetics Theory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 342</td>
<td>Electronics</td>
<td>4</td>
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<tr>
<td>PHYS 520</td>
<td>Analytical Mechanics</td>
<td>3</td>
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<tr>
<td>PHYS 540</td>
<td>Electricity and Magnetism I</td>
<td>3</td>
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<tr>
<td>PHYS 561</td>
<td>Quantum Physics</td>
<td>4</td>
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<tr>
<td>PHYS 562</td>
<td>Atomic and Molecular Physics</td>
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<tr>
<td>PHYS 563</td>
<td>Solid State Physics</td>
<td>3</td>
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<tr>
<td>PHYS 564</td>
<td>Nuclear and Particle Physics</td>
<td>3</td>
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<tr>
<td>PHYS 566</td>
<td>Advanced Laboratory</td>
<td>3</td>
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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)**

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus</td>
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<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
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<tr>
<td>CHEM 101 or 102</td>
<td>General Education</td>
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<td>General Education</td>
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<tr>
<td>Physical Education Elective</td>
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**SECOND SEMESTER (16-17 hours)**

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<tr>
<td>MATH 123</td>
<td>Calculus</td>
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<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
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<td>General Education</td>
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**THIRD SEMESTER (16 hours)**

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<tr>
<td>MATH 272</td>
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<td>PHYS 211</td>
<td>Electricity and Light</td>
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<td>General Education Elective</td>
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**FOURTH SEMESTER (15 hours)**

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<tr>
<td>MATH 574</td>
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<td>PHYS 330</td>
<td>Electricity and Light I</td>
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<tr>
<td>PHYS 520</td>
<td>Electricity and Light I</td>
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**FIFTH SEMESTER (17 hours)**

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<tr>
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<tr>
<td>PHYS 540</td>
<td>Electricity and Light I</td>
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<td>PHYS 550</td>
<td>Electricity and Light I</td>
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**SIXTH SEMESTER (17 hours)**

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<tr>
<td>MATH 572</td>
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<td>4</td>
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<td>PHYS 540</td>
<td>Electricity and Light I</td>
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<td>PHYS 550</td>
<td>Electricity and Light I</td>
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**SEVENTH SEMESTER (15-16 hours)**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CS 306 or 506</td>
<td>General Education</td>
<td>2-3</td>
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<tr>
<td>PHYS 562</td>
<td>Electricity and Light I</td>
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<tr>
<td>PHYS 563</td>
<td>Electricity and Light I</td>
<td>3</td>
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<tr>
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**EIGHTH SEMESTER (15 hours)**

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<tbody>
<tr>
<td>PHYS 564</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 566</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
</tbody>
</table>

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 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 342</td>
<td>Electronics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 540</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 550</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
</tbody>
</table>

**SECOND SEMESTER (16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 562</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 564</td>
<td>Electricity and Light I</td>
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<tr>
<td>General Education Elective</td>
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<td></td>
</tr>
</tbody>
</table>

**THIRD SEMESTER (16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>General Education Elective</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**FOURTH SEMESTER (15-16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 274 or 374</td>
<td>General Education</td>
<td>3</td>
</tr>
<tr>
<td>EE 210</td>
<td>General Education</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>General Education</td>
<td>4</td>
</tr>
</tbody>
</table>

**FIFTH SEMESTER (16-17 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 574</td>
<td>Calculus</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 330</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 520</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>CS 306 or 506</td>
<td>General Education</td>
<td>2-3</td>
</tr>
<tr>
<td>EE 221</td>
<td>General Education</td>
<td>4</td>
</tr>
</tbody>
</table>

**SIXTH SEMESTER (16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 572</td>
<td>Calculus</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 540</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 550</td>
<td>Electricity and Light I</td>
<td>3</td>
</tr>
</tbody>
</table>

**SEVENTH SEMESTER (15-16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS/EE Electives</td>
<td>6-7</td>
<td></td>
</tr>
<tr>
<td>PHYS 563</td>
<td>Electives</td>
<td>3</td>
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**EIGHTH SEMESTER (15-16 hrs.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 566</td>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>PHYS/EE Electives</td>
<td>6-7</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Secondary Education Physics Major**

The courses required for the SED Physics major are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 104</td>
<td>Introductory Astronomy</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 103</td>
<td>Astronomy Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>Introductory Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 342</td>
<td>Electronics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 352</td>
<td>Optics</td>
<td>3</td>
</tr>
</tbody>
</table>
Two additional physics courses numbered above 300 are also required. PHYS 308 does not carry credit toward the major but is a required course for those in secondary education. To obtain a College of Education section of the bulletin for additional curriculum requirements for this program, a suggested course of study for the Sed (15-16 hours)

FIRST SEMESTER (16-17 hours)
MATH 122 ................................................. 4
PHYS 105 .................................................. 4
CHEM 101 or 102 ...................................... 4
General Education ................................. 3-4
Physical Education ................................. 3
SECOND SEMESTER (16-17 hours)
MATH 123 .................................................. 4
PHYS 210 .................................................. 4
CHEM 120 .................................................. 4
General Education ................................. 3-4
Physical Education ................................. 1
THIRD SEMESTER (15-16 hours)
MATH 272 .................................................. 4
PHYS 211 .................................................. 4
General Education ................................. 3-4
Elective ................................................... 3-4
FOURTH SEMESTER (15 hours)
MATH 274 or 374 ...................................... 3
PHYS 212 .................................................. 4
General Education ................................. 4
ED 250 ..................................................... 4
FIFTH SEMESTER (15-16 hours)
Physics Elective ................................. 3
CS 306 ..................................................... 2
ED 301 ..................................................... 3
General Education ................................. 3
Elective ................................................... 3-4
SIXTH SEMESTER (15 hours)
PHYS 308 .................................................. 3
PHYS 342 .................................................. 4
General Education ................................. 4
Elective ................................................... 4
SEVENTH SEMESTER (17 hours)
PHYS 352 .................................................. 4
Physics Elective ................................. 3
ED 322 ..................................................... 3
General Education ................................. 3
Electives .................................................. 3
EIGHTH SEMESTER (14 hours)
ED 395 ..................................................... 3
ED 410 ..................................................... 2
ED 475 Directed Teaching ........................ 1-9

Geophysics Major
The required courses for a geophysics major are:
PHYS 210 .................................................. 4
PHYS 211 .................................................. 4
PHYS 212 .................................................. 4
PHYS 342 or 344 ...................................... 3-4
One of the following three:
PHYS 330 .................................................. 3
PHYS 352 .................................................. 4
PHYS 540 .................................................. 3
Plus the following:
GEOL 130 .................................................. 4
GEOL 131 .................................................. 4
GEOL 301 .................................................. 3
GEOL 430 .................................................. 3
GEOL 560 .................................................. 3
CHEM 101 or 102 ...................................... 3
MATH 122 .................................................. 4
MATH 123 .................................................. 4
MATH 272 .................................................. 4
MATH 374 .................................................. 4
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.

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.

Secondary Education Physics Minor
The courses required for the SEC physics minor are:
PHYS 210 Mechanics and Heat .......................... 4
PHYS 211 Electricity and Light .......................... 4
PHYS 212 Introductory Modern Physics ............. 4
PHYS 342 Electronics .................................. 4
PHYS 352 Optics ..................................... 3
With consent of the department, PHYS 110 and 111 may be substituted for 210 and 211 in the ASC and SEC minor programs.

Science and Mathematics Teaching Minor
The Department of Physics participates in the Science and Mathematics Teaching Minor for students in the elementary education curriculum. For a full description of the program, consult its listing under the "Interdisciplinary Programs" section in the College of Arts and Sciences.

Physics Courses (PHYS)
(Courses described in italics are approved for General Education.)
PHYS 102 Physics, Technology, and Society 3 hrs. Fall
The main objective of this course is to provide the student with a quantitative understanding of physical principles which underlie selected environmental problems. Topics covered include the energy problem, air pollution, and nuclear weapons. This course may not be applied toward either a major or minor in physics. Prerequisite: MATH 110 or equivalent.
PHYS 103 Astronomy Laboratory 1 hr.
The laboratory exercises include studying atomic spectra, classifying stars, determining the orbit of the moon, calculating the recessional velocities of distant galaxies, etc. Algebra and trigonometry are required to do many of the exercises. Recommended for students majoring in the physical sciences. This course should be taken concurrently with PHYS 104.
PHYS 104 Introductory Astronomy 3 hrs. Fall, Winter
The aim of 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 majoring in the physical sciences or mathematics are advised to take PHYS 103 also.

PHYS 106 Elementary Physics 4 hrs. Fall, Winter
This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring four credit hours at the level of general college physics. This course consists of four lectures and one two-hour laboratory per week. A student may not receive credit for both 106 and either 110 or 210.

PHYS 110 General Physics I 4 hrs. Fall, Winter, and Spring
This course surveys physics from mechanics to modern physics in one semester. It is designed for students in curricula requiring four credit hours at the level of general college physics. The course consists of four lectures and one two-hour laboratory per week. A student may not receive credit for both 106 and either 110 or 210.

PHYS 111 General Physics II 4 hrs. Fall, Winter, and Summer
This course follows 110 and consists of studies in electricity, magnetism, light and atomic and nuclear physics. Prerequisite: PHYS 110.

PHYS 130 Social Issues and Physical Science (see General Studies)
PHYS 210 Mechanics and Heat 4 hrs. Fall, Winter, and Spring
This first course of a sequence of three in general college physics employs 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 PHYS 110 and PHYS 210.

PHYS 211 Electricity and Light 4 hrs. Fall, Winter, and Summer
This course follows 210 and consists of studies in electricity, magnetism, and light. Prerequisite: PHYS 210 or consent of instructor. A student may not receive credit for both PHYS 110 and PHYS 211.

PHYS 221 Introductory Modern Physics 4 hrs. Fall, Winter
This course, with PHYS 210 and PHYS 211, completes the sequence by 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 per week. Prerequisite: PHYS 211 or consent of instructor.

PHYS 242 Mechanics and Heat Problems 1 hr.
This course is intended for those who have had PHYS 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 with the mathematical rigor required in PHYS 210. This course plus PHYS 110 is equivalent to PHYS 210. Prerequisites: PHYS 110 General Physics I or equivalent, MATH 123 concurrently, or consent of instructor.
PHYS 215 Electricity and Light Problems
1 hr. Winter
This course is intended for those who have had PHYS 211 General Physics II, or its equivalent at another school, and who need to show credit in PHYS 215. The emphasis is on methods of instruction. Practical methods of instruction are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisite: PHYS 211 or equivalent. PHYS 215 may be elected concurrently with PHYS 211.

PHYS 216 Special Problems
1-3 hrs. Winter
In this course a student works on a laboratory project or a reading project under the direction of a member of the faculty. Prerequisite: Consent of instructor.

PHYS 217 Analytical Mechanics
3 hrs. Fall
The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisite: PHYS 211 and either MATH 274 or 374. The mathematics course may be taken concurrently.

PHYS 305 Electricity and Magnetism I
3 hrs. Winter
This is a theoretical course providing a thorough investigation of electric and magnetic fields. The application of theoretical and experimental results is emphasized, and Maxwell's equations are developed. Prerequisite: PHYS 211 and either MATH 274 or 374, or consent of instructor.

PHYS 306 Electricity and Magnetism II
3 hrs. Winter
This course is a continuation of PHYS 305 and is elective for majors wishing advanced work in field theory. Maxwell's equations and their applications are studied, and wave guides and radiation are considered. The principal topics of the course. Prerequisite: PHYS 305.

PHYS 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.

PHYS 342 Electronics
4 hrs. Winter
This course deals with analysis of the more important transistor and integrated circuits and includes practical experience in the laboratory. There are three lectures and one 3-hour laboratory per week. Prerequisite: PHYS 211.

PHYS 344 Microprocessor Electronics
3 hrs. Fall
This introductory course explores the use of modern instrumentation in physics; the use of computers, computer circuits, and basic techniques for physical measurement are included. One lecture and four hours of laboratory weekly. Prerequisite: PHYS 211.

PHYS 352 Optics
3 hrs.
This is an introductory course in geometrical and physical optics in which the main topics covered are reflection, refraction, lenses, mirrors, aberrations, simple optical instruments, wave motion, interference, diffraction, and polarization. Lasers, fiber optics, holography, and image processing are covered qualitatively as time permits. Two lectures and one two-hour laboratory per week. Prerequisite: PHYS 211.

PHYS 498 Special Problems
1-3 hrs. Winter
In this course a student works on a laboratory project or a reading project under the direction of a student. Prerequisite: Consent of instructor.

PHYS 520 Analytical Mechanics
3 hrs. Fall
The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently, and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisite: PHYS 211 and either MATH 274 or 374. The mathematics course may be taken concurrently.

PHYS 540 Electricity and Magnetism I
3 hrs. Winter
This is a theoretical course providing a thorough investigation of electric and magnetic fields. The application of theoretical and experimental results is emphasized, and Maxwell's equations are developed. Prerequisite: PHYS 211 and either MATH 274 or 374, or consent of instructor.

PHYS 541 Electricity and Magnetism II
3 hrs. Winter
This course is a continuation of PHYS 540 and is elective for majors wishing advanced work in field theory. Maxwell's equations and their applications are studied, and wave guides and radiation are considered. The principal topics of the course. Prerequisite: PHYS 540.

PHYS 550 Quantum Mechanics
3 hrs. Winter
In this course the development of quantum mechanics is traced and simple applications of the theory are discussed. Topics include cavity radiation, the photoelectric effect, deBroglie waves, the Rutherford-Bohr atom, the uncertainty principle, the Schrödinger equation with solutions, the coupling of angular momenta, and perturbation theory. Prerequisite: PHYS 211 and 520 or consent of instructor.

PHYS 551 Quantum Physics
4 hrs. Winter
This course is the same as PHYS 550 except that a laboratory is included. Students may not receive credit for both PHYS 550 and 551. Prerequisite: PHYS 520 or consent of instructor.

PHYS 560 Quantum Mechanics
3 hrs. Winter
This course is an introduction to quantum physics. Topics include the helium atom, multielectron atoms, the Raman, Zeeman, and Stark effects, stimulated emission, transition rates, selection rules, the diatomic molecule, and molecular physics. Prerequisite: PHYS 560, 561 or consent of the instructor.

PHYS 561 Quantum Solid State Physics
3 hrs. Fall
After an initial study of symmetry and crystal structure, quantum mechanics is used to describe the cohesion of solids, x-ray and neutron diffraction, the elasticity of solids, lattice vibrations, and the thermal and electrical properties of solids, with particular emphasis on metals. Prerequisite: PHYS 560, 561 or consent of the instructor.

PHYS 564 Nuclear and Particle Physics
3 hrs. Winter
This course covers such topics as properties of nuclei, collision theory, nuclear reactions, nuclear models, fundamental interactions, and classification techniques used in particle physics. Discussions of experimental methods as well as theoretical treatments using quantum mechanics are included. Prerequisite: PHYS 560, 561 or consent of the instructor.

PHYS 570 Relativity
3 hrs.
This course is primarily devoted to the special theory of relativity. Topics include the Lorentz transformation, space-time diagrams, mechanics of systems of point masses, collisions, electromagnetism, and conservation laws. An introduction to the general theory of relativity will also be given. Prerequisite: PHYS 520 (may be taken concurrently).

PHYS 585 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.
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 action to other social sciences. Students who wish to major or minor in political science or public administration should consult the department office as soon as possible to complete the appropriate declaration form and to consult with a departmental adviser.

Programs of study offered by the department include: (1) the standard major and minor in political science; (2) the major in political science with a public law concentration; (3) the major in political science with a public policy concentration; (4) a major and minor in public administration; and (5) a teaching major and minor in political science.

Major and Minor in Political Science

MAJOR
The major consists of a minimum of 30 semester hours of work in the department. It is expected that transfer students will take at least one-half of the minimum required 30 hours in the department. The following are required courses for majors:
- 200 National Government
- 250 International Relations
- 340, 341, 342, 343 or 344 Foreign and Comparative Political Systems (choose one)
- 360, 361, 362, 562, 563, or 564 Political Theory (choose one)

Students who may become majors are encouraged to take 100, Introduction to Political Science as their first course in the department during their freshman year.

MINOR
The standard Political Science Minor consists of 20 semester hours in Political Science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A Political Science minor shall complete PSCI 200 National Government and PSCI 250 International Relations.

Requirements may be waived with the written permission of the chairperson of the department.

Public Policy Concentration
This concentration is available within the Political Science Major for students with particular career and/or advanced degree interests in this field. The concentration provides for students completing the program to receive instruction of this specialization on their Permanent Record Card. The concentration in Public Policy is aimed at preparing students for careers in government service at national, state, and local levels, and in politics.

Students interested in a major in Political Science with a Concentration in Public Policy should see one of the department’s advisers. To complete the major, a student must complete the following:

MAJOR (33-34 hrs.)
I. Required core (10 hrs.)
- PSCI 200 National Government
- PSCI 202 State and Local Government

One theory course to be chosen from:
- PSCI 362 Contemporary Political Theory
- PSCI 363 American Political Theory
- PSCI 562 Modern Democratic Theory

II. Methodology (6 hrs.)
Two courses to be chosen from:
- PSCI 564 Introduction to Political Analysis
- PSCI 572 Computer Applications
- PSCI 590 Research Methodology
- PSCI 591 Statistics for Pol. Scientists

III. Policy Applications and Institutions (16 hrs.)
Required:
- PSCI 304 Intro. to Public Policy
- PSCI 505 National Public Policy
- PSCI 535 Budgeting and Finance

One course from List A:
- PSCI 300 Urban Politics
- PSCI 306 Environmental Politics
- PSCI 350 American Foreign Policy
- PSCI 504 Making Public Policy
- PSCI 526 Administrative Law and Public Reg.

One course from List B below OR from the courses not already selected from List A above:
- PSCI 314 The Presidency
- PSCI 315 Politics of Congress
- PSCI 320 American Judicial Process

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 (387-5697). To complete the concentration within political science, a student must:

A. Complete the required core for the Major (14 hrs.):
- PSCI 200 National Government
- PSCI 250 International Relations

B. Complete PSCI 320 American Judicial Process (4 hrs.)

C. Complete THREE of the following courses (9 hrs.):
- PSCI 325 Criminal Justice Policy
- PSCI 520 Constitutional Law
- PSCI 522 Civil Liberties and Civil Rights
- PSCI 526 Administrative Law and Public Regulation
- PSCI 555 International Law

D. Complete at least one additional course (minimum of 3 hrs.) from the remaining courses in the Political Science Department to produce a minimum of 30 hours of political science courses. The chosen courses may include one of the courses not selected in C above.

E. Complete THREE of the following courses (9-10 hrs.):
These courses cannot be substituted for any of the requirements in A-D above.
- PSCI 526 Administrative Law and Public Regulation
- PSCI 533 Public Personnel Admin.
- PSCI 535 Politics of Governmental Budgeting and Finance
- HIST 301 Law and Justice in Western Civilization

Programs in Public Administration
These programs are designed to prepare students for entrance level positions in public and public-related agencies by equipping them with a knowledge and understanding of the political, social, economic, and legal environment of public agencies, by introducing them to operational and procedural problems of public agencies, and by providing them with an understanding of selected administrative tools.

The major in public administration has an interdisciplinary focus, which includes required courses in accounting, computers, economics, and statistics as well as political science. Internships which permit students to assist public administrators in their work are available. Credits can be obtained in these internships. All students who elect the public administration programs are to complete a major or minor card in consultation with a public administration adviser in the Department of Political Science. The student must consult with an adviser upon entering the program. The political science major program in public administration (Curriculum PAP) requires 40 semester credit hours divided between (1) a 34-semester-hour core of required courses; and (2) 6 hours of electives.

MAJOR
Required Core
- PSCI 200 National Government
- PSCI 202 State and Local Government
- PSCI 330 Intro. to Public Admin.
- PSCI 533 Public Personnel Admin.
- PSCI 535 Politics of Governmental Budgeting and Finance

2. ECON 201 Principles of Economics
- ECON 202 Principles of Economics
MINOR
A teaching minor consists of 20 semester hours of work in Political Science. It is expected that transfer students will take at least one-half of the minimum required 20 hours in the department. A teaching minor shall complete PSCI 200 National Government and PSCI 202 State and Local Government.

GROUP SOCIAL SCIENCE
Students in the secondary education curriculum who major in Political Science must also complete the SED minor in group social science. Refer to the "Interdisciplinary Program" section of this catalog for a description of the minor requirements.

Honors Program
The honors program in political science provides an opportunity for students to earn the bachelor's degree with honors in political science. To be eligible, a student must have sophomore standing, a better than "B" average, and a willingness to do original and independent work. Students interested in the program should consult the departmental honors advisor, Dr. Alan C. Isaak.

Institute of Government and Politics
The Department of Political Science houses and administers the Institute of Government and Politics (IGP). The mission of IGP is multidimensional. It is organized to serve the professional needs of the Department of Political Science in their varied fields of interest and specialization. It will assist in meeting the needs of the department's student body by extending their educational experiences beyond the confines of the classroom. IGP also reaches out into the larger community, to the university, its immediate environment, the state and national scene, as well as the international arena. In this regard, IGP gives particular attention to the practical applications of political science training. It is therefore charged with the development of relationships between the Department of Political Science and the various colleges, departments, and programs comprising the University.

For further information, see Dr. Lawrence Ziring, Director, Institute of Government and Politics, Friedmann Hall (387-5702).

Courses By Topic

PRINCIPLES
100 Introduction to Political Science
270 Political Topics

AMERICAN POLITICAL SYSTEM
200 National Government
202 State and Local Government
210 Citizen Politics
300 Urban Politics in the United States
304 Introduction to Public Policy
306 Environmental Politics
310 Political Parties and Elections
314 The Presidency
315 The Politics of Congress
320 The American Judicial Process
325 Criminal Justice Policy
504 Making of Public Policy in the U.S.
505 National Public Policy
506 Problems of American Government
516 Political Campaigning
520 Constitutional Law
522 Civil Liberties and Civil Rights
526 Administrative Law and Public Regulation

PSCI 100 Introduction to Political Science
3 hrs.

PSCI 200 National Government
3 hrs.

PSCI 202 State and Local Government
4 hrs.

An introductory survey of American national government. This course introduces the basic principles and theories of American government, explores the political process, describes the structure, and illustrates its functions.

PSCI 202 State and Local Government
4 hrs.

A study of the institutions, the problems and the politics of policy making at the state and local levels in the United States. Consideration is given to the changing relations of state and
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSCI 210</td>
<td>Citizen Politics</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 250</td>
<td>International Relations</td>
<td>4 hrs.</td>
<td>A study of the nature of the international community and the forces which produce cooperation or conflict. Particular attention is given to analyzing power in terms of its acquisition and uses.</td>
</tr>
<tr>
<td>PSCI 270</td>
<td>Political Topics</td>
<td>1-3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 300</td>
<td>Urban Politics in the United States</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 304</td>
<td>Introduction to Public Policy</td>
<td>3 hrs.</td>
<td>An introduction to the U.S. public policy process through the use of general models and case studies. Various inputs of power and influence are analyzed as proposals are considered in policy-making institutions. The roles of public officials, interest groups, lobbyists, opinion leaders, experts and others are analyzed. Evaluations of policies are made with respect to their perceived need, appropriateness and effectiveness. Prerequisite: PSCI 200.</td>
</tr>
<tr>
<td>PSCI 306</td>
<td>Environmental Politics</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 310</td>
<td>Political Parties and Elections</td>
<td>3 hrs.</td>
<td>A study of the nature of politics, the organization and function of political parties and elections, and the elective process in the U.S.</td>
</tr>
<tr>
<td>PSCI 314</td>
<td>The Presidency</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 315</td>
<td>The Politics of Congress</td>
<td>3 hrs.</td>
<td>Examinations of the internal arrangements and the outside forces that impact upon the operations of the legislative process. Emphasis is placed on explaining why Congress behaves as it does.</td>
</tr>
<tr>
<td>PSCI 320</td>
<td>The American Judicial Process</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 325</td>
<td>Criminal Justice Policy</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 330</td>
<td>Introduction to Public Administration</td>
<td>3 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 340</td>
<td>West European Political Systems</td>
<td>4 hrs.</td>
<td>Considers the organization, political behavior and decision making processes of the major countries of West Europe, including Britain, France and Germany. Political trends and forces challenging and reshaping democratic institutions are examined.</td>
</tr>
<tr>
<td>PSCI 341</td>
<td>African Political Systems</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 342</td>
<td>The People and Politics of Asia</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 343</td>
<td>Latin American Political Systems</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 344</td>
<td>Soviet and East European Political Systems</td>
<td>4 hrs.</td>
<td>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.</td>
</tr>
<tr>
<td>PSCI 350</td>
<td>American Foreign Policy</td>
<td>4 hrs.</td>
<td>An analysis of the institutions and processes by which the American president, and the president's cabinet, determine and seek to achieve the national interest of the United States in the international community.</td>
</tr>
<tr>
<td>PSCI 360</td>
<td>Introduction to the History of Political Theory I: Political Theory to Thomas Hobbes</td>
<td>3 hrs.</td>
<td>A survey of political philosophy as it developed in Classical Greece, Rome, Medieval Europe, the Renaissance and the Renaissance. Emphasis placed on comparative analysis of political philosophies as they reflect the rich diversity of cultural conditions of these periods. No prerequisite.</td>
</tr>
<tr>
<td>PSCI 361</td>
<td>Introduction to the History of Political Theory II: Political Theory from Thomas Hobbes to Karl Marx</td>
<td>3 hrs.</td>
<td>A survey of political philosophy from the seventeenth century to the middle of the nineteenth. Emphasis upon the great individual philosophers of this period and the early development of the major ideological systems of the modern period: conservatism, liberalism and socialism. No prerequisites.</td>
</tr>
<tr>
<td>PSCI 362</td>
<td>Theoretical and Ideological Bases of Contemporary Politics</td>
<td>3 hrs.</td>
<td>A survey of the more significant developments beginning with the confrontation between socialism and liberalism and concluding with an analysis of those theories and ideologies that have emerged in our own times. No prerequisites.</td>
</tr>
<tr>
<td>PSCI 363</td>
<td>American Political Theory</td>
<td>4 hrs.</td>
<td>An expository and critical analysis of American political thought from the Puritans to the contemporary period, with primary emphasis on concepts of democracy, liberty, and property, and on varieties of liberalism and conservatism.</td>
</tr>
<tr>
<td>PSCI 370</td>
<td>Issues in Contemporary Politics</td>
<td>3 hrs.</td>
<td>This course is designed for the study of contemporary political problems. It is intended to provide opportunity for the study of political phenomena normally beyond the scope of regular departmental offerings. Essentially the course relates the theory and principles of political science to practical politics. The course may be applied to the appropriate field distribution requirement. Topics will vary from semester to semester. Students may repeat the course for credit.</td>
</tr>
<tr>
<td>PSCI 390</td>
<td>Field Work in Political Science</td>
<td>1-12 hrs.</td>
<td>An opportunity for students of Political Science or Public Administration to test theoretical and practical knowledge in an internship situation under the supervision of a faculty sponsor and a public or public-related official. Students wishing to apply must have a minimum of fifteen hours in Political Science and department approval before registering. Approved application required. Graded on a Credit/No Credit basis.</td>
</tr>
<tr>
<td>PSCI 391</td>
<td>Internship Seminar</td>
<td>3 hrs.</td>
<td>An undergraduate seminar taken in conjunction with Field Work in Political Science (PSCI 390). An emphasis will be placed on readings that analyze the administrative realm and also focus on recent political, economic, and social developments. Interns also will discuss their field experiences. Department approval must be obtained to enroll for this seminar.</td>
</tr>
<tr>
<td>PSCI 490</td>
<td>Political Science Honors Seminar</td>
<td>3 hrs.</td>
<td>An undergraduate seminar for honor students and others admitted by consent of the Department Honors Committee. The content of the seminar varies and will be announced in advance. May be repeated for credit. Admission by permission of the Department Honors committee.</td>
</tr>
<tr>
<td>PSCI 492</td>
<td>Political Science Honors Research</td>
<td>2-3 hrs.</td>
<td>Honor students, with the guidance of a faculty advisor, conduct research and write the Honors Paper on a topic of individual interest. Prerequisite: Membership in the Political...</td>
</tr>
</tbody>
</table>
An examination of the components of the public personnel system: recruitment, advancement, salary, training, evaluation, human motivation, affirmative action, unionism, and pension plans. Emphasis on the skills and techniques required of a good personnel manager.

PSCI 534 Administrative Theory 3 hrs.
A study of descriptive theories of organizational and administrative behavior relevant to governmental administrative agencies. Theories of complex formal organization, decisional theories and systems theories will be analyzed.

PSCI 535 The Politics of Governmental Budgeting and Finance 3 hrs.
A survey of the political process of governmental budgeting and finance. Budget Systems, including program planning and budgeting systems, are studied. The politics of taxation and other governmental revenues, including intergovernmental financial systems, are studied for their impact on public policy choices.

PSCI 536 Comparative Public Administration 3 hrs.
This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. Various theoretical models of administration and bureaucracy are compared with current practice in Western Europe, North America, the Soviet Union, and in contemporary Asian and African systems.

PSCI 541 Comparative Political Systems 3 hrs.
A study of the principal types of political systems. The course examines, comparatively and theoretically, governmental institutions, political processes, political behavior, and political development.

PSCI 542 Administration in Developing Countries 3 hrs.
A consideration of the relation of administrative structure and function to the political, economic and social problems of the developing countries. Special attention is given to the role of the bureaucracy in the political system and the nature of, and obstacles to, administrative modernization.

PSCI 549 Problems of Foreign Political Systems 3 or 4 hrs.
Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated.

PSCI 552 Studies in International Relations 3 or 4 hrs.
Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. Course may be repeated.

PSCI 553 United Nations 3 hrs.
A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e. functional and dysfunctional aspects of the UN Charter; nationalism vs internationalism within the UN; conflict resolution and UN peacekeeping efforts; specific UN accomplishments in maintaining a dynamic international equilibrium, UN weakness and the future of world organization.
PSYCHOLOGY

David O. Lyon, Chair
Galen J. Alesse
Eston J. Asher
Dale M. Brethower
M. Michele Burnette
Allyce M. Dickinson
Howard E. Farris
R. Wayne Fuqua
Frederick P. Gaunt
Bradley E. Hultema
Neil D. Kent
Chris Koronakos
Marylin K. Malott
Richard W. Malott
Jack L. Michael
John E. Nangle
Alan Poling
William K. Redmon
Malcolm H. Robertson
Richard C. Tsegaye-Spates
Roger E. Ulrich

Pre-Psychology Major (PPY)

Admission requirements
Any freshman or transfer student planning to pursue psychology as a major will be admitted as a pre-psychology student (PPY) and will work with a psychology adviser to develop a planned program. Admission as a major requires that the student complete PSY 100, 160, and 250, all with grades of “C” or better. Transfer students who present appropriate psychology courses will be evaluated and may be admitted on an individual basis directly into the program. Transfer students with no psychology courses will be required to take PSY 100, 160, and 250, and receive a grade of “C” or better in each course. Application forms and additional information can be obtained from the departmental office, 255 Wood Hall, or from a psychology adviser. Students who do not meet admission requirements will be informed of steps they can take to earn admission. Admission of students on a probationary status to the psychology major will be considered on an individual basis.

Psychology Major, Arts and Sciences Curriculum

37 hours

Introduction Core (9 hrs.)
PSY 100 General Psychology .................. 3
PSY 160 Child Psychology .................. 3
PSY 250 Abnormal Psychology .................. 3

Method and Theory Core (13 hrs.)
PSY 300 Statistics for the Behavioral Sciences .................. 3
PSY 330 Methodology of Behavior Analysis Concepts .................. 3
PSY 360 Concept and Principles of Behavior Analysis .................. 4
PSY 460 Survey of Behavior Analysis Research .................. 3

Practicum and Laboratory Experience (3-6 hrs.)
Take one of the 3 hr. practicum courses or take one of the 6 hr. lecture-laboratory combinations.

Practicum courses:
PSY 267 Practicum: Child Psychology ........ 3
PSY 347 Practicum: Learning and Self-Management ........ 3
PSY 357 Practicum: Special Populations ........ 3
PSY 367 Practicum: Child Care ........ 3

PSY 387 Practicum: Direct Instruction ........ 3
PSY 397 Practicum in Psychology ........ 3
Lecture-Laboratory Combinations
PSY 362 and 368 Conditioning and Learning ........ 3/3
PSY 372 and 378 Physiological Psychology ........ 3/3
PSY 570 and 578 Mental Retardation ........ 3/3
Electives (9-12 hrs.)
PSY 344 Organizational Psychology ........ 3
PSY 464 Systems and Theories ........ 3
PSY 374 Toward Experimental Living ........ 3
PSY 512 Behavioral Pharmacology and Toxicology ........ 3
PSY 513 Animal Behavior ........ 3
PSY 517 Psychology of Learning for Teachers ........ 3
PSY 518 Research in Stimulus Control and Perceptual Processes ........ 3
PSY 524 Human Sexuality ........ 3
PSY 535 Instrumentation and Computer Use in Psychology ........ 3
PSY 560 Behavioral Medicine ........ 3
PSY 562 Management of Health Related Behaviors ........ 3
PSY 574 Experimental Social Psychology ........ 3

Also, any of the courses listed under Practicum and Laboratory Experience that were not taken to fulfill that requirement may be taken as electives. This includes any of the practicum courses as well as PSY 570 which can be taken without taking the related laboratory course, 578 (but 578 cannot be taken without having taken 570). Note that 382 and 372 can not be taken without simultaneous enrollment in the related laboratory course.

Acceptable minors: anthropology, biology, chemistry, communication, economics, English, linguistics, mathematics, philosophy, physics, political science, sociology, social work, and others approved by the department adviser.

PSYCHOLOGY MAJOR, SECONDARY EDUCATION OPTION

Students who plan to obtain a secondary school teaching certificate must complete the required courses in the Arts and Sciences Psychology Major (which must include one of the practicum courses—267, 347, 357, 367, 387, or 397) and must also complete Psychology 517. These students are urged to complete teachable minors in one of the sciences or mathematics although other teachable minors may be approved by the department adviser.

Minor Options

A student who elects to minor in psychology has two options. (a) the arts and sciences psychology option and (b) the secondary education psychology option. The requirements for each of these options are summarized in the tables below.

ARTS AND SCIENCES PSYCHOLOGY MINOR OPTION

A minimum of 18 hours
PSY 100 General Psychology ........ 3
or
PSY 150 Introduction to Human Behavior ........ 3
and in addition
PSY 160 Child Psychology ........ 3
PSY 250 Abnormal Psychology ........ 3
Approved electives: 300, 330, 344, 360, 460, 464, 3 hours of practicum (267, 347, 357, 367, 387, 397), 6 hours from lecture/laboratory combinations (362/368, 372/378, 570/578).

SECONDARY EDUCATION PSYCHOLOGY MINOR
Students who plan to obtain a secondary school teaching certificate with psychology as a teachable minor must complete the arts and sciences psychology minor (which must include one of the practicum courses—267, 347, 357, 367, 387, or 397) but in addition must take PSY 517.

Honors Program in Psychology
The honors program is designed to promote an academic community of undergraduate students, graduate students and faculty in psychology. The requirements for the departmental honors program include:
1. The completion of a major in Psychology.
2. A University grade point average of 3.5, and a department grade point average of 3.8.
3. Completion of PSY 499, Honors Project in Psychology (6 credit hours) and the preparation of an Honors Thesis.
4. The successful defense of the Honors Thesis before a departmental committee.
5. Participation in a professional apprenticeship program (2 credit hours).

Psychology Courses (PSY)
(Course described in italics is approved for General Education.)
PSY 100 General Psychology
3 hrs.
An eclectic approach to a social and behavioral survey of major topics in psychology, including learning, motivation, intelligence, personality, mental illness, and social relations. Approved for General Education.

PSY 150 Introduction to Human Behavior
3 hrs. Fall, Winter
An introduction to general psychology from the point of view of humanistic behavioralism: the use of the science of behavior to help people achieve their full potential as human beings. Emphasizes how the environment has a major influence on the way we are and how the environment can be changed so that we can become the kind of people we wish. Open to first year students.

PSY 155 Teaching Apprenticeship in Introductory Psychology
2-4 hrs. Fall, Winter
A laboratory course in the instructional methods of teaching introductory psychology. Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 160 Child Psychology
3 hrs. Fall, Winter
An introduction to behavior principles in the analysis of complex behavior with an emphasis upon early childhood learning and the techniques for teaching the child at home and at school. Topics include mental retardation and behavioral assessment. Prerequisite: An introductory psychology course.

PSY 165 Teaching Apprenticeship in Child Psychology
2-4 hrs. Fall, Winter
A laboratory course in the instructional methods of teaching child psychology. Prerequisite: Consent of instructor. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 197 Special Programs in Psychology
1-3 hrs.
The department of psychology offers special programs of study for students at academic risk in the University. The program follows a Learning to Learn curriculum which is supervised by advanced students enrolled in a practicum course.

PSY 250 Abnormal Psychology
3 hrs. Fall, Winter
An introduction to the description, classification and interpretation of human behavior labeled by society as "abnormal" with an emphasis upon the social variables and environmental conditions related to the acquisition and persistence of such behavior.

PSY 255 Teaching Apprenticeship in Abnormal and Social Psychology
2-4 hrs. Fall, Winter
A laboratory course in the instructional methods of teaching abnormal psychology. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 267 Practicum in Child Psychology
3 hrs. Fall, Winter
Supervised experience in the application of the principles of behavior analysis to early childhood learning. The Child Development Center is the site of this practicum. The Center provides accelerated education, nutrition, health and physical education programs. Students learn the techniques of direct instruction and other programs while serving as apprentice teachers. Prerequisite: PSY 100 or 150.

PSY 300 Statistics for the Behavioral Sciences
3 hrs. Fall, Winter
Interpretation and application of descriptive and inferential statistical techniques necessary in the understanding of data presentations in behavioral research. Major topics include: measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square and correlation.

PSY 330 Methodology of Behavior Analysis
3 hrs.
An examination of the problems approached and of the methodologies utilized in applications of behavior analysis. Extensive readings in recent literature of applied behavior analysis introduce the student to current issues in the field. Prerequisite: PSY 300 or consent of instructor.

PSY 344 Organizational Psychology
3 hrs.
This course focuses on performance management and improvement techniques that are based on the principles of behavioral psychology. Environmental change strategies are emphasized. While the course focuses on behavioral applications in the work environment, other theoretical orientations are surveyed. Topics covered include personnel management, employee motivation, job satisfaction, the effects of compensation practices on employee behavior, and leadership. Prerequisite: PSY 100.

PSY 347 Practicum: Learning and Self-Management
3 hrs.
Supervised experience in the application of principles of behavior analysis to college learning and academic self-management. The site of this practicum is The Center for Research in Learning and Self-Management (Psychology Department).

PSY 355 Teaching Apprenticeship in Statistics
2-4 hrs. Fall, Winter
A laboratory course in the instructional methods of teaching elementary statistics. May be repeated for credit, but does not fulfill major/minor requirements.

PSY 357 Practicum with Special Populations
3 hrs. Fall, Winter
Supervised experience in the application of principles of behavior analysis to special populations. The Croyden Avenue School, which is the site of this practicum, provides an educational program for the developmentally disabled and the multiply-handicapped. Students serve as tutors in behavior change and training programs. Prerequisite: PSY 250.

PSY 360 Concepts and Principles of Behavior Analysis
4 hrs.
Concepts and principles of behavior analysis are derived from basic human and non-human research. Empirical and theoretical issues related to habilitation, respondent conditioning, operant conditioning, and the control of operant behavior by motivational and emotional variables. An introductory laboratory accompanies the lecture portion of the course. Prerequisites: PSY 100, 150, 250, and 300.

PSY 362 Experimental Analysis of Behavior
3 hrs.
An advanced level coverage of respondent and operant behavior. There is an emphasis upon research design, the theoretical interpretation of data, experimental methodology and the techniques of response measurement. Prerequisite: PSY 300. Concurrent enrollment in PSY 368 is required.

PSY 367 Practicum in Child Care
3 hrs. Fall, Winter
Supervised practicum at the Kalamazoo Learning Village. This course is designed to provide experience in all aspects of the conduct of a day care center. The daily schedule at the Village is combined with readings in developmental psychology, child abuse and early childhood learning. Prerequisite: PSY 160.

PSY 368 Laboratory in Experimental Analysis
3 hrs. Fall
An advanced laboratory emphasizing the variations in response measurement and experimental methodology in research areas within operant conditioning. Research design, data analysis and description, as well as professional writing are stressed. Concurrent enrollment in PSY 362 is required.

PSY 372 Physiological Psychology
3 hrs. Winter
An introduction to physiology and its relationship to behavior, including brain-behavior interactions, the effects of neurochemical changes and behavioral changes induced by chemical alterations. Lecture only. Concurrent enrollment in PSY 378 is required.

PSY 374 Toward Experimental Living
3 hrs.
A comparison of complex social structures with an emphasis upon social ethics and the design of communities. Visits to experimental communities may be included. Prerequisite: 6 hours of psychology or permission of instructor.
PSY 378 Laboratory in Physiological Psychology
3 hrs. Winter
An intermediate laboratory and companion to PSY 372 emphasizing the acquisition of laboratory techniques, surgical skills and research methodology in physiological psychology and brain behavior interactions. Laboratory procedures, research methodology, data analysis and professional writing are stressed. Concurrent enrollment in PSY 372 is required.

PSY 387 Practicum in Behavior Analysis in Education
3 hrs. Fall
Supervised experience in the application of the principles of behavior analysis to remedial education. Project HELP, which is the site of this practicum, is designed to provide remedial education to school-age children in math and reading using the techniques of direct instruction. This course teaches the techniques of direct instruction and provides tutorial experience. Prerequisite: 9 hours of psychology.

PSY 388 Practicum in Psychology
3 hrs. Fall, Winter
Supervised experience at a community based mental health site as announced in the schedule of classes or as approved by the undergraduate adviser. Corresponding seminar sessions provide structure and integration of the experience with other practicum experience. This course may be repeated for credit with different experiences. Prerequisite: Permission of instructor.

PSY 389 Independent Study
1-5 hrs. Fall, Winter
This course provides the undergraduate student with the opportunity for independent reading and/or research under the direction of a Department staff member. Written permission must be obtained on forms available in the department office. May be repeated for credit up to 12 hours.

PSY 480 Survey of Behavior Analysis Research
3 hrs. Fall
An overview of diverse topics of behavior analysis research and applications. Topics include animal psychology, child psychology, behavioral medicine, environmental quality, mental retardation, education and geriatrics. Prerequisite: PSY 380.

PSY 484 Systems and Theories in Psychology
3 hrs. Fall
A critical examination of the assumptions, methods and problems of several major schools of psychology: Structuralism, Functionalism, Associationism, Behaviorism, Gestalt Psychology and Psychoanalysis. Prerequisite: 9 hours of psychology.

PSY 489 Honors Projects in Psychology
1-6 hrs.
Independent study and research projects completed under the supervision of a faculty member and coordinated with the Department Honors Program. Prerequisite: Permission of instructor.

Open to Advanced Undergraduate and Graduates Students
PSY 510 Advanced General Psychology
3 hrs. Winter
Readings, lecture and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Prerequisite: Permission of instructor.

PSY 512 Behavioral Pharmacology and Toxicology
3 hrs. Winter
Topics range from the use of drugs to clarify behavioral principles to the use of behavioral preparations to discern pharmacological effects. Readings include summaries of pharmacological evidences and selected experimental reports concerning both the behavioral techniques and pharmacological problems in basic research. Prerequisite: 9 hrs. of Psychology, permission of instructor or enrollment in SPADA program.

PSY 513 Research in Animal Behavior I
3 hrs.
Research in various areas of animal behavior. An individual research project is required with emphasis on animal learning processes. Research design, data collection, analysis and reporting are included.

PSY 517 Psychology of Learning for Teachers
3 hrs. Fall, Winter
Designed to teach the principles of behavior and the application of these principles to teaching. Topics include the use of behavior principles in the development of objectives, selection and preparation of instructional material, classroom management and incentive motivation, behavior change, performance contracting and program evaluation. Practical application is stressed.

PSY 518 Stimulus Control and Perceptual Processes
3 hrs.
An examination of the literature surveying sensory and perceptual processes with an emphasis upon the research methodology in, and theoretical interpretation of data from studies of stimulus control and discrimination in non-human organisms. Prerequisite: 9 hours of psychology or permission of instructor.

PSY 519 Corrective and Remedial Teaching
3 hrs.
An introduction to and survey of various content skills, curriculum approaches and special teaching techniques used in elementary school reading and mathematics instruction. Designed primarily for prospective school psychologists. Focus is on academic skill content, sequencing of skill hierarchies, devising short term educational plans to teach specific skills and evaluating the effectiveness of such plans. Prerequisite: Graduate standing in psychology, education or permission of instructor.

PSY 524 Human Sexuality
3 hrs. Fall
Discussion of those human behaviors concerned with sex, sexuality and reproduction. Consideration is given to the anatomical and psychological properties of sexual functioning in male and female. Emphasis is placed upon the sexual response cycle as described by Masters and Johnson. The course is not intended to provide therapy training.

PSY 525 Human Drug Use and Abuse
3 hrs.
This course provides a general overview of basic pharmacological principles, discusses the behavioral and physiological mechanisms of action of several classes of medicinal and recreational drugs, and surveys the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, non-human research findings will be emphasized where appropriate.

PSY 530 Statistics for the Behavioral and Health Sciences
3 hrs.
An introduction to statistical procedures, concepts, and reasoning with applications to the behavioral and health sciences. Topics include: measures of central tendency and variability, frequency distributions, and graphic presentations, the normal curve, probability theory, the binomial, hypothesis testing, the t-test, chi square, correlation, regression and an introduction to analysis of variance.

PSY 535 Instrumentation and Computer Use in Psychology
3 hrs. Fall, Winter
A survey of problems of response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

PSY 542 Human Factors Engineering
3 hrs.
A survey of research on the adaptation of equipment, products and environment to human capacities. Cross listed with EIGM 542.

PSY 560 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on in-patient treatment. Sample topics include bio-feedback, pain control, compliance with medical regimens and issues of work in a medical setting.

PSY 562 Management of Health-Related Behaviors
3 hrs.
A behavior analysis approach to the management of behaviors directly and indirectly affecting health. Emphasis will be placed on out-patient, public health applications and preventive approaches in health maintenance.

PSY 570 A Behavior Analysis Approach to the Area of Retardation
3 hrs. Fall
Topics will include: Historical background, assessment, training and legal implications of treatment.

PSY 574 Experimental Social Psychology
3 hrs.
Methodology of research with groups of animals and humans with emphasis upon design, application and ethical implications. Prerequisite: Permission of the instructor.

PSY 578 Research Practicum: Developmentally Disabled Population
3 hrs.
Supervised experience at the Croyden Avenue School which offers an educational program for the developmentally disabled. This course involves a variety of problems in behavior change and learning which can be studied at the school. The research problems are carefully selected to be beneficial to the client and provide appropriate experience for the student. Data collection and report writing are stressed. Prerequisite: PSY 570 or concurrent enrollment.

PSY 595 History of Psychology
3 hrs. Fall
The historical and philosophical foundations of contemporary American psychology.

PSY 597 Topical Studies in Psychology
2-4 hrs.
A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Permission of instructor. Courses may be repeated for credit although the total number of credits may be limited by the degree program. Students should consult the program adviser. Courses may include the following: Parent Training, Studies in Industrial Psychology.
**PUBLIC AFFAIRS AND ADMINISTRATION**

Fredric J. Mortimore, Director
Ralph C. Chandler
Drew A. Dotan
William F. Grimsnaw
Peter Kobrak
Michael R. Payne
Thomas L. Thompson

The School of Public Affairs and Administration offers courses, seminars, and workshops designed to prepare Master of Public Administration (MPA) and Doctor of Public Administration (DPA) degree candidates for leadership positions with public and independent sector agencies.

**Public Affairs and Administration (PADM)**

Most courses are open to graduate students only, but the following may be taken by undergraduate students whom the School Director deems to be qualified by academic background and/or practical experience.

**PADM 530 Supervisory Skills for Administrators**

3 hrs.

This course includes a consideration of the five most important functions of middle level managers and first line supervisors: decision-making, planning, organizing, leading, and controlling. In order to assist participants develop their supervisory skills, this course utilizes case studies, small group discussions, role playing, simulations, and other practical skill building exercises.

**PADM 531 Policy Leadership in Administration**

3 hrs.

The professional administrator, whether occupying a line or staff position, is increasingly called upon to play a leadership role in formulating policy options. Successful administrators therefore frequently serve as entrepreneurs. In this role they are responsible for designing new and innovative solutions to policy problems. This course is designed to review policy leadership and to analyze the role of entrepreneurship in bringing policy options to the arena of organizational and public debate.

**PADM 532 Program Planning and Proposal Writing**

3 hrs.

This course seeks to build skill in program planning, program management, and proposal writing. The first part of this course will be devoted to the grantsmanship process, including how to: formulate and promote a project concept; prepare the project proposal; submit the project proposal; and follow-up after acceptance or rejection of the proposal. Emphasis will be placed upon the project proposal as an integral component of agency planning, program management, and assessment activities, from both grantor and grantee perspectives. In the second part of this course each participant will prepare a project proposal.

**PADM 572 Computer Applications in Administration**

3 hrs.

Administrators at all levels increasingly rely upon computers to perform the tasks for which they are responsible. Whether to prepare reports, access data, or communicate with others, administrators at all levels of the organizational hierarchy are expected to possess a certain minimum facility with this technology. In this introductory technical core course, MPA degree candidates will become proficient in the administrative uses of computers. For graduate students only.

**PADM 598 Readings in Public Administration**

1-3 hrs.

A program of independent study to provide the well qualified MPA candidate with an opportunity to explore in-depth a topic or problem of interest under the guidance of a faculty member. The end product of this effort may be an annotated bibliography, a bibliographic essay, or a major paper. Planning a topic for investigation is a joint responsibility of the candidate and supervising faculty. Approval is contingent upon the merits of the proposal. Prerequisite: Consent of both instructor and School Director. For graduate students only

**PADM 599 Topics in Public Administration**

1-4 hrs.

A variable topic course dealing with particular issues of interest and concern to students of public affairs and administration. Since content varies, students are advised to read course descriptions distributed by the School. The course may vary in the number of credit hours awarded and may last more or less than a semester's length.
RELIGION

E. Thomas Lawson, Chair
H. Byron Earhart
David Ede
Nancy Falk
Oto Grundler
Rudolf Siebert
Irene Vasquez

Religion courses are designed to give students (1) an understanding of the nature and role of religion in human societies, both past and present, both non-Western and Western, (2) a grasp of the various methods used by scholars to describe and explain religion, to assess achievements of these methods, and to develop new methods for increasing their knowledge of religious thought and practice, and (3) an opportunity for raising questions about the present and future significance of religious thought and practice. Many courses in the department are approved for General Education, and students can extend their general education to include knowledge of religious thought and practice and to relate their knowledge of religion to their knowledge derived from other disciplines in the University.

The departmental major and minors are a good preparation for graduate study in religion, for the teaching of the academic study of religion in the public schools, and for a vocation associated with religion.

Requirements for Majors and Minors

A major in religion consists of a minimum of 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 (Comparative Studies, Methodological Studies, Constructive Studies). Two of these courses should be at the 500 level.

A minor in religion consists of a minimum of 16 hours and includes REL 200 (Introduction to Religion). One course is recommended in the field of Historical Studies. The 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 22 semester hours, and as 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 Education, 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.

Courses By Topic

INTRODUCTORY STUDIES
100 Religions of the World 3 hrs.
107 Writing About Religion 3 hrs.
200 Introduction to Religion 3 hrs.

HISTORICAL STUDIES
302 Religion in the Indian Tradition 3 hrs.
303 Chinese Religion 3 hrs.
304 African Religion 3 hrs.
305 The Christian Tradition 3 hrs.
306 The Jewish Tradition 3 hrs.
307 The Islamic Tradition 3 hrs.
308 Japanese Religion 3 hrs.
500 Historical Studies in Religion 3 hrs.

COMPARATIVE STUDIES IN RELIGION
311 Myth and Ritual 3 hrs.
313 Religion in America 3 hrs.
510 Morphological and Phenomenological Studies in Religion 3 hrs.

METODOLOGICAL STUDIES IN RELIGION
320 The Philosophy of Religion 3 hrs.
323 Religion and Revolution 3 hrs.
324 Psychological Elements in Religion 3 hrs.
520 Methodological Studies in Religion 3 hrs.
521 The Teaching of Religion in the Public School 3 hrs.

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

REL 100 Religions of the World 4 hrs.
An approach to the religions of the world which surveys themes in various religious traditions (such as Judaism, Christianity, Islam, Hinduism, Buddhism and primitive religions). The course studies how these religious traditions conceive of gods and world order, founders and saviors, religious experience and practice, and religious communities. The course will pay attention to the contemporary status and significance of these themes. Does not apply towards major or minor in Religion.

REL 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.

REL 200 Introduction to Religion 4 hrs.
An introduction to the study of religion intended to be universal in scope, theoretical and scientific in intent, and humanistic in orientation, of the nature and history of religion wherever it may be found, whatever its context, no matter what its forms, and attempting to raise whatever questions are necessary to illuminate its character. This will involve attention to more than one religious tradition, a discussion of the problems of definition, theory and method, an acknowledgment of the interdisciplinary aspects of much of the inquiry, and an examination of the consequences of this inquiry for problems of self-understanding in the context of Western culture in general, and American society in particular.

REL 302 Religion in the Indian Tradition 4 hrs.
This course draws its materials primarily from the great religious traditions native to India—i.e., Brahmanism, Buddhism, Jainism, and Hinduism. Particular attention is paid to the continuities of motif and practice that allow one to speak of "Indian Religion" as a unified phenomenon with a single history. Consideration is also given to such problems as the relationship between Indian religions and Indian culture and the relationship between Indian religious forms and the religious forms of other cultures.

REL 303 Chinese Religion 4 hrs.
A study of the historical continuity and overall unity in the Chinese religious tradition. The formal religions of Confucianism, Taoism, and Chinese Buddhism, as well as the informal religious movements of "ancestor worship," family religion, and state religion will be discussed. An attempt is made to assess the meaning of religion in Chinese culture.

REL 304 African Religions 4 hrs.
This course is designed to introduce the student to the complexity and varieties of the religions of Africa. This is done by focusing on the myriad religious forms, e.g. ideas of the soul, cosmology, initiation rites, etc. which have emerged during the long history of Africa. The course pays attention to religious forms which either came into being 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.

REL 305 The Christian Tradition 4 hrs.
An introduction to some of the salient features of the Christian experience as expressed in thought, practice and institutional structures. In an effort to elucidate the all-pervasive influence Christianity has had on Western Culture, the course focuses on such problems as the questions of the origin and identity of Christianity, the most important stages in its development, the interaction of Christian experience and current world-view of the host cultures, and particularly the phenomenon of secularization which is examined in the light of the astronomical, biological, historical, psychological and sociological "attacks" by modernity upon Christianity.

REL 306 The Jewish Tradition 4 hrs.
This course traces the history and development of Judaism from its roots in the Ancient Near East to the present, and its role in the shaping of Western consciousness. Particular attention is given to the periods of radical social, political and cultural change in Jewish history and hence to the critical problem of Jewish identity. An analysis of Jewish writings, customs, and institutions taken from different periods of Jewish history reveals that Jewish people have discovered and expressed their identity within a religious framework that includes myths and rituals, festivals, and holy days, celebration of the past and anticipaton of the future.
REL 307 The Islamic Tradition
4 hrs.
A study of the most important factors involved in the development of both the Islamic religious tradition and Islamic civilization. The pre-Islamic background, the life of Muhammad, the Qur'an, geographical expansion of the Muslim community, Islamic law, mysticism, sectarian development, philosophy, and Islam in the modern era are the major topics to be examined during the term.

REL 308 Japanese Religion
4 hrs.
A study of the historical continuity and overall unity in the Japanese religious tradition. The major organized religions of Shinto and Japanese Buddhism, and also the influence of Taoism, Confucianism, and Christianity are discussed. Also taken up are the informal religious movements of "ancestor worship," family religion, and state religion. An attempt is made to assess the meaning of religion in Japanese culture.

REL 311 Myth and Ritual
4 hrs.
Eric Dardel, an anthropologist, has written: "Myth says with utmost seriousness something that is of essential importance." In this course an attempt will be made to discover just what this important something is and how it is actualized in different rituals. Myths and rituals will be taken from a variety of historical traditions in order to reflect the cultural milieu of the communities whose lives are governed by them. Special problems to be considered will be the relationship between myth and cult, the problem of time and myth, the logic of mythic forms, etc.

REL 313 Religion in America
4 hrs.
An introduction to the full range of religious phenomena in today's North American culture and societies. The course attempts to isolate the specifically religious elements in concepts, values, and institutions and relate them to other elements of the socio-cultural fabric. While attention is directed to historical background, the rise, institutionalization and decline of movements, developing traditions, changing concepts, etc., the emphasis of the course is on contemporary experience and special attention is given to content analysis of the mass media, such as TV, radio, newspapers and magazines, advertising, popular music, comics, films, etc.

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

REL 323 Religion and Revolution
4 hrs.
In this course, religion will be looked upon as a driving force of social and cultural evolution. The historical and contemporary record shows religion capable of exhibiting profound revolutionary tendencies as, for instance, in the Peasant War in 16th century Germany or in the present South American situation. The course is concerned with religion's capability to promote fundamental change. It will explore the following main issues: The utopian and prophetic elements in Eastern, Mid-Eastern, and Western religious traditions; comparison of contemporary religious and secular political hopes and aspirations; the correlation of political exodus utopias and religious eschatologies; the mutual reproduction of religious theory and social and political practice.

REL 324 Psychological Elements in Religion
4 hrs.
This course is concerned with the correlation between religion and the human subject—the religious or a religious individual. The central interest of the course is with religious propensities, feelings, impulses, passions, attitudes, motivations, values, ideas, prejudices. Critical questions such as the following will be asked: What is the function of religious faith for the nervous stability, mental health and wholesomeness of the subject? Does religion reinforce or hinder the maturation process of the individual? Is the need for religion just a derivation from the child's feeling of helplessness and of the longing it evokes for a sublime father figure?

REL 332 Religion and Social Ethics
4 hrs.
This course will be a study of different styles of religious and secular social ethics and the creative ideas, problems, and attitudes toward the social world they contain. The course will discuss a variety of special contemporary socio-ethical problems: The new sexual morality, abortion, divorce, guaranteed income, thermonuclear and chemical warfare, artificial insemination, euthanasia, and drug addiction. Particular attention will be paid to how different styles of social ethicist relate to fundamental changes in contemporary, marriage and family life as well as in the economic, political, and cultural sphere.

REL 333 Religion and Ecological Awareness
4 hrs.
A study of our society's attitudes toward the natural environment with special attention given to the sanctions which undergird these attitudes, a consideration of the various religious responses to the environmental crisis, and an inquiry into the possibility of reappropriating a sense for the sacrality of nature through the emerging ecological awareness.

REL 334 Religion in Modern Society
4 hrs.
Whereas a major focus of the systematic study of religion is upon religious traditions, or aspects of them, it is important that attention also be paid to the questions raised by the various contexts in which religion occurs as well as to questions raised by the methods developed in studying religion in such contexts. The specific context of religion to be studied in this course is that of industrial society. For religion to be understood in more than historical terms it is important that attention be paid to this kind of context. As a consequence of such a focus questions also are raised about the methods developed to specify and delineate such contexts and the role that religion plays in them. This provides an occasion for raising questions about the assumptions underlying such methods and about their relationship to the systematic study of religion.

REL 406 Independent Study
1-6 hrs.
Research on some selected problem under supervision of a member of the Religion faculty. Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

REL 500 Historical Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium, Utopia, and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

REL 520 Methodological Studies in Religion
2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Scientific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature.

REL 521 The Teaching of Religion in the Public School
2 hrs.
This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials are discussed.

Required of all students following a Secondary Education Curriculum which includes the Academic Study of Religions as a minor. (This course is not applicable to the regular religion major/minor program.)

REL 530 Constructive Studies in Religion
2-4 hrs.
The topic to be announced in the schedule of classes. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Religious Images of Man; Christian Humanism; the Structure of Religion; the Future of Religion; Religion, Language and Structuralism.

REL 598 Readings in Religion
Variable Credit
Research on some selected period or topic under supervision of a member of the Religion faculty. Approval of the instructor involved and Chairperson of the Department must be secured in advance of registration.

RUSSIAN
See "Languages and Linguistics" in the College of Arts and Sciences.
SCIENCE (GROUP)
MAJOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.

SCIENCE AND
MATHEMATICS
TEACHING MINOR
See “Interdisciplinary Programs” in the College of Arts and Sciences.

SOCIAL SCIENCE
MAJOR AND MINORS
See “Interdisciplinary Programs” in the College of Arts and Sciences.

SOCIOLOGY
Lewis Walker, Chair
Lloyd Braithwaite
Milton J. Brawer
Susan Carlingella-MacDonald
David Chaplin
Paul C. Friday
Ronald C. Kramer
Gerald Markle
Ellen Page-Robin
James C. Petersen
Judith A. Riley
Stanley S. Robin
Martin H. Ross
Herbert L. Smith
Paul Wienir
Subhash R. Sonnad
Martin H. Ross
Herbert L. Smith
Paul Wienir

Courses are designed to give students a better understanding of the significant factors and processes of modern life, to provide study useful for particular applied fields, such as social work, criminal justice, market research, opinion polling, city, state, and federal governmental service, and social research; to meet the needs of students preparing to teach in the social science field; and to prepare students for graduate work in sociology or criminal justice.

The Kercher Center for Social Research, as the research arm of the department, provides facilities and services available to students as well as faculty for instructional and research purposes. The center maintains a 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 Office, 2404 Sangren Hall.

Advising
DEPARTMENT ADVISER
2407 Sangren Hall, 387-5286. 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 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, 362, 383, and 556 are required. Two (6 hours) of the following are required, except for students in the social psychology concentration: SOC 210, 250, 262, 314, 352, 353, 354, 373, 375, 390, and 495. Six hours of advanced (400-500 level) courses are required. Limitations include: (1) A maximum of 12 hours transferred from a two year institution may be included; (2) at least 9 hours must be taken at Western Michigan University; (3) no more than one course at the 100-level may be included.

Transfer students should see the department adviser, since any transfer credit in sociology without a stated equivalent must be evaluated by the department if it is to apply toward a sociology major or minor.

Students in secondary education must take one of the following: SSCI 300 (Teaching of Social Studies in Secondary School), GEOG 460 (Concepts and Strategies in Teaching of Geography), or HIST 490 (Secondary Teaching Methods) to meet the state certification requirement for a teaching methods course. This course may not be included in the hours required for a sociology major or minor. A major slip is required.

GROUP SOCIAL SCIENCE
Students in the secondary education curriculum who major in sociology must also complete a minor in group social science. Refer to the “Interdisciplinary Program” section of this catalog for a description of the minor requirements.

Sociology Major, Accelerated BA/MA Program
This program is intended for the exceptional sociology major who intends to pursue a disciplinary masters degree in sociology at Western Michigan University. It is designed to accelerate progress toward the attainment of the disciplinary masters degree in sociology.
Sociology Minor

A minor in sociology consists of 18 hours for students in curricula other than education. Students qualifying for teacher certification are required to complete a minimum of 20 hours. SOC 200 and 210 are required in either case. The balance of the hours required may be selected by the student, with the following limitations: (1) A maximum of 9 hours transferred from a two-year institution may be included; (2) at least 6 hours must be 300-level or above; (3) no more than one 100-level course may be included. Minor slips are required.

Sociology/Anthropology Major

A combined major in sociology and anthropology consists of a minimum of 30 hours, with at least 12 hours in each department. SOC 200, 300, 382, and ANTH 210, 240, and 250 are required. Additional courses in either department may be selected by the student.

Criminal Justice Curriculum

This program is designed to provide perspective on the entire criminal justice system: crime as a social problem and society’s reactions to it, the organization and operation of the criminal justice system, and the correctional process, as well as causes of crime and delinquency and other current issues. While the goal of the program is to provide knowledge and skills necessary for students interested in careers in criminal justice, it will support a theoretical foundation for graduate work in theoretical fields such as social work, counseling, public administration and criminology.

CRIMINAL JUSTICE MAJOR (36 hours)

Required Prerequisites

The following courses are required before taking any of the core courses:

- SOC 200 Introduction to Criminal Justice
- SOC 262 Criminology

Writing Expectation

Students are expected to write at the college level before enrolling in the following advanced courses. Students should have completed ENGL 105 or equivalent. You are encouraged to take SOC 361 Writing/Research in Criminal Justice.

Core Courses

All of the following courses (19 hours) are required. It is important to check with the adviser as courses are taken in proper sequence.

SOC 462 Criminal Justice Process
SOC 484 Sociology of Law Enforcement
SWRK 465 Correctional Process and Techniques
SOC 564 Juvenile Delinquency and the Community
FCL 360 Criminal Law and Procedure
SOC 566 Advanced Criminology

Research Methods Requirement

One of the following is required:

SOC 382 Methods of Sociological Inquiry I
SOC 383 Methods of Sociological Inquiry II

SPECIAL AREAS OF CONCENTRATION

Completion of one of the following areas is required:

CORRECTIONS (6 hours)

SOC 586 Community Corrections
SOC 587 Advanced Institutional Treatment of Offenders
SOC 588 Non-Institutional Treatment of Offenders

CURTORS (6-8 hours)

PHIL 313 Philosophy of Law (4)
PSCI 320 American Judicial Process (4)
PSCI 325 Criminal Justice Policy
SOC 330 Introduction to Public Administration
PSCI 522 Civil Rights and Civil Liberties

JUVENILE JUSTICE (6 hours)

SOC 521 Childhood Socialization
SOC 522 Adolescent Socialization
SWRK 566 Non-Institutional Treatment of Offenders
SWRK 569 Organizational Perspectives on Juvenile Justice

LAW ENFORCEMENT ADMINISTRATION (6 hours)

SOC 467 Police and Community Dynamics
SOC 468 Police and Crime Prevention
SOC 469 Private and Industrial Security

LAW ENFORCEMENT CERTIFICATION

Students attend the Police Academy at Kalamazoo Valley Community College (KVCC). Preliminary screening is required. Students are advised to take the courses during the last two semesters at WMU. See the adviser for further information.

Electives

To complete the required total of 36 hours, students may include any classes listed in another special area of concentration (with the exception of the Law Enforcement Certification), or the following:

ACTY 210 Principles of Accounting
BAS 300 Black Experience
FCL 340 Legal Environment
HIST 301 Law and Justice in Western History
PSCI 202 State and Local Government (4)
PSCI 300 Urban Politics in United States
SOC 533 Public Personnel Administration
SWRK 433 Dynamics of Race and Culture for Social Work Practice
SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology

SOCIOLOGY 141

SOC 495 Special Topics-Sociology (when applicable)
SOC 497 Juvenile Court Intervention
SOC 498 Criminal Justice Internship (with permission)
SOC 512 Child Abuse
SOC 556 Social Stratification
SOC 560 Corporate and White Collar Crime
SOC 561 Violence and the Violent Offender
SOC 562 Victimology
SOC 563 Organized Crime
SOC 598 Directed Independent Study (2-6 hours) with permission.

Note: All WMU classes are 3 credit hours unless otherwise noted.

CRIMINAL JUSTICE MINOR

A 24 hour-criminal justice minor is available, patterned after the major. Information on courses required may be secured from the department adviser. Minor slips are required.

CORRECTIONS MAJOR (33 hours)

Prerequisites

SOC 260 Introduction to Criminal Justice
SOC 262 Criminology

Pre-service Courses Required (15 hours)

SOC 283 Introduction to Corrections* SOC 286 Client Growth and Development*
SOC 267 Correctional Institutions and Facilities*
SOC 288 Client Relations in Corrections*
SOC 269 Legal Issues in Corrections*

Writing Expectation (not required, but recommended)

SOC 361 Writing and Research in Criminal Justice (3 hours)

NOTE: Students are expected to write at the college level before enrolling in core courses. Students should have satisfied the University requirement for a college level writing course before taking this course.

Core Courses Required (15 hours)

SWRK 465 Correctional Process and Techniques
SWRK 567 Institutional Treatment of Offenders
SWRK 568 Non-Institutional Treatment of Offenders
SOC 496 Internship/Field Experience (3-6 hours)

Electives (any 6 hours)

SOC 314 Ethnic Relations
SOC 320 Introduction to Social Psychology
SOC 468 Police and Crime Prevention
SOC 495 Special Topics (when applicable)
SOC 512 Child Abuse
SOC 561 Violence and the Violent Offender
SOC 562 Victimology
SOC 565 Community Corrections
SOC 598 Independent Study (with permission)

*This course is required by the new Michigan Department of Corrections legislation.

Social Psychology Concentration

Social Psychology is the study of the impact of group life on individual behavior, thought and personality development. Training in social psychology provides a valuable background for a variety of positions in human service organizations and can provide an excellent theoretical foundation for graduate work in more applied fields such as social work, counseling, public administration and criminology.
MAJOR REQUIREMENTS
SOC 200, 300, 320, 382 and 556 are required. Three (3) hours of the following electives are required: SOC 512, 520, 521, 522, 524, 528, and 579. Students must take at least four (4) hours of other electives within the sociology department with no more than one 100-level course included.

MINOR REQUIREMENTS
SOC 200, 360, and 350. Two (6) hours of the following electives are required: SOC 512, 520, 521, 522, 524, 528, and 579. The student may include any other sociology course to complete the required eighteen (18) hours.

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

SOC 100 American Society 3 hrs.
An analysis of contemporary American society, including continuity and change in value systems, major institutions and their interrelationships, and other aspects of social life.

SOC 122 Death, Dying, and Bereavement 3 hrs.
Social structures, attitudes, beliefs and values about death, dying and bereavement in contemporary American society as well as in other societies and other time periods will be considered. Medical, legal, religious, and psychological issues in relation to death, dying, and bereavement will be discussed. (Not recommended for persons recently bereaved.)

SOC 171 Social Impacts of Science and Technology 3 hrs.
An analysis of social consequences of major scientific and technological changes, including the actual and potential impact of advances in the physical and natural sciences.

SOC 182 Computer Usage in the Social Sciences 3 hrs.
An introduction to BASIC programming language. This course reviews ethical-professional issues such as privacy, and provides training with software applications in social sciences such as SPSS, SOS, MINITAB, plus introducing students to microcomputers. This course meets the University's computer literacy requirement. Not for sociology or criminal justice major or minor credit.

SOC 190 Men and Women in Contemporary Society 3 hrs.
A systematic analysis of roles of men and women, with particular emphasis upon problems of adjustment and conflict in contemporary society.

SOC 195 Contemporary Social Issues: Variable Topics 1-3 hrs.
This course is designed to explore topics of current sociological and general student interest in a substantive fashion at an introductory level. May be repeated for credit with a different topic.

SOC 200 Principles of Sociology 3 hrs.
An introduction to and survey of the discipline of sociology and its major fields of study. Selected sociological concepts, theories, and research findings will be discussed. Required for sociology majors and minors.

SOC 210 Modern Social Problems 3 hrs.
The course aims to develop a theoretical framework for understanding selected social problems in American society in such areas as: intergroup conflict, race, poverty, juvenile delinquency and crime, population changes, and mass communication. Problems selected for emphasis may vary with the instructor. Required for sociology minors.

SOC 250 Rural Communities 3 hrs.
Rural American society is a complex social situation involving the classical social institutions and problems, including social class, religion, poverty, and diverse racial and ethnic groups. This course attempts to examine these institutions and problems through current literature and by means of a series of field trips to visit examples of these social structures in southwestern Michigan. Contrasting rural communities in other countries may also be considered.

SOC 260 Introduction to Criminal Justice 3 hrs.
An overview of the criminal justice system as it currently operates in its three major components: police, courts, corrections. A broad-based interdisciplinary perspective is employed to introduce the beginning student to the process of criminal justice in modern America. Particular attention is placed in the discretionary authority of officials who are engaged in the decision making roles required to process suspects from arrest to release.

SOC 262 Criminology 3 hrs.
A study of the phenomenon of crime as a social problem. Particularly stressed is an analysis of the relationship between law and society and social structure and crime. Discussion centers around conventional white collar and political crimes. The offender populations are identified and analyzed. Prerequisite: SOC 200 or SOC 210.

SOC 265 Introduction to Corrections 3 hrs.
The course will provide an understanding of the agencies and institutions that have legal authority over custody and supervision of offenders. Major areas will include history and development of corrections, community-based corrections, local, state, and federal correctional institutions and institutional administration. Correctional treatment of female, male, and juvenile offenders will be explored as well as the role of corrections in the total system of criminal justice. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 266 Client Growth and Development 3 hrs.
Designed to enable students to differentiate various factors that are involved in the development and growth of the criminal. Discussion of biological, environmental, and psychological influences will be included. Specific problems such as sexual, substance abuse and medical disorders will be reviewed. Intervention strategies will also be discussed. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 269 Legal Issues in Corrections 3 hrs.
Designed to present an overview of correctional institutions and facilities. Topics covered include the role of prisons and correctional institutions, treatment and rehabilitation programs, management and organization, custodial care, safety and security, and future concerns. This course is one of five which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 288 Client Relations in Corrections 3 hrs.
Designed to create awareness of effects of culture and discrimination on the attitude formation of individuals and assist students in identifying various professional responses to influence, stress. One of five courses which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 289 Legal Issues in Corrections 3 hrs.
Study of the primary legal issues correctional personnel will be entrusted to enforce and safeguard. Topics covered include overview of U.S. constitutional law, court process from arrest through trial, structure and function of the U.S. and state courts, and prisoner rights. One of five courses which will meet the state requirement of 15 credit hours for employment as a correctional officer. Student must earn a grade of "C" or better to meet this state requirement.

SOC 300 Sociological Theory 3 hrs.
A study of major theoretical viewpoints in contemporary sociology. The course is oriented toward the understanding, application, and extension of these major perspectives. Required for sociology majors. Prerequisite: SOC 200.

SOC 314 Ethnic Relations 3 hrs.
A study of race and ethnic relations, stressing a global perspective on social relations among varied peoples at different levels of development, and in different parts of the world.

SOC 320 Introduction to Social Psychology 3 hrs.
An introduction to social psychological theory and research, covering the interaction of individuals and the relationships of individuals to groups. Includes such topics as social influence, attitudes, socialization, and personality.

SOC 335 Modern Latin American Societies 3 hrs.
An introduction to contemporary Latin American societies focusing on their developmental processes. Topics may include rural-urban migration, land reform, and governmental development policies in the urban industrial sector.

SOC 336 Modern Japanese Society 3 hrs.
An introduction to Japanese society, focusing upon current developments in the process of industrialization and urbanization. Examines the impact of these processes on the Japanese population, family life, village organization, urban community, class structure, and personality.
SOC 337 Modern Arab Societies
3 hrs.
An introduction to the Arab societies of the Middle East and North Africa, focusing on current tribalism and ethnic group tension. The course examines the influences of the three major western religions and the religious, social, political, and economic tensions that have ensued in intergroup relations.

SOC 352 Introduction to Social Gerontology
3 hrs.
An exploration of the social, psychological, economic, and physical aspects of aging. Consideration will be given to institutional programming for older people in the United States and other societies.

SOC 353 The City and Society
3 hrs.
An examination of the city and the process of urbanization from earliest times to the present. Focusing upon the United States, emphasis will be placed on the characteristics, problems, and consequences of urban growth and development.

SOC 354 Population and Society
3 hrs.
A sociological investigation into the dynamics and consequences of the world-wide population explosion, and U.S. population problems such as family planning, the baby boom, zero population growth, and ecological issues. Prerequisite: SOC 200.

SOC 361 Writing and Research—Criminal Justice
3 hrs.
This is an overview of the various forms of writing expected in criminal justice: essays, term papers, course review, professional reports. Specifically, the course will emphasize style, word usage, organization, and referencing as required in the preparation of police, court, and other reports. Prerequisite: College level writing requirement.

SOC 373 Sociology of Health and Illness
3 hrs.
Introduction to the concepts of health and illness in our society: ways of measuring disease, the impact of social class, race, region, and ethnicity on the perception and distribution of disease. Attention will also be paid to the social structure of the health care delivery system and of alternative systems of medical care. Prerequisite: SOC 200.

SOC 375 Sociology of Work
3 hrs.
An introduction to the problems arising from employment, such as worker morale and productivity, and the integration of women, racial and ethnic minorities, and handicapped workers. The course also involves a survey of various attempts at solving these problems from unions and collective bargaining and other forms of worker participation to government manpower programs and other employment policies.

SOC 382 Methods of Sociological Inquiry I
3 hrs.
An introduction to the quantitative and qualitative methods of empirical research in the social sciences. Topics include experimental and survey designs, utilization of available data, field studies, evaluation procedures, statistical inference, association and non-parametric statistics, and an introduction to multivariate analysis. Computer-assisted projects and exercises are conducted in laboratory sessions. A continuation of SOC 382. Prerequisite: SOC 382.

SOC 389 Marriage and Family Relations
3 hrs.
A sociological analysis of the structural and interactional aspects of marriage and family groups in contemporary society, with emphasis on the American middle class. Consideration is given to change and diversity in family patterns, norms, and values, and to factors contributing to family unity or disorganization. Prerequisite: SOC 200.

SOC 390 Sociology of Development
3 hrs.
An examination of the social factors which influence the development of currently developing areas in Africa, Asia, and Latin America. These factors include such phenomena as urbanization, nationalism, the population explosion, welfare institutions and practices, industrialization and the acculturation of ethnic minorities. Prerequisite: SOC 200.

SOC 430 Sociology of Development
3 hrs.
An examination of the social factors which influence the development of currently developing areas in Africa, Asia, and Latin America. These factors include such phenomena as urbanization, nationalism, the population explosion, welfare institutions and practices, industrialization and the acculturation of ethnic minorities. Prerequisite: SOC 200.

SOC 482 Criminal Justice Process
3 hrs.
An analysis of substantive and procedural criminal law as it relates to each stage of the criminal justice process. The focus will be on the sociological and legal implications of discretion and court decisions from arrest to conviction and sentencing. Prerequisite: SOC 262.

SOC 484 Sociology of Law Enforcement
3 hrs.
A sociological analysis of the process of law enforcement as it involves municipal, state, and federal agencies. Includes analysis of the police "working personality," social role, isolation from other social groups, vulnerability to corruption through politics and/or organized crime, and abuses of authority. The development and comparison of the police role will be traced from its roots in England to the present American position. Prerequisite: SOC 262.

SOC 485 Correctional Process and Techniques
3 hrs.
An overview of the correctional process as it can operate in probation, parole and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminology theory and accumulated knowledge of the phenomena of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: SOC 262.

SOC 487 The Police and Community Dynamics
3 hrs.
Study of the role of the police in the community by looking at the public's perceptions, knowledge, and expectations, and the police's responsibilities in community relations. This course stresses the practical application of knowledge to contemporary issues facing police such as the use of deadly force, police performance, neighborhood patrols, policies of law enforcement, minority relations, victimless crime, and the resolution of police/community differences.

SOC 488 The Police and Crime Prevention
3 hrs.
This course provides an intensive examination of the important issue of crime prevention. Crime prevention is viewed within the larger political process and is related to the ecology of criminal behavior. The utility of general and specific prevention is discussed, looking at techniques and programs for police and community including target hardening and methods of decreasing the opportunity for victimization. The security business and various security techniques will also be analyzed.

SOC 489 Private and Industrial Security
3 hrs.
This course is a review of the historical, philosophical, and legal basis of private security; a discussion of the role of security and the security professional in modern society and the concept of professionalism. A survey is made of the various administrative, management, and technical aspects of the security field. Included is a comparison and contrast of private security organizations to public law enforcement agencies and the relationship of private security to the criminal justice system.

SOC 490 Social Context of Sexual Behavior
3 hrs.
This course focuses on a systematic analysis of contemporary sexual codes and behavior in American society. Present-day beliefs and practices are viewed in historical context (especially from 1900 to the present) to gain insight into what is today, with the purpose of predicting what may be in the future. This sociological, historical, social psychological analysis examines current patterns of beliefs and behavior in terms of their immediate and potential effects and consequences both for individuals and couples, and also for society. Prerequisite: SOC 200.

SOC 495 Special Topics in Sociology or Criminal Justice: Variable Topics
1-3 hrs.
A specialized course dealing, each time it is scheduled, with some particular aspect of sociology or criminal justice not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: SOC 200.

SOC 497 Juvenile Court 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 cordial calls, prepare reports, and attend court. Prerequisite: SOC 564 or SWRK 569 or consent of department. Approved application required.

SOC 498 Field Experience
2-8 hrs.
Structured as part of a specific departmental program and identified as such in the printed schedule when offered. Opportunities are provided for supervised experiences in local organizations or activities in such areas as criminal justice, gerontology, and urban studies. Approved application required.

SOC 499 Honors Seminar
2-6 hrs.
Investigation of selected topics in seminar sessions by advanced undergraduates. May be repeated for credit with a different topic.
SOC 501 Social Systems Theory and Analysis
3 hrs.
An investigation and critique of social systems theory, general systems analysis, and specific system consequences techniques which have been used in social organizations. Each student will be required to conduct a systems analysis during the course. Prerequisite: SOC 200.

SOC 510 Studies in Social Problems: Variable Topics
3 hrs.
An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210.

SOC 512 Child Abuse
3 hrs.
This course is an examination of child abuse in American society. Medical, psychological, educational, psychiatric, legal, and treatment perspectives are combined in a social analysis. The origins, family context, nature, extent, and social consequences of child abuse are discussed. Currently practiced social and legal solutions are presented, as well as possible social change required to respond to this phenomenon.

SOC 515 Sociology of Mental Disorder
3 hrs.
This course will be concerned with examining the historical evolution and contemporary meaning of concepts of mental health and mental disorder. The course will also consider the amount and kind of mental disorder in society, the structure of the mental health care delivery system, the nature of help-seeking for mental disorder, and sociological analysis of psychotherapy. Prerequisite: SOC 200.

SOC 520 Studies in Social Psychology: Variable Topics
3 hrs.
Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 320.

SOC 521 Childhood Socialization
3 hrs.
An investigation of social development of the child from birth to adolescence. The course will focus on the child's interactions with parents and peers as these influence processes of learning, language acquisition, role-playing, the organization of knowledge, and development of self. Prerequisite: SOC 320.

SOC 522 Adolescent Socialization
3 hrs.
An investigation of social learning and personality development in adolescence. This course examines the effects of interaction patterns and group allegiances, social class membership, biological maturation, sex roles and self-awareness on adolescent behavior, personality development, and orientation toward the adult world and adulthood. Prerequisite: SOC 320.

SOC 523 Contemporary Social Movements
3 hrs.
A study of the origins, growth, and effects in contemporary society of social movements. Selected social movements including communism, fascism, the radical left, the radical right, women's liberation, etc., will be analyzed. Prerequisite: SOC 200 or equivalent.

SOC 524 Adult Socialization
3 hrs.
An examination of the processes of social learning and personality development from late adolescence through middle age. The course will focus on selection and performance of adult roles, issues of stability and change in adult identity, and the effects of role transitions and personal crises on adult development. Prerequisite: SOC 320.

SOC 528 Research Methods in Social Psychology
3 hrs.
An examination and comparison of major research strategies in social psychology as applied to several selected major topics within the field. Students will be expected to review, critique, and conduct research within a selected area. Prerequisite: SOC 382 and 383 or equivalent.

SOC 531 Studies in Social Change: Designated Areas
3 hrs.
Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from history, anthropology, and sociology. May be repeated for credit with a different area. Prerequisite: SOC 200.

SOC 540 Sociology of Medicine
3 hrs.
A comprehensive survey of concepts and research findings in the field of the sociology of medicine. Topics to be covered include: the distribution of illness in society, relationships between social stress and disease, illness as a social process, health care professionals, the sociology of health care delivery. Prerequisite: SOC 373.

SOC 552 Sociology of Aging
3 hrs.
An examination of the process of aging in American society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: 6 hours of sociology including SOC 200.

SOC 556 Social Stratification
3 hrs.
An analysis of the nature, causes, and consequence of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200.

SOC 558 Social Stratification
3 hrs.
An analysis of the nature, causes, and consequence of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200.

SOC 560 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 crimes, and societal and legal reactions to these types of crime. Prerequisite: SOC 262.

SOC 561 Violence and the Violent Offender
3 hrs.
This course analyzes the nature and pattern of violence. It looks at the social, cultural, and individual factors that increase the probabilities of violent behavior. Assault, murder, rape, robbery, mass murder, domestic violence, and war will be analyzed from cross-cultural perspectives. Causes, processes, and prevention will be discussed.

SOC 562 Victimization
3 hrs.
The study of crime victims, the probabilities of victimization, victim-offender relationships, the treatment of victims by the criminal justice system, and the economic, social, and psychological impact of victimization. An analysis of coping strategies is discussed and the role of the victim in the criminal justice system is analyzed.

SOC 563 Organized Crime
3 hrs.
Review of the history and development of organized crime, the nature of its organized structure, the basis for its persistence in American society, its impact and pervasiveness, and the implications for the criminal justice system and society.

SOC 564 Juvenile Delinquency and the Community
3 hrs.
A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, community resource people are invited to participate. Prerequisite: SOC 200.

SOC 565 Community Corrections
3 hrs.
This course reviews the role of corrections in communities and the impact community based programs, like half-way houses and work release, have on society and offenders. Organizational and management structures are reviewed and policy perspectives are discussed. Prerequisite: SOC 465.

SOC 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 262.

SOC 567 Corporate and White-Collar Crime
3 hrs.
An intensive analysis of corporate and white-collar crime from a sociological perspective. Topics covered include the problems involved in defining corporate and white-collar crime, an assessment of the costs of these crimes, a description of the nature, extent, and distribution of these forms of criminal behavior, the etiology of corporate and white-collar crimes, and societal and legal reactions to these types of crime. Prerequisite: SOC 262.

SOC 570 Studies in Social Institutions: Variable Topics
1-4 hrs.
An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics may include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology, arts, and others. May be repeated for credit with a different topic. Prerequisite: SOC 200 or equivalent.

SOC 573 Sociology of Political Behavior
3 hrs.
Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: SOC 200.
SOC 574 Sociology of Religious Institutions
3 hrs.
A study of the social role of religious institutions and beliefs, with particular reference to the United States. The course considers social factors affecting the development of different types of religious institutions and the influence of religion on American society. Prerequisite: SOC 200 or equivalent.

SOC 575 Industrial Sociology
3 hrs.
The sociological study of industrial organizations and of the process of industrialization. The impact of technology and related factors on work organizations, the structure and operation of labor unions, and the changes occurring in industrial society are discussed. Prerequisite: SOC 200 or equivalent.

SOC 576 Sociology of School Organization
3 hrs.
Advanced studies of education as an institution, emphasizing interaction with other social institutions and analysis of internal organization. Attention is focused on the school and social change, schooling and the control of society, and schooling and stratification, as well as impediments to change, power and authority structures and the schools, the teaching profession, and student social structures. Prerequisite: 6 hours of sociology.

SOC 578 Sociology of Law
3 hrs.
An examination of legal organization, the legal profession, and legal norms in the United States and other western societies. Emphasis will be placed upon the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or equivalent.

SOC 579 Female/Male Interaction
3 hrs.
Examines the variable of gender as it influences interaction between women and men. Topics include female/male stereotypes, differences in female/male verbal and non-verbal codes, and female/male interaction on the job. (Cross-listed with COM 579.)

SOC 581 Logic and Analysis of Social Research I
3 hrs.
This course is designed to provide thorough grounding in basic univariate and bivariate descriptive and inferential statistics for social sciences. Prerequisite: graduate standing or SOC 382 and 383.

SOC 585 Research Methodology: Variable Topics
1-4 hrs.
This course concentrates on specialized research techniques and topics such as sampling and survey design, interviewing, and the use of sociological computer software. It may be repeated for credit with a different topic. Prerequisite: Consent of department.

SOC 590 The Family as a Social Institution
3 hrs.
The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family institution and the relationship between the social structure of society and the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or equivalent.

SOC 592 Family Life Education and Counseling
3 hrs.
Provides the student with working knowledge of the methods and materials appropriate in the school, the church and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200.

SOC 593 Marriage and Family in Middle and Later Years
3 hrs.
A systematic analysis of the marital and family system and interpersonal relationships of husbands and wives, and parents and children during middle age and the later years of married life. Prerequisite: SOC 390 or equivalent.

SOC 598 Directed Individual Study
2-6 hrs.
A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Two or three hours credit per semester, cumulative to six hours. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: Consent of instructor and the department chairperson.

SPANISH
See "Languages and Linguistics" in the College of Arts and Sciences.

WOMEN'S STUDIES MINOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.

WORLD LITERATURE MINOR
See "Interdisciplinary Programs" in the College of Arts and Sciences.
The function of the professional Haworth College of Business is to prepare capable men and women for responsible positions in business, industry, and public service. Three major areas of education are involved in the development process. They are:

1. A foundation of liberal arts and sciences in full recognition that as a future leader in the business and industrial world, the student will need a solid understanding of his/her relationships to social, economic, political, and cultural trends.

2. The presentation of a core curriculum that contemplates a thorough grounding in the fundamentals through which our free enterprise economic system operates. These fundamentals are met through business core subjects such as accounting, statistics, law, finance, marketing, management, and communications.

3. An opportunity for specialization in various aspects of business activity.

Continuing opportunities are made available to resident students to participate in campus meetings with business, industrial, and public service leaders, as well as outstanding professionals from various disciplines. In addition, business firm visitations, as well as business internships, give ample opportunity for the student to relate to his/her future role. Western’s Placement Office is visited by the major firms that are engaged in recruiting activities.

The four main programs in the Haworth College of Business are:

1. Business Administration—Bachelor of Business Administration Degree.
2. Master of Business Administration for graduate students with Liberal Arts, Engineering, Business or other undergraduate preparation.
3. Master of Science in Accountancy for students desiring intensive preparation for a professional accounting career.
4. Master of Science in Business for students desiring intensive preparation for professional careers in Business.

John E. Fetzer Business Development Center

The John E. Fetzer Business Development Center provides a wide variety of services for business, industry, governmental, charitable, and educational organizations. Programs range from management and executive development seminars presented in the Center by Western’s Haworth College of Business faculty and outside consultants through in-house tailored sessions for specific organizations. Programs are also offered in locations throughout the region. In addition, the Fetzer Center provides an array of meeting, conference, training, and special event facilities for local, regional, and state organizations. The building features a 250-seat United Nations-style auditorium, a large comfortable lecture hall, numerous seminar rooms, a computer simulation laboratory, and banquet facilities. The opening of the Fetzer Center building in 1983 has enabled the Haworth College of Business to interact more effectively with regional business organizations.

Business Administration Curriculum (BBA Degree)

I. Pre-Business Curriculum

Any entering or transfer student planning to pursue business administration as a curriculum will be admitted to a pre-business curriculum and will work with a business adviser in the development of a planned program.

The pre-business curriculum requirements are:

1. Completion of a minimum of 60 semester hours.
2. An acceptable overall grade point average (minimum of 2.50).
3. Minimum grade of "C" in the following pre-business courses or approved alternatives:
   A. BIS 142, Informational Writing...3 hrs.
   B. One of the following:...3 hrs.
      GSSC 121, Dimensions of Human Behavior; PSY 100, General Psychology; PSY 344, Organizational Psychology; SOC 200, Principles of Sociology
   C. MATH 116, 122 or 200...3 hrs.
   D. ACTY 210 and 211, Principles of Accounting...6 hrs.
   E. ECON 201 and 202, Principles of Economics...6 hrs.
   F. MATH 216, Business Statistics...3 hrs.

Business Research and Service Institute

The Business Research and Service Institute within the Haworth College of Business provides research assistance for business, industry, governmental, charitable, and educational organizations. Research requests must be business-related and may be performed by faculty or by student teams supervised by Haworth College of Business faculty.
II. Professional BBA Curriculum

In order to graduate from the professional BBA curriculum, a student must have a minimum of 122 non-repeated semester hours. In addition to the University requirements of general education, physical education and the first two years of study as outlined in the pre-business curriculum, students must complete the following:

1. Upper Class Requirements:
   A. BIS 350 Management Information Systems ........... 3 hrs.
   B. FCL 320 Business Finance .......................... 3 hrs.
   C. FCL 340 Legal Environment .......................... 3 hrs.
   D. MGMT 300 Fundamentals of Management ............. 3 hrs.
   E. MGMT 463 Production and Operations Management .... 3 hrs.
   F. MKTG 370 Marketing ................................ 3 hrs.
   G. Advanced Quantitative ............................... 3 hrs.
   (choose one: BIS 484, FCL 420, ECON 400, MGMT 360, MKTG 471)
   H. Advanced ECON .................................. 3 hrs.
   I. MGMT 499 Management Problems ....................... 3 hrs.
   (This capstone course must be taken during a student's final semester/session)
   A "C" grade point is required in the upper-level core courses outlined above.

2. Major courses (minimum) .......................... 21 hrs.
   A "C" average grade point is required in all courses applied toward a major.

3. General Education/Electives
   A. General Education Distribution Program:
      General Education 300-, Area IV and I-V .................. 8 hrs.
   B. Electives ....................................... 6-9 hrs.

4. Transfer work towards upper division courses must meet the following criteria:
   A. Approval by the Office of Academic Advising and the department.
   B. Minimum grade of "C".
   C. 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 only by approval of the department head and the Dean of the Haworth 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. Community college students should also be aware of coursework acceptable by transfer on the basis of the university's MACRAO agreement and acceptable validation procedures.
4. Regarding the Mathematics 116 requirement, a 3-hour college algebra course based on a prerequisite of three years of college preparatory mathematics is acceptable as a transfer course.
5. With departmental approval, transfer courses from four-year schools (and appropriate lower division courses from community colleges) may be included in majors and minors. However, a minimum of 12 semester hours for a major and 9 for a minor must be taken at WMU.

Areas of Concentration In Business Administration

To graduate with any major from the Haworth College of Business, it is necessary to be enrolled in the Bachelor of Business Administration curriculum.

Accountancy (ACTY)

Major Requirements:
ACTY 210, 211, Principles of Accounting ............. 6
ACTY 310, 311, 511, Financial Accounting ............... 9
ACTY 313 Accounting Information Systems .......................... ........... 3
ACTY 322 Managerial Accounting ....................... 3
ACTY 324 Income Tax Accounting .................... 3

ACTY 516 Auditing ....................................... 3
Electives in Accountancy .................................... 6

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 six additional hours selected with the students' professional objectives in mind. The remaining 6 hours must be selected from the following courses: FCL 320 and 340, MGMT 300, and MKTG 370

Accountancy Electives Available for Majors and Minors:
ACTY 514 Institutional Accounting ..................... 3
ACTY 518 Accounting Theory and Problems ............. 3
ACTY 522 Cost Accounting—Theory and Practice .......... 3
ACTY 524 Studies in Tax Accounting ................... 3

Advisers: Report to the Department of Accountancy, 150 East Hall for assignment to an adviser.

Transfer Credits: Up to 6 hours of elementary accounting may be accepted from other than a four-year accredited school. All majors must take a minimum of 12 hours of accounting courses at WMU.

Business Information Systems (BIS)

The Department of Business Information Systems offers five undergraduate major areas of concentration as shown below. The courses are to be taken in the sequence indicated, following prerequisites as listed after the catalog course descriptions.

1. ADMINISTRATIVE SYSTEMS (ADS)

27 hours
BIS 102 Introduction to Information Processing ........... 3
BIS 260 Programming and Applications with Microcomputers .... 3
BIS 386 Advanced Office Systems .......................... 3
BIS 388 Records Management ................................ 3
Plus 6 hours, as advised, from ........................... 6
BIS 360 Information Systems Analysis and Design ......... 9
BIS 556 Office Management or
BIS 484 Micrographics and Reprographics and
BIS 486 Corporate Records Centers

Plus 9 hours, as advised, from ........................... 9
CS 111 Computer Programming 1.......................... 3
BIS 261 COBOL Programming ................................ 3
BIS 264 Report Program Generator ............................ 3
BIS 343 Report Writing .................................. 3
BIS 410 Internship in Administrative Systems ............ 9
BIS 557 Topics in Administrative Systems ................. 9
BIS 596 Independent Study in Administrative Systems .... 9
BIS 598 Readings in Administrative Systems ............. 9

2. BUSINESS COMMUNICATION (BCM)

27 hours
BIS 142 Informational Writing ............................ 3
BIS 242 Business Communication .......................... 3
BIS 244 Organizational Communication ........................ 3
BIS 343 Report Writing .................................. 3
BIS 344 Business Communication Problems and Practices ....... 3
BIS 442 Advanced Business Writing ........................... 3
Plus 9 hours, as advised, from ........................... 9
BIS 410 Internship in Business Communication .......... 9

AREAS OF CONCENTRATION 147
BIS 554 Topics in Business Communication (Business Communication Media, Business Communication Systems, Business Publications, etc.)

3. COMPUTER INFORMATION SYSTEMS (CIS) 30 hours

CS 111 Computer Programming I . . . 3
BIS 260 Programming and Applications with Microcomputers . . . . . 3
BIS 261 COBOL Programming . . . . . 3
BIS 360 Information Systems Analysis and Design . . . . . 3
BIS 362 Advanced COBOL . . . . . 3
BIS 462 Applied CIS Development Project . . . . . 3
CS 443 Data Base Management Systems . . . . . 3

Plus 9 hours, as advised, from . . . . . 9
CS 223 Computer Organization
BIS 264 Report Program Generator
BIS 410 Internship in CIS
BIS 464 Decision Support and Expert Systems
BIS 466 Distributed Data Processing
BIS 564 Information Resource Management

4. A CONCENTRATION IN CONSUMER RELATIONS, using courses from several areas in the Haworth College of Business, is also available. See BIS Department Chair.

A minor, consisting of 21 hours, may be chosen from any of the majors listed above.

5. BUSINESS EDUCATION (BED) 30 hours Students who complete a prescribed BBA/business education major earn both a teaching major (30 hours) and a teaching minor (20 hours) in business and receive a Michigan Secondary Provisional Certificate for teaching business subjects in grades K through 12. In addition to satisfying University and Haworth College of Business requirements, students complete 23 semester hours of professional education courses. The majors must include VE 342 and VE 344 for 6 hours in addition to prescribed business courses; the minors include either VE 342 or VE 344. These courses may not be taken by correspondence.

A. Accounting and Related Business Subjects

ACTY 210 Principles of Accounting . . . . . 3
ACTY 211 Principles of Accounting . . . . . 3
ACTY 310 Financial Accounting I . . . . . 3
ACTY 311 Financial Accounting II . . . . . 3
OR

ACTY 322 Managerial Accounting . . . . . 3
OR

ACTY 324 Income Tax Accounting
CS 111 Computer Programming I . . . . . 3
BIS 260 Programming and Applications with Microcomputers . . . . . 3
BIS 261 COBOL Programming . . . . . 3
BIS 362 Advanced COBOL . . . . . 3
BIS 464 Decision Support and Expert Systems . . . . . 3
FCL 350 Business Law . . . . . 3

B. Business Administration

BIS 260 Programming and Applications with Microcomputers . . . . . 3
BIS 261 COBOL Programming . . . . . 3
OR

BIS 264 Report Program Generator . . . . . 3
OR

CS 111 Computer Programming I
BIS 360 Information Systems Analysis and Design . . . . . 3
BIS 182 Keyboarding . . . . . 2
BIS 183 Formatting . . . . . 2
BIS 244 Organizational Communication . . . . . 3
OR

BIS 343 Report Writing

BIS 386 Advanced Office Systems . . . . . 3
OR

BIS 556 Office Management . . . . . 3
BIS 388 Records Management . . . . . 3
ACTY 210 Principles of Accounting . . . . . 3
ACTY 211 Principles of Accounting . . . . . 3
FCL 350 Business Law . . . . . 3

Students may also meet the requirements for vocational endorsement by completing an appropriate vocational teaching area of emphasis and appropriate courses in vocational education; 4000 work hours are required, which may necessitate an internship or work experience program.

BUSINESS EDUCATION MINOR

Students not majoring in business education may elect a 20-hour business education minor in General Business or Accounting and Related Business Subjects. A minimum of 12 hours must be taken in the Haworth College of Business.

A. General Business Teaching Minor

BIS 102 Introduction to Information Systems . . . . . 3
BIS 182 Keyboarding . . . . . 2
ACTY 210 Principles of Accounting . . . . . 3
ACTY 211 Principles of Accounting . . . . . 3
ACTY 310 Financial Accounting I . . . . . 3
OR

ACTY 322 Managerial Accounting . . . . . 3
OR

ACTY 324 Income Tax Accounting
BIS 260 Programming and Applications with Microcomputers . . . . . 3
BIS 261 COBOL Programming . . . . . 3
OR

BIS 264 Report Program Generator . . . . . 3
OR

CS 111 Computer Programming I

Finance and Commercial Law (FCL)

The Finance and Commercial Law Department offers majors in general business, insurance, finance, and real estate and minors in general business, finance, law, insurance, and real estate.

1. FINANCE AND COMMERCIAL LAW MAJORS

Option 2: General Business Major (GBS) Advisers: Report to department office, 260 North Hall, for assignment to an adviser. In addition to the upper class requirements of MGMT 300 and 499, FCL 320 and 340, and MKTG 370 and an upper level quantitative class, a student may elect a logical sequence of seven advanced business courses at or above the 300 level. At least three of the seven courses must be from the Finance and Commercial Law Department and no more than three may be from any one area of study. A student majoring in general business may not minor in general business option 5.

Option 3: Insurance Major (INS) In addition to completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FCL 320 is required, all insurance majors must complete FCL 420 as their upper class advanced quantitative course plus 21 hours of Insurance, Finance, and Law courses. Of the 21 hours, 12 are required, as shown below:

FCL 321 Risk and Insurance . . . . . 3
FCL 322 Life and Health Insurance . . . . . 3
FCL 332 Property and Liability Insurance . . . . . 3
FCL 340 Tort Law and Liability . . . . . 3
The remaining nine hours are to be selected in consultation with an adviser.

Option 4: Real Estate Major (REA) Adviser: Scheu

In addition to the completion of the curriculum requirements for all students pursuing the Bachelor of Business Administration degree, for which FCL 320 is required, all real estate majors must complete FCL 420 as their upper class advanced quantitative course plus 21 hours of Finance and commercial law course study. Of the 21 hours, the following nine hours are required:

FCL 330 Real Estate Fundamentals . . . . . 3
FCL 331 Real Estate Finance . . . . . 3
FCL 332 Real Estate Investments . . . . . 3
The remaining 12 hours are to be at the 300 level or above and are to be selected in consultation with an adviser.

2. FINANCE AND COMMERCIAL LAW MINORS

Option 1: Finance Minor (FIN) Advisers: Finance Area Faculty Students wishing to minor in finance are required to take 21 hours. Eighteen of these hours are in finance and 3 are in other departments of the college. The finance minor shall consist of:

FCL 320 Business Finance . . . . . 3
FCL 325 Introduction to Financial Markets . . . . . 3
FCL 326 Investment Analysis . . . . . 3
ACTY 210 Principles of Accounting . . . . . 3
Nine (9) additional hours from . . . . . 9
available finance courses at the 300 level or above (other than Personal Finance 305) selected in consultation with an adviser and with the student's professional objectives in mind.

Option 2: General Business Minor (GBS) Advisers: Finance and Commercial Law Faculty With the exception of general business majors, any student who has completed the BBA curriculum requirements will automatically receive a general business minor. Students pursuing a degree other than a BBA degree may minor in general business by completing...
The Finance and Commercial Law Department offers the following courses:

**ACTY 210** Principles of Accounting 3
**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

Option 3: Insurance Minor (INS)
Adviser: 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 Haworth College of Business. The insurance minor consists of the following courses:

- **FCL 325** 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

Two (2) of the following courses:
- **MKTG 370** Marketing 3
- **ACTY 210** Principles of Accounting 3
- **BIS 102** Introduction to Information Processing 3
- **MGMT 300** Fundamentals of Management 3

Option 4: Law Minor (LAW)
Adviser: Law Area Faculty

Students wishing to minor in law are required to take a minimum of 21 hours. Fifteen of these 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 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 5: Real Estate Minor (REA)
Adviser: Scheu

Students wishing to minor in real estate are required to take 21 hours. Fifteen of these must be in Finance and Commercial Law courses and six are from other disciplines in the Haworth College of Business. The Real Estate minor consists of the following requirements:

- Six (6) hours in required FCL courses:
  - **FCL 320** Business Finance 3
  - **FCL 330** Real Estate Fundamentals 3

- Six (6) hours in required Haworth College of Business courses from the following list:
  - **ACTY 210** Principles of Accounting 3
  - **MKTG 270** Salesmanship 3
  - **MKTG 370** Marketing 3

- Nine (9) hours in elective Real Estate courses in the Finance and Commercial Law Department.

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 three courses listed below plus 15 hours of additional work. Such courses may be drawn from all Department of Management offerings above 302, except 360 and 499. A student who needs to build a special program is required to do so in consultation with a departmental adviser.

- **MGMT 300** Fundamentals of Management 3
- **MGMT 301** Management Analysis and Behavior (I) 3
- **MGMT 302** Management Analysis and Behavior (II) 3
- Additional 13 hours from the following:
  - **MGMT 303** Legal Environment 3
  - **MGMT 450** Administrative Behavior 3
  - **MGMT 576** Marketing Strategy 3

**MINOR IN MANAGEMENT** (21 hours)
The minor in management requires twenty-one credit hours consisting of the following courses:

- **MGMT 300** Fundamentals of Management 3
- **MGMT 301** Management Analysis and Behavior (I) 3
- **MGMT 302** Management Analysis and Behavior (II) 3
- **Electives** from the Management Department approved by a Departmental adviser 6

**MINOR IN MARKETING** (21 hours)
The minor in marketing requires twenty-one credit hours consisting of the following courses:

- **MKTG 370** Marketing 3
- **MKTG 371** Marketing Research 3
- Elective from Marketing Department approved by Departmental adviser 6

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)**

- **27 hours**
  - Adviser: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.
  - **MKTG 370** Marketing 3
  - **MKTG 371** Advertising Research 3
  - **MKTG 372** Advertising Copy and Layout 3
  - **MKTG 373** Advertising 3
  - **MKTG 374** Sales Administration 3
  - **MKTG 375** Marketing Instruments and Procedures 3
  - **MKTG 376** Consumer Behavior 3
  - **MKTG 377** Retail Promotion 3
  - **MKTG 471** Quantitative Marketing Applications 3
  - **MKTG 472** Media Planning 3
  - **MKTG 473** Advertising Copy and Layout 3
  - **MKTG 474** Consumer Behavior 3
  - **MKTG 475** Retailing and Ethics 3

**2. RETAILING (RET)**

- **27 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 372** Advertising 3
  - **MKTG 373** Sales Administration 3
  - **MKTG 374** Industrial Marketing 3
  - **MKTG 471** Quantitative Marketing Applications 3
  - **MKTG 472** Media Planning 3
  - **MKTG 473** Advertising Copy and Layout 3
  - **MKTG 474** Consumer Behavior 3
  - **MKTG 475** Retailing and Ethics 3

**3. INDUSTRIAL MARKETING (IDM)**

- **27 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 372** Advertising 3
  - **MKTG 373** Sales Administration 3
  - **MKTG 374** Industrial Marketing 3
  - **MKTG 471** Quantitative Marketing Applications 3

**4. GENERAL MARKETING (MKT)**

- **27 hours**
  - Adviser: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.
  - **MKTG 370** Marketing 3
  - **MKTG 371** Advertising Research 3
  - **MKTG 372** Advertising Copy and Layout 3
  - **MKTG 373** Advertising 3
  - **MKTG 374** Sales Administration 3
  - **MKTG 375** Marketing Instruments and Procedures 3
  - **MKTG 376** Consumer Behavior 3
  - **MKTG 377** Retail Promotion 3
  - **MKTG 471** Quantitative Marketing Applications 3

**5. MARKETING MINOR (MKT)**

- **27 hours**
  - Adviser: Report to Department of Marketing, 224 North Hall, for assignment to an adviser.
  - **MKTG 370** Marketing 3
  - **MKTG 371** Advertising Research 3
  - **MKTG 372** Advertising Copy and Layout 3
  - **MKTG 373** Advertising 3
  - **MKTG 374** Sales Administration 3
  - **MKTG 375** Marketing Instruments and Procedures 3
  - **MKTG 376** Consumer Behavior 3
  - **MKTG 377** Retail Promotion 3

Any deviations from the 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.


AREAS OF CONCENTRATION 149
2. PUBLIC ADMINISTRATION (PAB)
Adviser: McCarty
Major Requirements: 24 hours
In addition to the curriculum requirements for all students pursuing the Bachelor of Business Administration Degree, complete 24 hours from the following courses:

Required Course—Select one of the following courses:
FCL 340 Legal Environment .............................3
FCL 320 Business Finance ...............................3

Elective Courses—Select seven (7) courses
(21 hours) from the following list of courses:
ACTY 322 Managerial Accounting
ACTY 324 Income Tax Accounting
ACTY 514 Institutional Accounting
BIS 342 Report Writing
BIS 388 Records Management
BIS 556 Office Management
FCL 330 Real Estate Fundamentals
FCL 331 Real Estate Finance
FCL 450 Management and Labor Relations Law
FCL 532 Real Estate Law
FCL 554 Government Regulation of Business
MGMT 352 Personnel Management
MGMT 451 Administrative Behavior
MKTG 372 Purchasing Management
MKTG 571 Healthcare Marketing

Minor Requirements: 21 hours
PSCI 200 National Government ..........................3
PSCI 202 State and Local Government .................3
PSCI 330 Introduction to Public Administration .......3
PSCI 352 Administrative Law and Public Relations ....3
PSCI 353 Public Personnel Administration .............3
PSCI 535 The Politics of Governmental Budget and Finance ....3

Plus one of the following:
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 ........................3
Elective (one upper-level business course
emphasizing statistical applications) ..................3

4. AGRI-BUSINESS (AGB)

24 hours
Adviser: Benne
The Agri-Business major requires the completion of B.B.A. requirements and a 24-hour major in the Department of Consumer Resources and Technology. An example follows:

CRT 161 Animal Industry ................................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
FCL 320 Business Finance (Prereq. MATH 216 and ACTY 210)
FCL 340 Legal Environment
BIS 242 Business Communications (Prereq. BIS 142)
MGMT 300 Fundamentals of Management
MKTG 370 Marketing (Prereq. ECON 201)

Four courses from the following list ...........12
FCL 521 International Finance (Prereq. FCL 320)
FCL 552 International Business Law (Prereq. FCL 340)
MGMT 510 Multinational Management
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 ........................3
Foreign Language
Cultural and Regional Area Study
Skill Specialization

Haworth College of Business Courses (BUS)
(Courses described in italics are approved for General Education.)
BUS 399 Field Experience (Community Participation)
2-8 hrs.
A program of independent study combining academic work with social, environmental, civic or political field work. Prerequisites: A written outline of the student’s project, approved by a faculty supervisor, and approval from the office of the dean.
BUS 504 International Business Seminar 1-8 hrs.
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers and business executives. The seminar introduces participants to a firsthand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned reading. Students completing such a seminar may receive credit in the Departments of Accountancy, Business Information Systems, Finance and Commercial Law, Management, or Marketing, if approved by the head of the department prior to registration for the seminar. Students may receive six hours credit in any combination of departments as described, provided the seminar is planned with that combination in mind. No student will receive credit under the course plan indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the Haworth College of Business.
ACCOUNTANCY

William R. Welke, Chair
John T. Burke
Hans J. Dykhoffn
J. Patrick Forrest
Charles E. Hines, Jr.
Richard L. Hodges
Jerry G. Kreuze
Sheldon A. Langsam
William C. Morris
Robert D. Neubig
Gale E. Newall
David Rozelle
F.W. Schaeberle
John D. Sheppard
Kathleen E. Sinning
Roger Y. W. Tang

The Department of Accountancy prepares its majors for positions as accountants in industrial, governmental, and public accounting enterprises. Accountancy majors must complete the business administration curriculum.

Accountancy Courses (ACTY)

ACTY 201 Accounting Concepts and Applications
3 hrs.
A study of the fundamental concepts and applications of accounting. Especially designed for the non-business student. This course does not serve as a prerequisite for any other accounting course and cannot be used for a major or minor in business. Not open to students with credit in accounting.

ACTY 210 Principles of Accounting
3 hrs.
An introductory course in accounting which includes the recording and reporting of business transactions, and the measuring, planning and controlling of business income, assets and equities.

ACTY 211 Principles of Accounting
3 hrs.
A continuation of course 210 with emphasis on managerial cost accounting concepts. Prerequisite: 210.

ACTY 310 Financial Accounting I
3 hrs.
This course reviews the accounting cycle, related accounting records and theory. Accounting principles and reporting requirements for current assets, plant and equipment, intangibles, and other assets are also studied. Prerequisite: 211.

ACTY 311 Financial Accounting II
3 hrs.
This course is a continuation of Accounting 310. Accounting principles and reporting requirements for liabilities, long-term investments, and stockholders' equity are studied. Other topics generally included are the study of the Statement of Changes in Financial Position, the recording and reporting of accounting changes, the analysis of financial statements, and the study of statements adjusted for inflation. Prerequisite: 310.

ACTY 312 Accounting Information Systems
3 hrs.
A study of concepts, organization, technology, and controls of an accounting information system. Includes a study of specific application (payroll, accounts receivable, etc.), with particular emphasis on data input, processing, and output utilizing the computer. Prerequisites: ACTY 211, BIS 102.

ACTY 313 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.

ACTY 314 Institutional Accounting
3 hrs.
A study of special entities and special transactions not covered in Financial Accounting I and II. Particular emphasis is given to partnership equity accounting, fund accounting, financial statements of governmental and nonprofit enterprises, and the preparation of financial statements of governmental entities. Prerequisite: ACTY 311 or equivalent.

ACTY 315 Advanced Accounting
3 hrs.
A comprehensive study of the recording of transactions by government units and the preparation of financial statements by fund entities. City government is the basic unit of study; however, school districts, universities, and hospitals are given brief coverage to illustrate the similarity in accounting for both for-profit and not-for-profit enterprises. Prerequisite: 211 or written consent of instructor.

ACTY 316 Auditing
3 hrs.
The theory and practice of auditing business enterprises and governmental agencies. Topics include a review of professional pronouncements, internal control concepts, ethics, and a discussion of audit objectives. Prerequisites: ACTY 311, ACTY 313 or their equivalents.

ACTY 522 Cost Accounting—Theory and Practice
3 hrs.
A study of the accounting methodology and concepts that have been developed to account for both product and period costs of a business enterprise. Includes product costing for job order and continuous process situations with related systems concepts, cost allocations among departments of an enterprise, joint and by-product costing, and standard costing as it relates to inventory pricing. Prerequisite: 322.

ACTY 524 Studies in Tax Accounting
3 hrs.
Special studies related to tax problems of individuals, partnerships, and corporations. Emphasis is on federal taxation of corporations, trusts and estates. Prerequisite: ACTY 324 or equivalent.

ACTY 598 Readings in Accounting
1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.
The Department of Business Information Systems offers five undergraduate programs of study: (1) Administrative Systems (ADS), (2) Business Education (BED), (3) Business Communication (BCM), (4) Computer Information Systems (CIS), and (5) Consumer Relations (CRL).

Business Information Systems Courses (BIS)
(Courses described in italics are approved for General Education.)

BIS 100 Introduction to Business Writing
3 hrs.
A course dealing with those areas of written communication necessary for the development of basic business writing skills. Designed as a foundation for subsequent business writing/communication courses. Credit for this course will not apply toward the number of credits needed for graduation. (Credit/No Credit)

BIS 102 Introduction to Information Processing
3 hrs.
An introductory survey of the needs for and roles of computer information systems within business organizations which will prepare students to be relatively sophisticated computer users. Emphasis is on (1) management information systems (MIS) including a focus on information management and information processing, (2) microcomputer applications, and (3) the development of elementary level programs in BASIC language.

BIS 142 Informational Writing
3 hrs.
Development of the basic composition skills required of the competent writer in business and professions. Through continued directed practice in writing, students develop competence in organization and presentation of facts and information in writing. This course fulfills the University college-level writing requirement.

BIS 182 Keyboarding
2 hrs.
To provide basic touch keyboarding skill to input to typewriters and computers efficiently. To develop speed and accuracy on the alphabetic, numeric, and symbol keys.

BIS 183 Formatting
2 hrs.
An opportunity to build keyboarding speed and to learn to format common business information such as letters, memos, reports, and tabular material. Prerequisite: BIS 182.

BIS 242 Business Communication
3 hrs.
Business communication is a general introduction to the uses of communication in modern organizations. Organization theory, behavior, and communication channels form the basis for special emphasis on using written communication to solve typical business problems. Prerequisite: BIS 142 or its equivalent.

BIS 244 Organizational Communication
3 hrs.
A study of communication in structured organizations and the application of communication theory to the solution of communication problems in organizations. Special emphasis on small group decision making. Prerequisite: BIS 242.

BIS 260 Programming and Applications with Microcomputers
3 hrs.
A study of the role of microcomputers in business. Through hands-on exposure to small systems, students learn about microcomputer hardware configurations, business software application packages, and advanced BASIC programming techniques, especially file creation and manipulation, applicable to micros. Prerequisite: BIS 102, CS 111.

BIS 261 COBOL Programming
3 hrs.
Computer programming in the most widely used language for business type application. Programming will be done in time-sharing and/or batch sequential mode. Current computer developments are discussed. Prerequisite: BIS 260.

BIS 264 Report Program Generator
3 hrs.
Study of feasibility and applicability of RPG (Report Program Generator) computer programming to business problems. Included are the design, coding, compiling and execution of programs in RPG, RPG II, and RPG III. Prerequisite: BIS 102.

BIS 292 Consumer Principles and Practices
3 hrs.
This course examines the sociological, psychological, and economic aspects of the American consumer movement. Students review the function of the marketplace and examine its contributions and failings. Analysis is made of the changes and problems facing the consumer and the role of private and governmental protection agencies. Legal rights and responsibilities are reviewed, especially those involving warranties, guarantees, and landlord and tenant relationships.

BIS 343 Report Writing
3 hrs.
Intensive discussion and practice of the commonly used report-writing techniques. The study includes various formats and graphics of reports. In addition to writing several brief reports, students prepare a complete research report, give oral reports. Prerequisite: BIS 242.

BIS 344 Business Communication Problems and Practices
3 hrs.
An in-depth analysis of communication problems and practices as they occur in modern business. Special emphasis is given to development of business writing skills as they apply to decision making, report writing, and business communication systems. Prerequisite: BIS 242.

BIS 350 Management Information Systems
3 hrs.
Provides an understanding of and experience to support the system. Prerequisite: BIS 242.

BIS 361 COBOL Programming
3 hrs.
Continuation of BIS 261, including advanced programming techniques, especially file handling, construction of subroutines, precompilers, documentation, and systems for processing, controlling, and data-base management. Prerequisite: BIS 261.

BIS 366 Advanced Office Systems
3 hrs.
A study of the trends and impacts of automated office systems on the work process, human resources, workstations and environments, and productivity. An examination of the planning, integration, and management technology and ergonomics in the information (white-collar) environment. Prerequisite: BIS 260.

BIS 388 Records Management
3 hrs.
The study of efficient methods, procedures, and systems for processing, controlling, and disposing of organizational records. Includes records inventory and classification, information retention and retrieval, and the administration of office information systems.

BIS 410 Internship
1-4 hrs.
Under the direction of a faculty adviser, qualified students may engage in a variety of professional experiences. Scheduled meetings with adviser and written experience reports required. May be repeated for a maximum of 4 hours credit. Prerequisite: Approved application required.

BIS 422 Advanced Business Writing
3 hrs.
Emphasis on the written communication problems of business, including message design, style, and editing. Students apply skills through work with forms, brochures or handbooks, and articles. There will be some field work outside of class.

BIS 462 Applied CIS Development Project
3 hrs.
Application of computer programming and system development concepts, principles, and practices to a comprehensive system development project. A team approach is used to analyze, design, and document realistic systems of moderate complexity. Use of project management methods, project scheduling and control techniques, formal presentations, and group dynamics in the solution of information system problems. Development of a database to support the system. Prerequisite: BIS 362.

BIS 464 Decision Support and Expert Systems
3 hrs.
An analysis of the highest level of information support systems which serve the manager-user. A study of systems providing quantitative-based information derived from one or more databases 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.
BIS 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.

BIS 484 Micrographics and Reprographics
3 hrs.
Fundamentals of micrographics and reprographics, including basic components of technology, legal implications, systems applications and trends, feasibility, and industry standards. Prerequisite: BIS 386 or permission.

BIS 486 Corporate Records Centers
3 hrs.
An examination of commercial and corporate records centers. Includes services, equipment, systems, and technology; addresses functions of planning, staffing, operating, and managing records centers. Prerequisite: BIS 388 or permission.

BIS 554 Topics in Business Communication
3 hrs.
An intensive study of a topic in business communication such as a communication system, business media, business publicity and others. The topic will be announced in advance. May be repeated for credit.

BIS 555 Topics in Computer Information Systems
3 hrs.
Special topics appropriate to business applications such as data base management systems, structured concepts, networking, programming documentation and efficiency, planning, organizing and directing management information systems. May be repeated for credit.

BIS 556 Office Management
3 hrs.
Procedures of office administration with attention to supervisory patterns in development, appraisal, and management of human resources.

BIS 557 Topics in Administrative Systems
3 hrs.
Includes an intensive study of a selected topic in administrative systems such as communication audits, consumer relations, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.

BIS 560 Office Systems and Procedures
3 hrs.
A study of paperwork systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement.

BIS 564 Information Resource Management
3 hrs.
This seminar course provides an overview of the management of information systems resources. The student will gain an insight and understanding of the subject through study of the fundamentals of organizing, planning, controlling, and other significant management tasks that relate to management of information resources. Prerequisite: BIS 462.

BIS 596 Independent Study
1-4 hrs.
A directed independent project in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.

BIS 596 Readings
1-4 hrs.
A series of direct readings in an area of Administrative Systems, Business Communication, or Computer Information Systems. Prerequisite: Approved application required.
FCL 325 Introduction to Financial Markets 3 hrs.
A survey of financial markets and intermediaries with emphasis on their structure, social justification, and current status. This course provides additional background for advanced study in finance and a practical foundation for those students interested in an exposure to the financial system. Prerequisite: ACTY 210.

FCL 326 Investment Analysis 3 hrs.
A survey of the securities markets from the viewpoint of the novice investor. This course includes a study of market operations, trading techniques, special investment vehicles such as options and warrants, and a consideration of the investment objectives and practices of institutional investors. Prerequisite: FCL 320 or consent of instructor.

FCL 327 Internship in Insurance 1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with an insurance company or firm with an insurance division or department. Students are required to file periodic reports to the faculty adviser. In addition, they are evaluated by the firm’s executives. Available only to students majoring or minoring in insurance. No more than 3 hrs. can be used as credit toward a major or minor.

FCL 328 Internship in Finance 1-5 hrs.
Under the direction of a faculty adviser, students obtain employment experience with industrial, commercial, and financial enterprises. Students are required to file periodic reports to the adviser. In addition, they are evaluated by the firm’s executives. Available only to students majoring in finance. No more than 3 hrs. can be used as credit toward a major or minor.

FCL 330 Real Estate Fundamentals 3 hrs.
Supplies the basis for comprehension of the basic economic characteristics and the organization and techniques used in the real estate business. Treats real estate resources, marketing, financing, valuation, and trends.

FCL 331 Real Estate Finance 3 hrs.
Considers the field of real estate finance from the viewpoint of sources of funds, various real estate contracts, valuation techniques, appraisals of property and income properties and the various aspects of risk analysis in real estate. Prerequisite: FCL 330 or consent of instructor.

FCL 332 Real Estate Investments 3 hrs.
The effect of various forms of taxation, market conditions and governmental policies as they affect the investor’s spendable income are reviewed. Prerequisite: FCL 330 or consent of instructor.

FCL 333 Real Estate Appraisal 3 hrs.
A study of the sources of real estate value, the techniques for estimating property value, and the effective use of real estate appraisal. Prerequisite: FCL 330 or consent of instructor.

FCL 420 Quantitative Applications in Finance 3 hrs.
The applications of quantitative analysis to finance. Emphasis will be placed on the techniques available in financial decision making, determination of financial relationships, and financial forecasting. Applications in corporate financial management, investment analysis, and financial institutions. Prerequisite: FCL 320.

FCL 425 Asset Management: Theory and Practice 3 hrs.
An analytical approach to the study of the concepts and theories underlying asset valuation and management. Apart from this theoretical framework, the course includes cases covering financial decision-making processes in the areas of financial analysis and forecasting, asset valuation and working capital management. Prerequisite: FCL 320.

FCL 426 Corporate Financing: Theory and Practice 3 hrs.
An analytical approach to the study of the concepts and theories underlying the financing decisions of business enterprises. Apart from this theoretical framework, the course includes cases covering financial decision-making processes in the areas of long-term financing decisions, financial structure, cost of capital, dividend policy, merger, reorganization and international financial management. Prerequisite: FCL 320.

FCL 427 Advanced Financial Markets 3 hrs.
Further studies of financial markets stressing theories, supporting evidence, and policy implications of selected topics. Research and analytical methods are included in the course content. Prerequisite: FCL 325.

FCL 428 Management of Financial Institutions 3 hrs.
This course is devoted to in-depth analysis of the operations of selected financial institutions with emphasis on management decision-making processes. Case analysis and analytical problems are included in the course content. Prerequisite: FCL 325.

FCL 429 Mortgage Banking 3 hrs.
Mortgage lending in the United States with special emphasis on the function, lending policies and operations of mortgage banks. Considers interrelationships of these institutions with savings and loan associations, savings banks, insurance companies, individuals and governmental institutions in providing funds to the primary and secondary mortgage markets. Prerequisites: FCL 325.

FCL 434 Real Estate Land Development 3 hrs.
Neighborhood and city growth, municipal planning and zoning, development of residential, commercial, industrial and special purpose properties are analyzed. Prerequisite: FCL 330 or consent of instructor.

FCL 437 Real Estate Management 3 hrs.
Management of income producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance and maintenance.

FCL 519 Security Analysis 3 hrs.
An analysis of stocks and bonds as investment vehicles. The course is designed as a sophisticated analysis of valuation techniques with a view towards aiding the student to bridge the gaps between techniques used by the academicians and the practitioner. Prerequisite: FCL 326.

FCL 521 International Finance 3 hrs.
A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Prerequisite: FCL 320 or consent of instructor.

FCL 526 Group Insurance and Pensions 3 hrs.
By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: FCL 322.

FCL 527 Risk Management and Insurance 3 hrs.
This course covers the function of risk management and the responsibilities of risk managers. The sources of risk information are examined, the business risks analyzed and the alternative methods of handling risks evaluated. Criteria for selection of proper insurance coverages and selection of carriers and intermediaries are reviewed. Prerequisite: FCL 321 or consent of instructor.

FCL 528 Insurance Company Management 3 hrs.
The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations and personal and commercial risk surveys and analysis. Prerequisite: FCL 323.

FCL 598 Readings in Finance and Commercial Law (Finance) 1-4 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

LAW COURSES
F. William McCarty, Chair
Nicholas C. Batch
Thomas Gossman
Stephen Schanz
Leo Stevenson
Carol VanAuken-Haight

FCL 311 Ecology and the Law 3 hrs.
The study of law as it relates to people’s efforts to protect the environment. Included will be an examination of traditional common law principles and federal and state statutes relating to environmental protection, analysis of recent cases, and discussion of techniques for the effective use of administrative procedures of the various environmental protection agencies.

FCL 340 Legal Environment 3 hrs.
An introduction to the legal environment in society. An examination of the role of law in society, the structure of the American legal system and the basic legal principles governing individual conduct.

FCL 350 Business Law 3 hrs.
The study of law affecting common business transactions. The course examines the formation and performance of contracts, basic types of property interests, and key aspects of
laws affecting commercial paper, sales law, creditor-debtor relationships, and estate planning laws are briefly discussed. Prerequisite: FCL 340.

FCL 352 Commercial Law 3 hrs.
The study of law affecting the organization and operation of business firms. Organizational concerns focus on partnership and corporation laws and regulations affecting the issuing and sale of corporate securities. The agency relationship, particularly between employer and employee, which affect the operation of business activities are also examined. Prerequisite: FCL 340.

FCL 360 Criminal Law and Procedure 4 hrs.
This course surveys the laws and procedures underlying the American criminal justice system. After an introduction to the philosophy and sources of criminal law, the course investigates the legal definition of particular crimes and studies their elements. Legal procedures from arrest, through pre-trial and trial phases, to sentencing, probation and parole are also considered, together with relevant evidentiary topics. Prerequisite: SOC 462 or PSCI 525 or FCL 340 or consent of Instructor.

FCL 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.

FCL 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.

FCL 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.

FCL 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.

FCL 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.

FCL 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.

FCL 598 Readings in Finance and Commercial Law (Law) 1-4 hrs.
Directed individual study of legal problems which are not treated in departmental course offerings. Prerequisite: Written consent of the instructor.

MANAGEMENT

Carol Stamm, Chair
Raymond E. Ale
John A. Batcha
Henry H. Beam
Gene S. Booker
Thomas A. Carey
Daniel J. Farrell
Damodar Golhar
James W. Hill
Katherine Karl
J. Michael Keenan
Jerry M. Kopf
Robert Landeros
John R. Rizzo
Trudy G. Verser
Selvi Vescovi
Richard Washburn

Management Courses

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

MGMT 210 Small Business Management 3 hrs.
A study of the fundamental principles involved in the operation of a small business enterprise. The structure, functions, and basic operating principles will be discussed and developed. Prerequisite: Non-BBA students only.

MGMT 300 Fundamentals of Management 3 hrs.
An introduction for non-business students to the concepts, theories, models, and techniques central to the practice of management. Historical and contemporary thought are presented in the context of the behavioral, structural, functional, quantitative, and ethical aspects of managing organizations. Cross-cultural aspects of management are also explored. Expected outcomes for the student are a general familiarity with the management process, and limited situational application of course content. Prerequisite: junior standing.

MGMT 301 Management Analysis and Behavior (I) 3 hrs.
Management analysis and behavior will be presented and practiced by the students in small task oriented groups working on real problems. Group decision making, problem solving, and business presentations are emphasized. In addition, the student will learn the costs and benefits of assuming different group roles. Prerequisites: MGMT 300.

MGMT 302 Management Analysis and Behavior (II) 3 hrs.
An extension of MGMT 301.

MGMT 310 Survey of Management 3 hrs.
An introduction for non-business students to the key concepts and issues underlying management. The course includes a survey of management history and theory, management organization, and the process of management. Not open to PBA students or business majors or minors.

MGMT 352 Personnel Management 3 hrs.
The personnel function in organizations including manpower needs, staffing and development; organization and individual appraisal; employee compensation and benefits; safety and health; approaches to employee problems; labor relations. Prerequisite: junior standing.
to provide a clear understanding of both the limitations and potential benefits of formal decision processes to supplement intuitive decision making. The objective of the course is to introduce students to the concepts of decision making in uncertain environments. This course is designed to present methods and their application to the functional areas of business. Topics covered include system modeling, probability theory, forecasting methods, decision making under conditions of certainty, risk and uncertainty, inventory models, linear programming, elementary queuing theory, and introduction to techniques of mathematical simulation. Prerequisite: MATH 216 or equivalent.

MGMT 400 Topics in Management
3 hrs.
An examination of advanced topical problems in management. (Repeatable)

MGMT 404 Business and Society
3 hrs.
A systematic analysis and evaluation of the institutions and other external and internal factors which shape the role of business in the United States. Illustrative topics: pluralism, values, ethics, social responsibility, the business/government relationship, productivity, corporate governance and social responsiveness.

MGMT 432 Compensation Administration
3 hrs.
This course is an advanced introduction to compensation management. The course covers four general topics: wages and salary administration, performance appraisal, incentive systems, and supplementary benefits. Intended to emphasize application, the course assumes a knowledge of motivation and reinforcement theory. Prerequisites: MGMT 300, MGMT 352, and MGMT 360.

MGMT 451 Administrative Behavior
3 hrs.
A course designed to integrate the contributions and implications of the behavioral sciences to modern business practice to promote and maintain effective human relations for the individual and the group. Extensive use of cases and conference methods is made.

MGMT 453 Organizational Behavior
3 hrs.
A study of current theory, research, and practice regarding variables that influence human behavior in complex organizations. Emphasis is placed on models relevant to human productivity, satisfaction, retention, and learning in organizational settings.

MGMT 454 Employment Relations
3 hrs.
This course is designed to present methods and concepts of managing employment relations. How labor unions operate and how businesses avoid or become involved with labor unions are investigated. Negotiation, conflict resolution, and contract administration processes and their operation are covered. The goals, purposes and history of organized labor within the United States are examined. Maintenance of the quality of relationships between employees and organizations is explored. Prerequisite: MGMT 300, MGMT 352.

MGMT 460 Decision Analysis
3 hrs.
The course is designed to present methods and concepts of decision making in uncertain business environments. It will address both the philosophy, and the methodology of scientific decision processes to supplement intuitive decision making. The objective of the course is to provide a clear understanding of both the limitations and potential benefits of formal analysis and information gathering. Some of the topics covered include: utility functions, values of perfect and imperfect information, and preference assessment. Prerequisite: MGMT 360.

MGMT 463 Production and Operations Management
3 hrs.
Economic and socio-technical characteristics of the major types of production systems. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisites: MGMT 360 or equivalent (BIS 464, FCL 420, ECON 400, MKTG 471).

MGMT 464 Production Management and Control
3 hrs.
Quantitative and computer-based methods of planning and controlling operations in manufacturing industries and service organizations. Areas covered in depth include scheduling, aggregate planning, and inventory control. This course is intended for students interested in quantitative applications in business as well as management majors concentrating in production and operations management. Prerequisite: MGMT 360.

MGMT 495 Independent Study
1-4 hrs.
Independent research on specialized management topics. Prerequisite: Consent of instructor. (Repeatable)

MGMT 499 Management Problems
3 hrs.
An integrative course intended to give the student opportunity to solve management problems by bringing together the knowledge gained in the study of areas such as finance, accounting, marketing, economics, management. Prerequisites: Senior standing and all core courses.

MGMT 510 Multinational Management
3 hrs.
An examination of management strategy, control, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.

MGMT 512 Women in Management: Male, Female, and Organizational Perspectives
3 hrs.
A seminar dealing with the changing roles of women in business. Emphasis is given to the unique needs of women aspiring to managerial and professional ranks. Changes in attitudes and behaviors of women, men and organizations and the implications of change for traditional male-female relationships and organizational operations are explored.

MGMT 514 Entrepreneurship
3 hrs.
A senior or graduate elective for students interested in entrepreneurial careers. Primary attention given to managing a new or rapidly growing business. Alternative sources of capital are examined. Various growth strategies considered along with personal requirements for entrepreneurial success. Prerequisite: MGMT 300, FCL 340, FCL 320, MKTG 370 or department consent.

MGMT 540 Advanced Statistics
3 hrs.
A second course in statistics. Includes probability distributions, hypothesis testing with sampling theory, Type I and Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and nonparametrics tests. Prerequisite: MATH 216.
MARKETING

Lowell E. Crow, Chair
Joseph J. Belonax
Andrew A. Broczewicz
Raymond A. Dannenberg
Linda M. Delene
Gail Glenesk
Paul Lane
Hanjoon Lee
Jay D. Lindquist
Mushaq Luczmani
Edward J. Lu
Conner P. Otteson
Morris Perry
Zahra A. Quraeshi
Robert Reck
Gail Stautamoyer

Marketing Courses (MKTG)

MKTG 270 Professional Selling
3 hrs. Fall, Winter
An introduction to the principles of selling. Includes study of selling in our present economic environment, the steps in a sales demonstration, and a classroom demonstration.

MKTG 300 Survey of Marketing
3 hrs.
An introduction for non-business students to the key concepts and issues underlying marketing. The course includes a survey of the nature of marketing, marketing organization, and the marketing process. (Not open to business majors or minors. Validation of MKTG 300 as a substitute for MKTG 370 requires a "C" or better grade in MKTG 371 for students who qualify and elect additional courses.)

MKTG 370 Marketing
3 hrs. Fall, Winter, Spring, Summer
Functions, institutions, and problems of marketing examined from the viewpoint of their effect on distribution of goods. Prerequisite: ECON 201.

MKTG 371 Marketing Research
3 hrs. Fall, Winter, Spring, Summer
An introduction to the research process as it aids decision making in marketing management. The focus is on the stages of research process from the planning of the research to gathering, analysis, and interpretation of data as it relates to marketing management. Prerequisites: MKTG 370, MGMT 200.

MKTG 372 Purchasing Management
3 hrs. Fall, Winter
The organization and operation of the purchasing function, responsibilities and policies: problems confronting the purchasing department, relationships with other departments and suppliers. Prerequisite: MKTG 370.

MKTG 374 Advertising
3 hrs. Fall, Winter, Spring, Summer
A comprehensive survey of basic principles and practices of advertising in their relationship to the economy, society, and the system of mass communication. Prerequisite: MKTG 370.

MKTG 375 Principles of Retailing
3 hrs. Fall, Winter
Considers the activities necessary in performing the management of a retail establishment. Changes in consumer demographics, lifestyle and the decision making process. Sources and uses of funds, inventory planning and control, merchandise resources, promotion, customer services, building layout, and expense analysis are special areas of study. Prerequisite: MKTG 370.

MKTG 376 Sales Administration
3 hrs. Fall, Winter, Spring, Summer
Topics include the role of personal selling in the firm; determination of market and sales potential; training; sales communication; territories and quotas; motivation, measuring selling effectiveness. Prerequisite: MKTG 370.

MKTG 377 Retail Promotion
3 hrs. Fall, Winter
Study of techniques used in identifying and appealing to retail consumer needs through the use of various store and departmental promotions, newspapers, radio, T.V., direct mail, and point-of-purchase advertising. Ethical considerations of all retail promotion explored. Prerequisite: MKTG 370.

MKTG 470 Industrial Marketing
3 hrs. Fall, Winter, Spring
A course designed to analyze the problems of marketing industrial goods. Attention is given to market information, market planning, methods of distribution, pricing, and the promotional problems of industrial marketing. Prerequisite: MKTG 370.

MKTG 471 Quantitative Marketing Applications
3 hrs. Fall, Winter, Spring
Provides marketing student with a basic understanding of and applied ability to utilize qualitative and quantitative methods and techniques and shows how these techniques will assist the decision maker in solving marketing problems. A term project applying the research process, concepts, and theoretical methods is required. Prerequisites: MKTG 370, 371.

MKTG 472 Advertising Media and Campaigns
3 hrs. Examines theory and practice of media research, use of Audit Bureau of Circulation data, advertising, development of media plans and scheduling as required for advertising campaigns. Prerequisites: MKTG 374 and MKTG 474; Advertising Majors only.

MKTG 473 Direct Marketing
3 hrs.
Covers principles, concepts, methods, techniques, and applications of direct marketing; includes use of direct marketing under various conditions of media with special emphasis on mail, electronic media, telephone, and catalog advertising; student projects required. Prerequisite: MKTG 370, MKTG 374; Advertising majors only.

MKTG 474 Advertising Copy and Layout
3 hrs. Study of the theory and practice in the writing, preparation and typographical composition of advertising including the writing of radio, television, magazine, and newspaper copy. Prerequisites: MKTG 370, MKTG 374. Advertising majors only.

MKTG 475 International Marketing
3 hrs. Fall, Winter, Spring
An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures, and marketing research tools and techniques required to locate and evaluate foreign markets. Prerequisites: MKTG 370.

MKTG 476 Retail Merchandising
3 hrs. The planning, "buying", and controlling of merchandise for resale through retail outlets; fashion, mass merchandise, specialty, boutique, department, and food stores. Students will develop buying plans for various products, such as fashion merchandise, sporting goods, wearing apparel, household goods, and others. Prerequisites: MKTG 370, MKTG 375.

MKTG 477 Consumer Behavior
3 hrs. Fall, Winter
Investigate, analyze and interpret the extensive body of research information on consumer behavior considering both theoretical and practical implications. Prerequisite: MKTG 370.

MKTG 478 Marketing Decisions in Publicity and Public Relations
3 hrs.
Analysis of principles and practices of publicity and public relations as these areas relate to the firm's overall promotional strategies; stress on application through case studies and term project. Prerequisite: MKTG 370.

MKTG 479 Marketing Internship
1-6 hrs. Arranged
Fall, Winter, Spring, Summer
Cooperative internship training for the BBA degree marketing majors having completed sophomore year. Variable credit at the rate of approximately one credit per 100 hours of internship training acceptable to adviser. May be repeated for a maximum of 3 hrs. Term reports required; evaluations completed by executives of firms in which training takes place. Prerequisites: Marketing major; permission of the instructor.

MKTG 571 Healthcare Marketing
3 hrs.
An analysis of the field of marketing and its application in the healthcare industry. Emphasis will be on the role and utilization of marketing by a range of healthcare providers from hospitals to agency and medical group services.

MKTG 574 Marketing Logistics
3 hrs. Fall, Winter, Spring
An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisite: MKTG 370.

MKTG 576 Marketing Strategy
3 hrs. Fall, Winter, Spring
Identification of marketing problem situations and cause diagnosis with development of appropriate marketing strategies. Stress placed on application of marketing fundamentals to factual case situations and on decisions in a simulated dynamic environment. Communications of finding and strategies emphasized. Cases and computer games used. Senior level, MKTG 371 (573), plus 6 additional MKTG hrs.

MKTG 577 Advertising Theory and Ethics
3 hrs. Critical examination of social, cultural, and ethical implications of "public and business" responsibilities involved in the advertising function. Special student interests developed through research and term projects. Prerequisite: MKTG 370, 374; permission of instructor.

MKTG 598 Readings in Marketing
1-3 hrs. Arranged
Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisites: Written permission of instructor.
In general, the College of Education performs seven functions:
1. Supervises the selection, admission, and retention of students in advanced teacher education curricula.
2. Provides professional education courses designed to develop competent, efficient performance in the classroom and within a school system.
3. Provides advanced specialized courses in selected major and minor fields in departments within the college.
4. Provides service courses to students in other colleges within the University.
5. Provides clinical and curricular development services to teachers and school personnel.
6. Conducts experimentation and research at all levels of professional education.
7. Maintains liaison with professional organizations and learned societies involved in teacher education.

Curricula for Teachers

The program for prospective teachers consists of three parts: (1) general education, designed to develop an intellectual foundation of appropriate depth and breadth in liberal arts and general studies; (2) advanced specialized study, in a major and minor field structured to develop a high level of academic competence and understanding; and (3) professional education study organized to prepare teacher candidates to work effectively in schools.

Prospective teachers choose to work for the Michigan Elementary Provisional Certificate (valid for teaching all subjects in grades kindergarten through eighth grade and major/minor subjects in departmentalized classrooms in grades six through eight) or the Michigan Secondary Provisional Certificate (valid for major and minor subjects in grades seven through twelve).

The following undergraduate curricula lead to certification and are offered in the College of Education: Elementary Education, Special Education, Secondary Education, and Physical Education. Students seeking admission to these curricula must contact the Office of Admissions and Advising, 2504 Sangren Hall.

Students electing to major in Art, Music, Physical Education, Health Education, Business Education, Industrial Arts, or Home Economics may be certified to teach in their specialized area in grades K-12 by completing the required coursework and certification requirements. Students seeking admission to one of the following curricula must see the appropriate college or department advisor as well as the Office of Admissions and Advising:
- Art (see Department of Art adviser)
- Music (see School of Music for audition)
- Business Education (see Haworth College of Business adviser)
- Special Education (see Department of Special Education adviser)

- Speech Pathology and Audiology (see Department of Speech Pathology and Audiology adviser)

Teaching certificates are granted only to those students who satisfactorily complete an approved teacher education program with an overall grade point average of 2.5 and a bachelor's degree. Students in Speech Pathology and Audiology must complete a master's degree.

Office of Admissions and Advising

2504 Sangren Hall
387-3474

Advisors:
Joyce DeRight, Director
Wendy Asmus
Maxine Gilling

The Office of Admissions and Advising provides information regarding teacher education curricula and processes applications for admissions to those curricula in the College of Education. The office also coordinates academic advisement for students enrolled in all teacher education curricula.

ADMISSION/ADVISEMENT

All students seeking admission to teacher education curricula as entering freshman, transfers, or as students changing curricula must contact the Office of Admissions and Advising. All undergraduate students declaring a preference for a curriculum leading to a teaching certificate will be assigned a pre-education designator (PED) at the time of admission to the University. Students wishing to enter Professional Education (i.e., upper-division coursework) must meet the following requirements:
- Completion of at least 35 credit hours of lower-division coursework which meet requirements in General Education and/or serve as prerequisites to majors and minors approved for teacher certification.
- Completion of all Intellectual Skills requirements including a college-level writing course.
- Completion of ED 250, Human Development, or an approved equivalent course, with a grade of "C" or better.
- Achievement of a cumulative grade point average (GPA) of 2.5 or better.
- Achievement of passing scores on the Pre-Professional Skills Test (PPST).
- Completion of a formal application for admission to Professional Education. Students designated as PED will not be permitted to enter upper-division professional education coursework until all admission requirements have been met.
TEACHER TESTING
Beginning September 1, 1991, the State Board of Education shall issue a teaching certificate only to persons who have passed both a basic skills examination and each appropriate subject area examination for each subject area in which they are to be certified. Michigan state law requires that these examinations be passed prior to enrollment in student teaching.

Effective Fall Semester, 1987, all students entering a teacher education curriculum will be required to pass the Pre-Professional Skills Test (PPST) prior to admission to Professional Education. Effective Fall Semester, 1990, all students admitted to student teaching must pass the required subject area examinations prior to enrollment.

Information regarding required teacher testing may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Certification Office
Diane Felc, Certification Officer
2504 Sangren Hall
387-3473

The University Certification Office processes all recommendations for certification and advises post-baccalaureate students seeking teacher certification. Further information about available certifications can be found under Types of Michigan Certificates elsewhere in this bulletin.

Office of Directed Teaching
Jeanne L. Williams, Director
2104 Sangren Hall
387-3466

The Office of Directed Teaching is responsible for the coordination and oversight of all field experiences and directed or student teaching associated with teacher education curricula.

STUDENT TEACHING
The following criteria must be met prior to student teaching:

1. Completion of all required coursework.
2. A cumulative grade point average of 2.5 or above.
3. An overall grade point average of 2.5 in the professional sequence and no grade lower than a "C" in any Professional Education course.
4. Completion of the Elementary Education Minor for those seeking placement in an early childhood or elementary school setting.
5. Recommendation from major and minor departments.
6. Completion of method course(s) in major and/or minor with a minimum grade of "C".

Students must contact the Office of Directed Teaching at least one semester prior to the semester in which they plan to complete their student teaching requirements. The deadline for submitting student teaching applications for the Fall Semester is January 15. The deadline for submitting student teaching applications for the Winter Semester is September 15. Students may not enroll in another coursework during student teaching.

APPEALS
A student aggrieved by an action taken by the Office of Directed Teaching has the right to appeal such action by filing an appeal form in the Office of Directed Teaching within fourteen (14) days of the aggrieved action. Appeals may be reviewed by the Academic and Professional Standards Committee. Information about the appeal procedure is available in the Office of Directed Teaching.

HEALTH AND LIABILITY INSURANCE
Students entered in field experiences or directed teaching must give evidence of having both health and liability insurance at the time of course enrollment.

Elementary Education Curriculum
Bachelor of Arts or Bachelor of Science Degree
Michigan Elementary Provisional Certificate

The Elementary Education Curriculum is designed to prepare students to assume teaching responsibilities in self-contained classrooms in grades K-8.

Additional information may be obtained from the Office of Admissions and Advising, 2504 Sangren Hall.

Minimum hours required for this curriculum 130 hours

Program Requirements:

General Education Distribution 50 hours

General Education Requirement: 35 hours

General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan certification. Students' General Education Distribution requirements will be met by options within the professional education program and the approved minors. (Courses listed in the elementary education program description with an * are approved for General Education credit. Two courses at the 300-400 level are required.)

Minors/Majors Approved for Elementary Education

Students selecting the elementary education curriculum also required to complete three minors: the Elementary Education Minor (EED, 28 hrs.), the Science and Mathematics Teaching Minor (SCM, 27 hrs.) and one additional minor selected from the following: Art (ATE), 24 hrs.; Integrated Creative Arts (CRA), 24 hrs.; English Elementary Education (ENG), 20 hrs.; French (FRE), 20 hrs.; German (GER), 20 hrs.; Group Social Science (SOS), 24 hrs.; Integrated Language Arts (ILAM), 24 hrs.; Physical Education Elementary (PEP), 22 hrs.; Physical Education Exceptional Child (PEC), 23 hrs.; Spanish (SPA), 20 hrs.; or they may elect one of the following major and minor combinations: Art major (61 hrs.) with Elementary Education minor; Music major** (63 hrs.) with Elementary Education minor; Physical Education major (45 hrs.) with Elementary Education minor; Speech Pathology and Audiology major*** with Elementary Education minor. Teaching certificate awarded upon completion of master's degree.

Special Education, Emotionally Impaired/Elementary major** (34 hrs.). Contact Department of Special Education to determine acceptable minors and desired level of preparation.

Special Education, Orthopedically Impaired/Elementary major** (34 hrs.). Contact Department of Special Education to determine acceptable minors and desired level of preparation.

Special Education, Visually Impaired/Elementary major** (34 hrs.). Contact Department of Special Education to determine acceptable minors and desired level of preparation.

Notes: ** Special Education majors require admission to Special Education Curriculum. Music majors require admission to College of Fine Arts.

*** Speech Pathology and Audiology majors are certified upon successful completion of master's degree.

Requirements and approval for these required minors are available in the Office of Admissions and Advising. All students must have minor slips signed by an approved elementary education adviser.

General Education Foundations 23/27 hours

ENGL 282 Children's Literature 4 hrs.

One course from the following:

ENGL 105 Thought and Writing 4 hrs.

BIS 142 Informational Writing 3 hrs.

One course from the following:

GEOG 102 World Geography Through Media and Maps 3 hrs.

HIST 211 U.S. History Since 1877 3 hrs.

PSCI 200 National Government 3 hrs.

One course from the following:

COM 170 Interpersonal Communications 3 hrs.

GHUM 315 Human Communications 4 hrs.

SPPA majors may substitute *LING 105, The Nature of Language (4 hrs.)

One course from the following:

GHUM 409 Women: Past, Present, and Future 4 hrs.

GS SC 444 Female and Male: Psychological Perspectives 4 hrs.

One course from the following:

ANTH 120 Peoples of the World 3 hrs.

ANTH 220 Cultural Anthropology 3 hrs.

GENL 304 Introduction to Non-Western World 4 hrs.

One course from the following:

ANTH 240 Principles of Cultural Anthropology 3 hrs.

BAS 300 Biological Basis of Behavior 3 hrs.

ECON 100 Contemporary Economic Problems 3 hrs.

GEOG 311 Geography of Michigan 3 hrs.

GSSC 123 Human Society 4 hrs.

HIST 210 U.S. History to 1877 3 hrs.

SOC 200 Principles of Sociology 3 hrs.

Note: Approved for General Education credit.

CURRICULA 159
Elementary Education Minors

These 28 hour interdepartmental programs are designed to prepare students to assume teaching responsibilities in a general education classroom in grades K-8.

Prior to entering the minors, students must complete: (a) 12-16 hours of specified General Education coursework in addition to the hours required as part of the Professional Education sequence and (b) 7-10 hours of prerequisites to required courses in the minor.

Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of English

These courses cannot be used as part of any other minor or major.

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>MATH 150</td>
<td>Structure of Arithmetic</td>
<td>4 hrs.</td>
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<tr>
<td>Required prerequisite: MATH 110 OR adequate performance on placement test</td>
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* Approved for General Education credit. See adviser in Integrated Language Arts for requirements in minor.

Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of French, German, Spanish, or Group Social Science

These courses cannot be used as part of any other minor or major.

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>*GEOG 105</td>
<td>Physical Geography</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>*GSCI 131</td>
<td>Physical Science in Elementary Education</td>
<td>4 hrs.</td>
</tr>
</tbody>
</table>

*Approved for General Education credit. See adviser in third minor.

Elementary Education minor requirements with Science and Mathematics Teaching Minor and third minor of Art, Creative Arts, Physical Education/Elementary, or Physical Education/Exceptional Child

These courses cannot be used as part of any other minor or major.

Select one course from the following:

<table>
<thead>
<tr>
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<th>Hours</th>
</tr>
</thead>
<tbody>
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<td>*GSCI 131</td>
<td>Physical Science in Elementary Education</td>
<td>4 hrs.</td>
</tr>
</tbody>
</table>

*Approved for General Education credit. See adviser in third minor.

Required courses—to be taken in this sequence:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 150</td>
<td>Structure of Arithmetic</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>Required prerequisite: MATH 110 OR adequate performance on placement test</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Approved for General Education credit. See adviser in third minor.
ED 351 Reading and Related Communication Skills for Early Childhood ................. 3 hrs.
  Prerequisite: ENGL 282 AND ED 312

ED 352 Reading and Related Communication Skills for Middle and Upper Grades .......... 3 hrs.
  Prerequisite: ENGL 282 AND ED 312 and ED 351

ED 307 Teaching Elementary Social Studies ............................................. 3 hrs.
  Prerequisite: (a) Minimum of 75 earned hours; (b) ED 250; (c) GEOG 102 OR HIST 211 OR PSCI 200; (d) ED 370 recommended

Select one course from the following:

ENGL 369 Writing for Elementary Teachers .................................................. 4 hrs.

ENGL 373 Reading and Writing as Psycholinguistic Processes ............................. 4 hrs.

Select one course from the following:


* Approved for General Education credit. See adviser for third minor.

Integrated Language Arts Minor (ILAM)

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

An interdisciplinary program of:

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

This 24-hour interdepartmental program for preservice elementary school teachers emphasizes the integrated nature of learning. The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. Students in the program are encouraged to develop and implement innovative instructional materials and practices based on sound theory.

Each course is taught by a faculty member with interdisciplinary expertise from one of the departments participating in the minor. Each course focuses on a particular aspect of language development which will be presented through a balance of lectures, discussions, and workshops together with opportunities for student-initiated learning.

Students can enter the program in their sophomore year. In general, ED 250, Human Development (or its equivalent), is a prerequisite for admission to the program. English 282, Children's Literature, is also recommended. A program bulletin and application form are available in the Advising Offices of the College of Arts and Sciences or the College of Education, and from the Integrated Language Arts (ILAM) Adviser, Dr. Jim Burns, 3414 Sangren Hall, 387-3470. A minor slip is required.

Students must see the minor adviser before they enter the minor. A 2.75 GPA is required for entrance.

Program

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

Entry Courses—must be taken concurrently:

ILAM/ED 260 Cognitive Development of the Child ........................................... 2 hrs.

ILAM/SPPA 260 Linguistic Development of the Child ..................................... 2 hrs.

CURRICULA 161

MUS 140 Music for the Classroom Teacher ...................................................... 3 hrs.

ART 200 The Creative Process Through Art ..................................................... 4 hrs.

COM 564 Creative Drama for Children ............................................................ 4 hrs.

ED 430 Creativity in the Elementary School ..................................................... 4 hrs.

Electives** ........................................ 1-4 hrs.

* Approved for General Education credit.

** ED 230 is geared to personal creative development and is not restricted to Integrated Creative Arts Minor. Students enrolled in the minor must take ED 430 (Creativity in the Elementary School) after they have taken all other courses in this group minor.

** Electives to accommodate student needs and balance will be determined by the departments and faculties of Education and Professional Development, Art, Dance, Music, and Communication and selected with the approval of the adviser.
Emphasis in Early Childhood Education
Adviser: Mary A. Cain
2430 Sangren Hall
(616) 387-3492
(Students must see the Early Childhood adviser prior to enrollment in the program.)

The Early Childhood Emphasis offers a special professional sequence for kindergarten through eighth grade certification with an endorsement signifying special preparation in teaching young children. Prerequisite: ED 250, Human Development.

Students will have a split directed teaching assignment, which will be done in the Kalamazoo area, where childhood faculty are available. (Rare exceptions to Kalamazoo assignments may be made upon approval of the Early Childhood adviser.) Students with an Early Childhood Emphasis should satisfactorily complete the Elementary Education Curriculum requirements, with the following additional courses or substitutions:

- ED 350 Young Children, Their Families, and Their Society 3 hrs.
- ED 351 Reading and Related Communications Skills for Early Childhood 3 hrs.
- ED 370 Educational Psychology: Young Children/Elementary 3 hrs.
- ED 371 Classroom Organization and Management: Young Children/Elementary 3 hrs.

(Students must enroll in specially designated early childhood section)

NOTE: COM 365, when taken as part of the Early Childhood minor, may also count toward the Emphasis.

* The directed teaching experience, with its accompanying seminar, counts as half of the required number of directed teaching hours for certification of the elementary school teacher and is not an additional student teaching assignment. In all, the student must complete 12 hours of directed teaching and seminar for elementary certification.

Middle School and Junior High School Curriculum
Bachelor of Arts or Bachelor of Science Degree
State Elementary or State Secondary Provisional Certificate

A program of undergraduate studies to prepare students to teach in the middle and junior high school which focuses on teaching-learning processes and content areas which are effective for working with the older child and the young adolescent in grades 5-9. (Students have option of earning elementary (grades K-8) or secondary (grades 7-12) certification. Elementary certification is recommended.) The program includes a two-semester sequence of planned and supervised experiences specifically designed for teaching in the middle or junior high school.

Program requirements must be planned and approved by adviser.

Minimum hours required for this curriculum: 122 hrs.

General Education Requirement
36 hrs. required for University General Education requirement. An additional 5 hrs. in General Education courses drawn from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies, are required for Michigan certification.

Major/Minor Requirements Elementary Certification Option
1. Two minors or group minors (20-28 hours); OR one major or group major (30-36 hours) selected from the following areas: English, foreign languages, mathematics, science, social science minor only.
2. Elementary Education minor: see advisor in the Office of Admissions and Advising.

Secondary Certification Option
1. One major or group major
2. One minor or group minor

Majors and minors must be selected from the following areas: communication, English, foreign languages, mathematics, social science, and science.

It is strongly recommended that majors and minors be chosen from related disciplines. See adviser for acceptable combinations.

Pre-professional Foundations: 3 hrs.
ED 250 Human Development

Professional Education
An overall grade point average of 2.5 and no grade lower than a "C" in any Professional Education course are required.

Two semester-planned sequence
Fall Semester
One course from: GENL 122 or GHUM 316.
OR SOC 314, 320, 353, 514.
COM 170 Interpersonal Communications . . . . 3 hrs.
OR COM 370 Interpersonal Communication . . . . 3 hrs.
ED 312 The Foundations of Reading Instruction . . . . 3 hrs.
OR ED 322 Teaching of Reading . . . . Secondary . . . . 3 hrs.
ED 371 Classroom Organization and Management: Young Children/Elementary . . . . 3 hrs.
ED 398 Special Studies in Education (topical seminars) . . . . 4 hrs.
Field Experiences (no credit)
Winter Semester
ED 398 Special Studies in Education (Psychology and Guidance of Young Adolescents) . . . . 2 hrs.
ED 352 Reading and Related Communication Skills for Middle and Upper Grades . . . . 3 hrs.
ED 395 School and Society . . . . 3 hrs.
ED 307 Teaching Elementary Social Studies (elementary option or methods course in major or minor field—secondary option) . . . . 3 hrs.
ED 410 Seminar in Education . . . . 2 hrs.
ED 472 Directed Teaching: Upper Elementary/Middle School . . . . 10 hrs.
472 and 410 are taken concurrently during senior year. Professional Education must total 21 hours; other professional education
requirements are included in two semester planned sequence.

Physical Education ........................................ 2 hrs.

**Bachelor of Science Degree Elementary Music Curriculum**

**Elementary Education Minor**

Grants certification to teach in elementary grade room and elementary music.

**Minimum hours required for this curriculum ........................................ 132 hrs.**

**Course Requirements**

General Education Requirements .................................................. 35 hrs.

See University requirements for General Education

Music Major ................................................... 40 hrs.

Music Convocation 101 (4 semesters) ........................................ 0

Basic Music 160-161 ............................................. 6

Rural Comprehension 162-163 .............................................. 2

Basic Music 260 ................................................... 3

Twentieth Century Techniques 261 ...................................... 2

Music History and Literature 270-271 ................................... 8

Conducting 215 ..................................................... 1

Keyboard Musicianship 220, 221, 320, 322 ................................ 4

NOTE: Students who do not qualify for entry to 220 must complete Keyboard Fundamentals 120 and/or 121 as a deficiency. Students who "comp-out" on the Keyboard Musicianship 322 are urged to consider Music Improvisation, 350 American Music, 352 Non-Western Music as courses to take as music electives toward the 40 hour requirement.

Voice Class 122-123 ......................................................... 2

Choral Ensemble 107, 108, or 112 ........................................ 2

Elementary Music Practicum ............................................... 4

Creating Music in the Classroom ........................................... 3

General Music Methods 240 .............................................. 2

Fundamentals of Guitar 126 .................................................. 1

Instruments of the Band and Orchestra 279 ............................ 2

Elementary Education ...................................................... 28 hrs.

An adviser sets up an "individualized" program for each student. Report to the College of Education, Office of Admissions and Advising, 2504 Sangren Hall

**Professional Education Program ........................................ 21 hrs.**

ED 250 Human Development .............................................. 3

ED 371 Classroom Organization and Management .................. 3

ED 395 School and Society .............................................. 3

Directed Teaching, Seminar in Education 471 or 472, 410 ................................. 3

Physical Education .................................................... 2 hrs.

(PERP 340 Physical Education for the Elementary Teacher will satisfy one hour of this requirement.)

**Rural Elementary Curriculum**

**Bachelor of Arts or Bachelor of Science Degree**

State Elementary Provisional Certificate

Major attention is given to preparation for teaching in schools located in rural or small community areas—population 2,500 or fewer. Students designing 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 and Advising, 2504 Sangren Hall. Students must have a minor slip signed by an approved elementary education adviser.

**Professional Education Sequence .................................................. 16-21 hrs.**

Human Development ...................................................... 3

Classroom Organization and Management ............................ 3

Young Children/Elementary 371 ........................................ 3

Directed Teaching 471 or 472 .......................................... 1-10

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 Community Schools in Rural Areas 411 .................. 1-2

Supervision in Rural Area School (Sem.) 408 .......................... 1-2

**Physical Education (General) .................................................. 2 hrs.**

(PERP 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 .................... 122 hrs.**

A minimum grade point average of 2.5 must be attained for advancement from the Pre-Education (PED) curriculum to the Secondary Education (SED) curriculum. A minimum grade point average of 2.5 must be attained for enrollment in Directed Teaching and for recommendation for the teaching certificate. PED curriculum students are not permitted to enroll in professional education courses until admission requirements are met and application is approved.

**General Education Requirement—Minimum 40 semester hours of credit**

35 hours from General Education Programs. 5 hours from General Education Program and/or courses in language and literature, science, or social studies areas (non-professional courses only).

**General Physical Education**

2 semester hours minimum; 8 semester hours maximum. Two semester hours of general physical education, distributed over at least two "activity" courses are required.

**Professional Education Program:** 26 hrs.

Minimum grade of "C" required in each of these courses and a grade point average of 2.5 maintained in all courses after admission to teacher education.

**Pre-Professional Foundations:** 3 hrs.

ED 250 Human Development .............................................. 3 (Must be at least a sophomore)

**Professional Education:** 23 hrs.

ED 301 Teaching and Learning ........................................... 3

Prerequisite: ED 250; must at least be a junior

ED 322 Teaching of Reading ............................................ 3

Prerequisite: ED 250.

ED 395 School and Society .............................................. 3

Prerequisite: ED 250; must at least be a junior

A "methods of teaching" course in either the major or minor (both, if required by respective major and minor departments.)

ED 475 Directed Teaching (Secondary) ................................... 3

Prerequisite: ED 301; ED 322; must be at least a senior; successful completion of appropriate "methods of teaching" course(s) in major and/or minor; approval of director of Directed Teaching.)

ED 410 Seminar in Education ............................................ 2

Must be taken concurrently with ED 475.

Note: Ed 475 and ED 410 comprise the "student teaching semester."

**Major/Minor Requirements**

A minimum of one major (at least 30 semester hours or 36 for a group major) plus a minimum of one minor (at least 20 semester hours or 24 for a group minor) must be selected from the appropriate list of acceptable majors and minors listed below.

**Electives**

Elective credit may be used as needed to complete minimum graduation requirements and/or credits that do not qualify in the above categories. The candidate must satisfy the requirements for the B.A. or B.S. degree.

**Approved majors and minors for the Secondary Education Curriculum.** (Only programs listed below are acceptable for secondary education).

**Majors**

(Each major marked with an asterisk results in K-12 certification in that subject.)

Agriculture (AGR)
American Studies (AMS)
Anthropology (ANT)
Art Education (ATE)
Biology (BIO)
Business Education (BED)
Chemistry (CHM)
Computer Science (CPS)
Earth Science (EAR)
Economics (ECO)
English (ENG)
Geography (GEG)
*Health Education (HED)
History (HIS)*
Home Economics (HEE)*
*Industrial Education Majors:
General Industrial Arts (GIA)
Special Education Curriculum
Bachelors of Science Degree State
Elementary Provisional Certificate

Endorsement — Elementary Emotionally Impaired
For the preparation of teachers of elementary level Emotionally Impaired students.

Minimum Hours Required for this Curriculum: 130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Emotionally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement: 35 hrs.
An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements: 31 hrs.

ART 150 Art Education Workshop ........ 3
COM 170 Interpersonal Communication OR
OR
COM 104 Public Speaking ................ 3
ED 250 Human Development ............. 3
ED 312 Teaching of Reading ................ 3
ED 351 Reading and Related Communication Skills for Early Childhood ............. 3
ED 395 School and Society ............. 3
ED 471 Directed Teaching: Elementary ................ 4
ENGL 282 Children's Literature .............. 4*
MATH 150 Structure of Arithmetic .............. 4
MUS 141 Music in Special Education or
OR
MUS 140 Music for the Classroom Teacher .............. 3
PEPR 340 Physical Education for the Elementary Classroom Teacher .............. 2
PSY 100 General Psychology .............. 3*

Academic Minor — 20-24 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Courses in Emotionally Impaired Major — Elementary: 37 hrs.

NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

SPED 530 Education of Exceptional Persons 3
SPED 531 Classroom Practicum in Special Education ................ 1
SPED 537 Technology in Special Education ................ 3
SPED 538 Classroom Management ................ 3
SPED 570 Introduction to Emotionally Disturbed ................ 2
SPED 571 Program Practicum in Special Education: Elementary ................ 1

Endorsement — Elementary Mentally Impaired
For the preparation of teachers of elementary level Mentally Impaired.

Minimum Hours Required for this Curriculum: 130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Mentally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement: 35 hrs.
An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements: 31 hrs.

ART 150 Art Education Workshop ........ 3
COM 170 Interpersonal Communication OR
OR
COM 104 Public Speaking ................ 3
ED 250 Human Development ............. 3
ED 312 Teaching of Reading ................ 3
ED 351 Reading and Related Communication Skills for Early Childhood ............. 3
ED 395 School and Society ............. 3
ED 471 Directed Teaching: Elementary ................ 4
ENGL 282 Children's Literature .............. 4*
MATH 150 Structure of Arithmetic .............. 4
MUS 141 Music in Special Education or
OR
MUS 140 Music for the Classroom Teacher .............. 3
PEPR 340 Physical Education for the Elementary Classroom Teacher .............. 2
PSY 100 General Psychology .............. 3*

Academic Minor — 20-24 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Courses in Mentally Impaired Major — Elementary: 37 hrs.

NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for
documenting this experience or to secure assistance in meeting this requirement.

SPED 530 Education of Exceptional Persons 3
SPED 531 Classroom Practicum in Special Education 3
SPED 532 Technology in Special Education 3
SPED 533 Classroom Management 3
SPED 534 Introduction to Mental Retardation 2
SPED 535 Program Practicum in Special Education: MI 3
SPED 536 Assessment and Prescription in Special Education 3
SPED 537 Technology in Special Education 3
SPED 538 Consultation and Communication in Special Education 3
SPED 539 Education of Moderate/Severely Retarded 2
SPED 540 Teaching Practicum in Special Education: MI 3
SPED 541 Curriculum and Instruction in Special Education: Elementary 3
SPED 542 Communication Disorders 3*
SPED 474 Directed Teaching in Special Education: Elementary Level MI Students 10
ED 410 Seminar in Education 2

Electives to reach 130 hour total
The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Elementary Physically and Otherwise Health Impaired
For the preparation of teachers of elementary level Physically and Otherwise Health Impaired students.

Minimum Hours Required for this Curriculum 130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Elementary Physically and Otherwise Health Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement 35 hrs.
An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements 130 hrs.
ART 150 Art Education Workshop 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking 3
ED 250 Human Development 3
ED 312 Teaching of Reading 3
ED 351 Reading and Related Communication Skills for Early Childhood 3
ED 395 School and Society 3
ED 471 Directed Teaching: Elementary 4
ENG 282 Children's Literature 4*
MATH 150 Structure of Arithmetic 4
MUS 141 Music in Special Education or
MUS 140 Music for the Classroom Teacher 3
PEPR 340 Physical Education for the Elementary Classroom Teacher 2
PSY 100 General Psychology 3*

Academic Minor 20-24 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Courses in Physically and Otherwise Health Impaired Major — Elementary 37 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

SPED 530 Education of Exceptional Persons 3
SPED 531 Classroom Practicum in Special Education 3
SPED 532 Technology in Special Education 3
SPED 533 Classroom Management 3
SPED 534 Program Practicum in Special Education: MI 3
SPED 535 Assessment and Prescription in Special Education 3
SPED 536 Consultation and Communication in Special Education 3
SPED 537 Technology in Special Education 3
SPED 538 Consultation and Communication in Special Education: MI 3
SPED 539 Communication Disorders 3*
SPED 474 Directed Teaching in Special Education: Elementary Level POHI Students 10
ED 410 Seminar in Education 2

Electives to reach 130 hour total
The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Elementary Visually Impaired
For the preparation of teachers of elementary level Visually Impaired students.

Minimum Hours Required for this Curriculum 130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Visually Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement 35 hrs.
An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements 130 hrs.
ART 150 Art Education Workshop 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking 3
ED 250 Human Development 3
ED 312 Teaching of Reading 3
ED 351 Reading and Related Communication Skills for Early Childhood 3
ED 395 School and Society 3
ED 471 Directed Teaching: Elementary 4
ENG 282 Children's Literature 4*
MATH 150 Structure of Arithmetic 4
MUS 141 Music in Special Education or
MUS 140 Music for the Classroom Teacher 3
PEPR 340 Physical Education for the Elementary Classroom Teacher 2
PSY 100 General Psychology 3*

Academic Minor 20-24 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Courses in Visually Impaired Major — Elementary 40 hrs.
NOTE: Students entering the curriculum must have met an experience requirement with handicapped persons of at least thirty clock hours duration. Students must contact the department to secure the appropriate forms for documenting this experience or to secure assistance in meeting this requirement.

SPED 530 Education of Exceptional Persons 3
SPED 531 Classroom Practicum in Special Education 3
SPED 532 Technology in Special Education 3
SPED 533 Classroom Management 3
SPED 534 Program Practicum in Special Education: MI 3
SPED 535 Assessment and Prescription in Special Education 3
SPED 536 Consultation and Communication in Special Education 3
SPED 537 Technology in Special Education 3
SPED 538 Consultation and Communication in Special Education: MI 3
SPED 539 Communication Disorders 3*
SPED 474 Directed Teaching in Special Education: Elementary Level POHI Students 10
ED 410 Seminar in Education 2

Electives to reach 130 hour total
The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Secondary Emotionally Impaired
For the preparation of teachers of secondary level Emotionally Impaired students.

Minimum Hours Required for this Curriculum 130 hrs.

Course Requirements
A minimum grade of "C" must be earned in all courses listed as part of the Endorsement in Secondary Emotionally Impaired. Those marked with * are approved for General Education and are not included in the hour totals for the following requirements:

General Education Requirement 35 hrs.
An additional five hours in General Education courses from the College of Arts and Sciences (nonprofessional courses only) and/or the College of General Studies are required for Michigan Certification (See "Degree Requirements" under Degree and Curricula listed earlier in this catalog).

Curriculum Requirements 130 hrs.
ART 150 Art Education Workshop 3
COM 170 Interpersonal Communication OR
COM 104 Public Speaking 3
ED 250 Human Development 3
ED 312 Teaching of Reading 3
ED 351 Reading and Related Communication Skills for Early Childhood 3
ED 395 School and Society 3
ED 471 Directed Teaching: Elementary 4
ENG 282 Children's Literature 4*
MATH 150 Structure of Arithmetic 4
MUS 141 Music in Special Education or
MUS 140 Music for the Classroom Teacher 3
PEPR 340 Physical Education for the Elementary Classroom Teacher 2
PSY 100 General Psychology 3*

Academic Minor 20-24 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Courses in Emotionally Impaired Major — Secondary 40 hrs.
To be selected from the following minors approved for Elementary Education certification: Art, Creative Arts, English, Group Social Science, Integrated Language Arts, Language, Science and Mathematics Teaching Minor, Special Physical Education.

Electives to reach 130 hour total
The student must satisfy the requirements for the B.S. or B.A. degree.
Endorsement — Secondary Mentally Impaired

For the preparation of teachers of secondary level mentally impaired students.

Minimum Hours Required for this Curriculum

<table>
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<th>Course</th>
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<tr>
<td>SPED 530 Education of Exceptional Persons</td>
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</tr>
<tr>
<td>SPED 531 Classroom Practicum in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>SPED 536 Curriculum and Instruction in Special Education: Emotionally Disturbed</td>
<td>3</td>
</tr>
<tr>
<td>ED 410 Seminar in Education</td>
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</tbody>
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The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Secondary Physically and Otherwise Health Impaired

For the preparation of teachers of secondary level physically and otherwise health impaired students.

Minimum Hours Required for this Curriculum

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<td>SPED 530 Education of Exceptional Persons</td>
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<td>3</td>
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</tbody>
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The student must satisfy the requirements for the B.S. or B.A. degree.

Endorsement — Secondary Physically and Otherwise Health Impaired

For the preparation of teachers of secondary level physically and otherwise health impaired students.

Minimum Hours Required for this Curriculum

<table>
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</table>

The student must satisfy the requirements for the B.S. or B.A. degree.
Endorsement — Secondary Visually Impaired

The student must satisfy the requirements for the B.S. or B.A. degree.

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 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.

Education College Course (ED)

ED 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: An approved field experience plan.

COUNSELOR EDUCATION AND COUNSELING PSYCHOLOGY

Alan J. Hovestadt, Chair
Beverly Belson
Robert L. Betz
Kenneth Bullmer
William A. Carlson
John S. Geisler
Gilbert E. Mazer
Joseph R. Morris
Jody L. Newman
Robert Oswald
Laura A. See
Edward L. Trembley
Thelma Urbick

The Department of Counseling Education and Counseling Psychology offers professional education in the fields of counseling psychology, community agency counseling, counselor education and supervision, student personnel services in higher education, and school counseling and guidance. Most of the courses are open to graduate students only, but the following courses are open to qualified undergraduates.

Counselor Education and Counseling Psychology (CECP)
CP 580 Principles of Counseling and Guidance
3 hrs.
The content of this introductory course focuses on the concepts underlying school guidance programs and related service delivery systems. Open to all students, but is not intended for counseling majors.
CP 583 Workshops in Counseling Education and Counseling Psychology
1-4 hrs.
Workshops designed to enhance skill development related to Counselor Education and Counseling Psychology practices. Open to all students, but is not intended for counseling majors. May be repeated for credit.
EDUCATION AND PROFESSIONAL DEVELOPMENT

Evelyn T. Dearmin, Chair
Ariel J. Anderson
DeWayne Anderson
James Armstrong
Alfred Balkin
James Bosco
Roberto Brashere1
James Burns
Mary A. Cain
Joe R. Chapel
Mary Corder
Ronald A. Crowell
Suzanne Davis
Margaret Eibler
Paul Faber
Mary Frances Fenton
Franklin Fisk
Richard Herring
Edward Hering
Guinilla Holm
Arthur Howson
Rachel Jetteberg
Jeanne Jacobson
Lynn N. Johnson
Robert Kotecki
Barbara Mehoke
George Miller
Stefinee Pinnekar
Carol P. Smith
Mary Ann Strubbe
Archie Watson
Paul Wilson

Courses are designed to meet the professional needs of the student preparing to teach. All students pursuing a curriculum for a secondary provisional certificate and a degree are required to take the professional education sequence of courses plus a methods course offered in the major and/or minor field and directed teaching; students in elementary education are required to complete the prescribed elementary education program.

Students must contact the Office of Admissions and Advising, 2504 Sangren Hall, to be admitted to the teacher education curriculum. Once admitted, the student will be assigned an adviser who will assist the student in program planning and scheduling the sequence of courses, including directed teaching.

Education and Professional Development Courses (ED)

ED 102 Techniques of Learning and Adjustment
2 hrs.
Designed to aid the student in making a more adequate academic and social adjustment. Attention is given to schedule making, note-taking, study techniques, and examination writing. Principles of effective learning are discussed and demonstrated.

ED 103 Critical and Creative Reading
2 hrs.
Designed to develop practical application of principles of critical reading through extensive use of content area textbooks. Course will stress author's purpose, summarizing, and outlining for academic efficiency.

ED 104 Effective Reading for College Students
2 hrs.
Designed to provide the student with skills in vocabulary development, comprehension, and reading efficiency. Attention is given to the effective use of text and reference books, academic subjects, inferential reading, and synthesis of main ideas. Credit for this course will not apply to the number of credits needed for graduation. Course is graded on a credit/no credit basis.

ED 105 Advanced Reading
2 hrs.
Designed to increase reading rates and comprehension skills. Provides the well-adjusted academic student with an opportunity to develop more sophisticated skills. Course is graded on a credit/no credit basis.

ED 106 Effective College Reading for International Students
2 hrs.
This course focuses on vocabulary development and comprehension, including an emphasis on correct pronunciation, word analysis, factual and inferential thinking, and synthesis of ideas. Course is graded on a credit/no credit basis. Prerequisite: Results of TOEFL or MTEL.

ED 230 The Nature of Creativity
3 hrs.
This course explores the nature of creativity—its processes, its products, its characteristics, its values, and its relationship to human beings and society. Growth in aesthetic sensitivity, personal interaction, self-confidence, and ability to solve problems creatively are the objectives of this course. Open to all students.

ED 250 Human Development
3 hrs.
This course traces the psychological and social development of human beings from conception to maturity. Consideration is given to those factors which facilitate or inhibit normal progress in the areas of physical, emotional, social, intellectual and moral development. Attention is also given to the development of the self-concept for the purpose of helping students to become more aware of themselves and of their relationships with others. Students are required to observe human beings at different stages of development in a variety of cultural settings.

ED 260 The Cognitive Development of the Child
2 hrs.
This course focuses on the physical, social, emotional, and cognitive development of the child, birth through 12 years. Special attention is given to cognitive development viewed within a Piagetian framework. Applications to the teaching of language arts are emphasized. This course is required for the Integrated Language Arts Minor and in that program must be taken concurrently with SPPA 260.

ED 301 Teaching and Learning (Secondary)
3 hrs.
This course is designed to prepare students for the responsibilities of classroom instruction. Emphasis is placed on purposes of the school; selection and organization of learning experiences; instructional methods and materials; patterns of curriculum organization; classroom management; non-instructional duties of the teacher in the school 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.

ED 307 Teaching Elementary Social Studies
3 hrs.
This course is designed to help students understand the role of social studies in the elementary school; gain insight into important considerations in the selection of content, skills, and attitudes; and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with individuals, groups, and the total class will be emphasized. Multicultural and non-sexist content and strategies will be emphasized. Prerequisite: Junior standing in Elementary Education Curriculum and ED 250.

ED 311 Reading Workshop
3 hrs.
The basic purpose of the workshop will be to study typical classroom reading problems. Tools useful in identifying problems, materials available, and techniques for the teaching of reading will be examined and experimented with in the classroom. Special consideration will be given to a case study of one severe reading problem.

ED 312 The Foundations of Reading Instruction
3 hrs. Fall, Winter
This course will provide students with the foundations of reading instruction in the United States. Summaries of the results of current research in reading will be presented and the underlying theories and concepts examined. Also, current methods of teaching reading—especially the teaching approaches exemplified in basal programs—will be critically analyzed. Language as a system for transmitting ideas, information, and feelings will be introduced. Additionally, specific topics of importance to a foundational study, such as classroom diagnosis, will also be presented. Prerequisite: ED 250.

ED 322 The Teaching of Reading (Secondary)
3 hrs. Fall, Winter
This course deals with methods and materials for improving reading in the junior and senior high school. Both developmental and remedial procedures are stressed. Prerequisite: ED 250.

ED 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. Prerequisite: ED 250.

ED 348 Technology for Teachers
1 hr.
An introduction to the selection, design, organization, and use of technological resources in teaching young learners. Students will have opportunities to select, plan for, and produce audiovisual media for interactive and independent modes of learning. To be taken concurrently with ED 371.

ED 350 Young Children, Their Families, and Their Society
3 hrs.
A study of the effect of family, peer group, and society on the development of young children. Emphasis will be placed on family styles and child-rearing practices and their effects on learning and other behavior. Family constellation, the learning of sex roles, the effects of divorce, and similar phenomena will be studied. Consideration will be given to the effect of cultural and subcultural differences on early childhood development and students will
look at the contemporary American scene as it affects young children. Prerequisite: ED 250.

ED 351 Reading and Related Communication Skills for Early Childhood 3 hrs. Fall, Winter
A study of the young child's verbal and nonverbal language and how he/she records and interprets language. An awareness of the relationship of experience to language development and of the many approaches to teaching. Emphasis will be placed on the implication of current research as it affects reading programs and reading instruction for young children, as well as on experiences in selecting books, storytelling, writing for and with children, and the production of a wide variety of written material to be used with children. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312.

ED 352 Reading and Related Communication Skills for Middle and Upper Grades 3 hrs. Fall, Winter
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 affects reading programs and reading instruction. Grouping for learning skills for reading in the content fields, testing, and remedial techniques will be stressed. Emphasis will be placed on book selection, storytelling, creative writing, and the production of a wide variety of audiovisual materials to be used in selected classrooms. Participation will be required in school settings. Prerequisite: ENGL 282, ED 312. Elementary Education Minors must complete ED 351 prior to registering for ED 352.

ED 370 Educational Psychology: Young Children/Elementary 3 hrs.
This course will develop understandings of children's learning from birth through eighth grade. Emphasis will be placed on major learning theories, on the growth of a healthy self-concept, and on the cognitive styles of these age levels. Students will examine the effects on learning of cultural and gender differences and discrimination. Through observation and participation in a variety of learning situations with children, there will be opportunity to plan, implement, and evaluate teaching and learning relationships with young children, demonstrating application of the theoretical concepts of the course. Each student will write the notes of the teacher as they relate to the student's personal goals and as implicit in the content of the course. ED 370 must be taken concurrently with ED 347 and SPED 527. Prerequisite: ED 250.

ED 371 Classroom Organization and Management: Young Children/Elementary 3 hrs. Fall, Winter
Students will examine and apply recent research on effective classroom management, concentrating on such variables as time, task, appropriate choice of group structures and direct instruction; the management of time, space, and materials; and the analysis of classroom interaction. Students will design, implement, and evaluate an integrated curriculum and will learn management principles designed to minimize "discipline problems." Micro teaching experiences and a supervised teaching practice will give each student the opportunity to replicate research on effective teaching and to become an effective classroom manager. ED 371 must be taken concurrently with ED 348 and ED 395. Prerequisites: ED 250, 370, and SPED 527. SPPE majors may substitute SPED 530 for SPED 527. Physical Education Majors may substitute PEPR 250 or PEPR 520 for SPED 527.

ED 395 School and Society 3 hrs.
This course is concerned with the utilization of change in society as a force in directing American education. The course is directed toward modern problems in education as well as a futurist look at its possible development. Course content centers around analysis of the influences which areas as the following have upon American education: political, legal, economic, social, psychological, historical, philosophical. Consideration is given to the individual's role in the change process in education. An interdisciplinary approach is used.

ED 398 Special Studies in Education 1-4 hrs.
With variable topics and variable credit, this course is designed for undergraduates who, by virtue of their special interest or concern, find it desirable to pursue in greater depth topics or problems related to children's educational development. The course will be offered under the following conditions: (1) that a written outline of the offering be approved by the Department Chairperson, and (2) that prior arrangement be made with a faculty member or faculty members. The course offers variable credit from one through six semester hours. Students may repeat the course so long as topics differ. Each offering of 398, Special Studies in Education, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 398 may be applied toward meeting professional program requirements.

ED 401 Teaching Elementary School Science 3 hrs.
Designed to introduce students to a sampling of the elementary school science program. Emphasis will be given to the exploration of science programs, techniques, philosophies, and teaching strategies that are currently being used in the elementary school science classroom. Taken concurrently with ED 402.

ED 402 Seminar in Science and Mathematics 2 hrs.
This capstone course required of all students in the Science and Mathematics Teaching Minor will afford the student classroom teaching and observation experiences on a regular basis. In addition to the required classroom participation of 2-3 hours per week, the student will meet weekly in a seminar with the supervising faculty from science, mathematics, and education. Taken concurrently with ED 401.

ED 410 Seminar in Education 2 hrs.
The seminar will be directed 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, and 475.

ED 430 Creativity in the Elementary School 4 hrs.
A synthesis of the principles developed in the Integrated Curriculum Minor as applied to teaching and learning at the elementary school level. Emphasis is placed on the integration of creative processes in elementary school curriculum and instruction, on the teacher as problem solver, and on the creation of structures which accommodate the individualization of instruction and creative problem solving in children.

ED 460 Integrated Language Arts Seminar 4 hrs.
This course will focus on synthesizing theories, concepts, and classroom approaches from previous work in the Integrated Language Arts Minor. Students will practice restructuring curriculum objectives, classroom organization, and teaching strategies in order to achieve the maximum integration of the language arts processes in the elementary school. Students will pursue individualized programs culminating in a guided field experience in which students will demonstrate identified program competencies. Student- and faculty-led seminars will be scheduled periodically throughout the course. (This course is required in the Integrated Language Arts Minor.)

ED 470 Directed Teaching: Early Childhood 1-10 hrs.
Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: ED 347, 348, 370, 371, 395, and SPED 527. Credit/no credit only.

ED 471 Directed Teaching: Primary Grades 1-10 hrs.
Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: ED 347, 348, 370, 371, 395, and SPED 527.

ED 472 Directed Teaching: Upper Elementary/Middle School 1-10 hrs.
Only for seniors who have been admitted to teacher education and completed all their professional studies courses. This will be the final field experience consisting of five days per week in an educational setting. Students will synthesize the knowledge, apply the understandings, and practice the skills which they acquired during their University course work. They will participate in all phases of the school program where they are assigned. To be taken concurrently with ED 410. Prerequisites: ED 347, 348, 370, 371, 395, and SPED 527.

ED 474 Directed Teaching in Special Education 4 hrs.
This course is designed for students specializing in Special Education. Candidates must be approved by the Chair of the Special Education Department. The student will plan and implement an effective teaching practicum with children or young people prior to beginning a Directed Teaching assignment. Credit/no credit only.

ED 475 Directed Teaching: Secondary 1-6 hrs.
Students devote a minimum of five days per week for one semester to Directed Teaching. They are expected to have experience in both
the curricular and extra-curricular programs of
the school in which they teach. Prerequisite:
Admission to teacher education and successful
completion of ED 250, 301, 322, 395, specialty
area methods courses in major and minor, and
major and minor coursework or their
equivalents prior to beginning Directed
Teaching. Credit/no credit only.
ED 502 Curriculum Workshop
1-6 hrs.
Opportunity provided for teachers, supervisors,
and administrators in selected school systems
to develop programs of curriculum
improvement. This may include short-term
offerings to resolve a particular curricular
problem, as well as long-range curriculum
studies. A wide variety of resources is used for
instructional purposes, including several
specialists, library and laboratory facilities, field
trips, audiovisual materials, and the like. Each
offering of 502, Curriculum Workshop, will be
given an appropriate subtitle, which will be
listed on the student’s official transcript.
Students may earn up to three hours of credit
for any given subtitle. No more than six hours
of 502 may be applied toward a Master's degree.
ED 504 Adult Development
3 hrs.
This course provides an in-depth look at each
age and stage in the life cycle. It will explore
such problems as: the changing role of parents
and singles, the changing societal pressures on
teachers, unexpected changes in adult life-styles, mid-life career
changes, the changing role of males and
females, and unique health stresses. Emphasis
will be placed on the identification of patterns
of lifelong learning leading to a more fruitful
and fulfilling life.
ED 505 The Adult Learner
3 hrs.
This course provides an in-depth look at the
learning adult from age 22 to death with
emphasis on human variability, unique learning
style, and characteristics of the adult learner.
Theories of adult learning, studies of
intelligence and memory, learning capabilities,
abilities, approach to, and type of learning will be
considered. Motivation as prerequisite for
high-level wellbeing and problem solving will be
studied.
ED 506 Teaching in Adult Education
3 hrs.
This course is designed to provide teachers with a
knowledge of special situations incurred in
the teaching of adults. Included are courses on
adult communication style, adult life-styles, mid-life career
changes, and unique health stresses. Emphasis
will be placed on the identification of patterns
of lifelong learning leading to a more fruitful
and fulfilling life.
ED 508 Seminar in Parent Education
2 hrs.
Emphasis will be placed on cooperative
problem-solving between parents and teachers
of school-age children and youth. Problems
considered will include such topics as grief and
loss through death, divorce, or separation;
special needs and contributions of multicultural
parents; parents as resource persons and
paraprofessionals in the schools; and problems
identified by members of the seminar.
Members of the seminar will report on the
current literature available through libraries and
community resources and work toward
potential solutions of problems.
ED 509 Parent Education for Teachers
of Young Children
3 hrs.
Presents a variety of techniques for teachers to
use in working together with parents. Teachers
will study child-rearing factors which parents
most need to know. The course will help
teachers to develop their own record-keeping
systems, ways of involving parents in their
children's education, and ways of making
meaningful reports to parents. The education of
parents as aides is included.
ED 511 Developmental Reading Theory and
Application
3 hrs.
Emphasizes the application of reading theory
in the teaching of reading skills to special-needs
students. Intensive study of the theory and
practice of individualized reading, language
experience approaches, and basal reading
materials will be focused on and used to
focus on the actual use of materials with pupils to provide practical
experiences in teaching on an individual and
small-group basis. Efficiency of reading
procedures will be studied through actual use
with pupils. Intended to provide potential
teachers with an introduction to basic reading
theory as applied to materials, programs, and
conditions likely to be encountered in the field.
Prerequisite: ED 312 or 322.
ED 516 Professional Symposium in Reading
3 hrs.
This course is designed to be the initial course
in the graduate program in reading. It is
designed to present the basic concepts
concerning the nature of the reading process and the
reading of teaching. Emphasis will be placed
on reading as a thinking process and on
factors affecting reading performance. Special
emphasis will be placed on child development;
language development; concept development;
physical, psychological, and environmental
factors affecting the child's reading to read. In
addition, the course will provide a brief
overview of the delivery systems and
procedures used in the U.S. to teach reading.
This will involve an historical overview as well as
current and potential future practices.
ED 521 Piaget and Young Children
3 hrs.
Examines significant contributions of Piaget to
our understanding of young children's learning.
Knowledge of how young children think will be
applied to early childhood curriculum.
Teachers will apply Piagetian tasks and will be
able to improve curriculum for young children
with growing understanding of these children's
minds.
ED 548 Audiovisual Media I
3 hrs.
An introduction to audiovisual media as
effective means for achieving educational
objectives in presentation and 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
lab experiences in which they produce
materials such as mounted and laminated
pictures and displays, overhead projection
transparencies, audio tapes and photographic
slides, and to demonstrate proficiency in the
operation of audiovisual equipment. In addition
to texts, each student should plan to spend $15
or more for supplies and have the use of a
camera. Limited to 20 students.
ED 549 Audiovisual Media II
3 hrs.
A continuation of ED 548 in which teachers and
media specialists consolidate basic audiovisual
skills and deal in depth with more advanced
processes and techniques. Laboratory
experiences may include production of
complex transparencies; photographic slides,
filmstrips, and prints; super 8 films; audio and
video tapes; duplicated materials; and more
sophisticated charts, posters, and displays. A
systematic production-planning process is
emphasized, with consideration given to
evaluating effectiveness of media and to
requirements for operating a school building
level media center. In addition to texts, each
student should plan to spend $25 or more for
supplies and should have the use of a versatile
camera. Limited to 15 students. Prerequisite:
ED 548 or equivalent experience.
ED 550 Photography Workshop
1-3 hrs.
Intended to sharpen visual perception while
improving technical skills, this laboratory course
emphasizes photography as a creative and
expressive medium of visual communication.
Each student is expected to produce new
photographs each week and to submit one or
more mounted enlargements for group critique
at each class meeting. Each student must have
the use of appropriate equipment and should
expect to spend $25 or more for supplies.
Although no prerequisite is required, it is helpful
to have had some experience with basic
darkroom processes. May be repeated up to a
total of six credits. Limited to 15 students.
ED 557 Reading and Related Language
Experiences
3 hrs.
This course involves a study of the current
research and aspects of language which are
involved in the process of effective reading. It is
intended to provide students with a thorough
understanding of the research in language and
its application to the reading process. It is also
intended to help students understand more
fully the place of reading in a total language arts
program and to give students an opportunity to
make application to practical classroom
situations.
ED 558 Selected Reading in Education
1-4 hrs.
Designed for highly qualified students who wish
to study in-depth some aspect of their field of
specialization under a member of the
departmental staff. Prerequisite: Written
consent of departmental adviser and instructor.
EDUCATIONAL LEADERSHIP
Robert O. Brinkerhoff
David J. Cowden
Kenneth E. Dickie
Patrick Jerlink
Edgar A. Kelley
James R. Sanders
Ulida Smichens
Daniel L. Stufflebean
Charles C. Warfield

This department offers curricula in line administration, staff administration, human resource development, and program leadership, leading to a degree of Master of Arts, Specialist in Education, Doctor of Education, or Doctor of Philosophy. While most of the department's courses, seminars, and studies are intended for graduate students, programs of studies may be outlined and pursued by advanced undergraduate students whose career goals include positions as leaders in the many and varied educational agencies that are operative in society today. Courses are listed under the prefix EDLD.

PROFESSIONAL HEALTH, PHYSICAL EDUCATION AND RECREATION
Roger Zabik, Chair
Debra Berkey
Billey Ann Cheatum
Charles Conner
Harriet Creed
Mary Dawson
David Diget
Frances Ebert
Jean Friedel
Joy Griffin
William Gross
George Hobbs
Patricia Lemanski
Ruth Ann Meyer
John Miller
Robert Moss
Fred Orlowski
Linda Powell
Richard Raklovi's
Harold L. Ray
William Rowe kamp
William Schreiber
Norma Stafford
Ronald Winter
Robert Wyman

The professional programs are based on the concepts of (1) balanced preparation that enables the student to later specialize at the graduate level, (2) exposure to practical experiences throughout the professional sequence, (3) elective choices of specific courses, and (4) continual review of curricular offerings by students and faculty. Students who desire specialized professional preparation may select from the following:

MAJORS
1. Health Education
2. Physical Education
   A. Teacher-Coach Emphasis
   B. Teacher-Exercise Science Emphasis
3. Recreation

MINORS
1. Teaching Certification
   A. Health Education
   B. Physical Education
      1. Elementary
      2. Secondary
      3. Special Physical Education
2. Non-Teaching
   A. Athletic Training
   B. Coaching
   C. Recreation

The professional student is expected to work closely with a departmental adviser during his/her years on campus. A copy of the "Departmental Handbook" should be secured from the department office promptly after choosing a major or minor.

Transfer Students
Transfer courses from four year schools and appropriate lower division courses from community colleges may be included in majors and minors. However, a minimum of one-half of the required semester hours for a major or a minor must be taken at Western Michigan University. The PEPR teaching methods course(s) must be included in the hours at WMU. Transfer students must participate in HPER entry skill and fitness assessments.

Alternative Careers
The student may select a student planned curriculum to pursue a career in sports business: sports management, sports journalism, etc. The student must see an adviser for approval prior to completing 75 credit hours.

General Education Requirement
Each student must complete 35 hours of work in approved General Education courses and/or non-professional courses in the College of Arts and Sciences. The student seeking Michigan teacher certification must complete an additional 5 hours in the College of Arts and Sciences.

MAJORS
Health Education Major
36 credit hours
Bachelor of Science Degree
State Elementary or Secondary Provisional Certificate

The Health Education program prepares health educators who can influence the psychological, sociological, and biological development of individuals and groups to effectively meet the health needs of society.

The major is designed so graduates may enter first level positions in both schools and community agencies and qualify for graduate work.

Students planning to enter community health positions are not required to take directed teaching or courses in the education block.

Students planning to major in health must consult a department adviser promptly after choosing this major.

Health Education majors are expected to have a valid First Aid Certificate at the time of graduation.

COURSE REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>General Education</td>
<td>40</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2</td>
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<tr>
<td>Required Cognates</td>
<td>10</td>
</tr>
<tr>
<td>PSY 100 General Psychology</td>
<td>3</td>
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<td>OR</td>
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<tr>
<td>PSY 150 Introduction to Human Behavior</td>
<td>3</td>
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<td>OR</td>
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<td>BIOS 211 Animal Immunology</td>
<td>4</td>
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<td>OR</td>
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<tr>
<td>BIOS 112 Introduction to Biomedical Sciences</td>
<td>3</td>
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</tbody>
</table>

Required Courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPR 100</td>
<td>Health for Better Living</td>
<td>4</td>
</tr>
<tr>
<td>PEPR 211</td>
<td>Community Health Public Health I</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 314</td>
<td>Elementary School Health and Safety Education</td>
<td>3</td>
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<tr>
<td>OR</td>
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<tr>
<td>PEPR 315</td>
<td>Secondary School Health and Safety Education</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 411*</td>
<td>Public Health II</td>
<td>3</td>
</tr>
<tr>
<td>PEPR 412*</td>
<td>Administration in Health Education</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 211</td>
<td>Human Anatomy</td>
<td>4</td>
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</tbody>
</table>

* Required for teacher certification.
### Physical Education Major

#### Bachelor of Science Degree

The major in physical education allows the student to choose one of two professional preparation options:

1. **Teacher-Coach Emphasis**
2. **Teacher-Exercise Science Emphasis**

Successful completion of the Teacher-Coach Emphasis leads to K-12 certification for the teaching of physical education. Students must complete the education sequence required by the Department of Education and Professional Development including the directed teaching experience. In HPER, students must also serve as a teaching assistant for one semester in a general education course and complete a minimum of 20 clock hours of observation and participation at both the elementary and secondary levels.

The Teacher-Exercise Science emphasis prepares students to assume careers in non-school settings such as corporate, public, and private adult fitness programs. The emphasis is also excellent preparation for the student desiring to pursue graduate study in exercise science and/or research. Students completing the Teacher-Exercise Science emphasis are not eligible for teaching certification.

#### Required Professional Courses

- **23-24 hours**

#### Electives

- **16 hours**

### Required Cognates

- **45 hours**

### Required Teaching Assistant

N.C.

### TEACHER-EXERCISE SCIENCE EMPHASIS

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PEPR 101 Basic Exercise Concepts</td>
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<tr>
<td>PEPR 150 Foundations of HPER</td>
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<td>PEPR 181 First Aid</td>
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<td>PEPR 295 Biomechanical Analysis of Activity</td>
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<td>PEPR 320 P.E. for the Exceptional Child</td>
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<td>PEPR 345 P.E. Teaching Skills and Strategies</td>
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<td>PEPR 390 Physiology of Motor Activity</td>
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<td>PEPR 392 Measurement and Evaluation in HPER</td>
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<tr>
<td>PEPR 444 Administration and Development of Instructional Systems in Physical Education</td>
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<tr>
<td>PEPR 445 P.E. Teaching Skills and Strategies</td>
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<td>PEPR 450 Cultural Basis of Physical Education</td>
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### Theory Emphasis Requirements

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PEPR 380 Foundation of Sports Injuries</td>
</tr>
<tr>
<td>PEPR 490 Advanced Exercise Prescription</td>
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<tr>
<td>PEGR 500 Studies in HPER-Business Procedures</td>
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<tr>
<td>PEGR 516 Issues in Exercise—Exposure</td>
</tr>
<tr>
<td>PEGR 572 Recreation for the Aging</td>
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<tr>
<td>PEPR 400 Field Experience/Internship in HPER</td>
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### Activity Emphasis Requirements

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<tr>
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<tbody>
<tr>
<td>PEPR 235 Introduction to Coaching</td>
</tr>
<tr>
<td>PEPR 236 Officiating Series (repeatable)</td>
</tr>
<tr>
<td>PEPR 337 Coaching and Adv. Techniques (2 courses)</td>
</tr>
<tr>
<td>PEPR 380 Foundation of Sports Injuries</td>
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<td>PEPR 400 Field Experience/Internship in HPER</td>
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### Recreation Emphasis

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PEPR 400 Internship in Recreation</td>
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</tbody>
</table>

### HOURS REQUIRED

- **122 General Education Courses**

### Required Professional Courses

- **29 hours**

### Elective Courses

- **16 hours**

### Recreational Facilities and Areas

- **470 hours**

### Required Teaching Assistant

N.C.

### *Advisor will arrange a substitute course.

### Group I: Program Skills

- **Aquatics Area (Not more than 4 courses)**
  - PEGR 350 Aquatics (at level) | .2 |
  - PEGG 255 Swimming | .1 |
  - PEGG 265 Speed Swimming | .1 |
  - PEGG 270 Springboard Diving | .1 |

### Required Courses

- **29 hours**

### Bachelor of Arts Degree

- **29 hours**

### Bachelor of Science Degree

The Recreation major is designed to prepare students to assume leadership and/or administrative roles in public 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**

### Required Professional Courses

- **29 hours**

### Required Teaching Assistant

N.C.

### Elective Courses

- **16 hours**

### Recreational Facilities and Areas

- **470 hours**

### Required Teaching Assistant

N.C.

### *Advisor will arrange a substitute course.

### Group I: Program Skills

- **Aquatics Area (Not more than 4 courses)**
  - PEGR 350 Aquatics | .2 |
  - PEGG 255 Swimming | .1 |
  - PEGG 265 Speed Swimming | .1 |
  - PEGG 270 Springboard Diving | .1 |

### Required Courses

- **29 hours**

### Bachelor of Arts Degree

- **29 hours**

### Bachelor of Science Degree

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### Required Teaching Assistant

N.C.

### Elective Courses

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### Recreational Facilities and Areas

- **470 hours**

### Required Teaching Assistant

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### Group I: Program Skills

- **Aquatics Area (Not more than 4 courses)**
  - PEGR 350 Aquatics | .2 |
  - PEGG 255 Swimming | .1 |
  - PEGG 265 Speed Swimming | .1 |
  - PEGG 270 Springboard Diving | .1 |

### Required Courses

- **29 hours**

### Bachelor of Arts Degree

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### Bachelor of Science Degree

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  - PEGR 350 Aquatics | .2 |
  - PEGG 255 Swimming | .1 |
  - PEGG 265 Speed Swimming | .1 |
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### Required Courses

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### HOURS REQUIRED

- **122 General Education Courses**

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### *Advisor will arrange a substitute course.

### Group I: Program Skills

- **Aquatics Area (Not more than 4 courses)**
  - PEGR 350 Aquatics | .2 |
  - PEGG 255 Swimming | .1 |
  - PEGG 265 Speed Swimming | .1 |
  - PEGG 270 Springboard Diving | .1 |
Music and Drama Area (Not more than 4 courses)

MUS 140 Music for the Classroom Teacher ................. 3
MUS 281 Music Therapy Actv/Child ................... 3
DANC 106 Recreational Dance ................... 1
COMM 564 Creative Drama for Children .......... 4
THEA 110 Intro. to Theatre ................... 3

Outdoor Skills Area (Not more than 4 courses)

PEGN 106 Canoe Camping ................... 1
PEGN 108 Backpacking ................... 1
PEGN 110 Cross-Country Ski Camp .......... 1
PEGN 135 Outdoor Challenge ................... 1
PEGN 143 Cross Country Skiing ................. 1
PEGN 167 Winter Camping ................... 1
PEGR 172 Camp Leadership ................... 3
BICS 234 Outdoor Science ................... 4
BICS 105 Envir. Biology ................... 3

Group II: Administrative Skills
Not more than four courses

PEGR 388 Organization and Administration of Intramurals .......... 2
COM 104 Public Speaking ................... 3
COMM 335 Leadership ................... 3
COM 549 Public Relations/Organizations ........ 3
COM 550 Public Relations/Program Development ........ 3
GEOG 204 National Park Lands ................. 3
GEOG 350 Conservation/Environmental Management ........ 3
BIS 388 Records Management ................... 2
BIS 556 Office Management ................... 3
BIS 242 Business Communications ................. 3
BIS 102 Intro. to Information Processing ........ 3
ACCT 201 Accounting ................... 3
GEOL 312 Geology of National Parks and Monuments .......... 2-3
GEOL 544 Environmental Geology ................. 3
ECON 319 Environmental Economics ............... 3
CRTL 363 Landscape Design ................... 3

Group III: Community Organization Skills
Not more than four courses.

PEGR 516 Issues in Health Education .............. 2
COM 232 Discussion ................... 3
COMM 581 Introduction in Communication in Organizations ........ 3
SWRK 572 Community Agency Resources ............... 2
SWRK 562 Community Organizations in Urban Areas .......... 3
SOC 210 Modern Social Problems ................... 3
SWRK 464 Problem Solving in Gerontology .......... 3
PEGR 572 Recreation for the Aging ................... 2
SOC 352 Introduction to Gerontology ............... 3

Group IV: General Electives

PEGR 500 Studies in H.P.E.R. ............... 1-3
PEGR 598 Readings in H.P.E.R. ............... 1-2

Minors

Health Education Minor

24 credit hours

A minor is offered in Health Education. It is open to all students and is especially appropriate for those specializing in middle/junior high school education, in special education, and in secondary education with majors in such areas as biology, home economics, physical education, psychology, and sociology. The health education minor consists of 24 hours. The program is designed to offer courses in multidisciplinary areas and to meet state certification standards.

Cognates—Students will elect BIOS 101/107 or BIOS 112/114—4 semester hours (Biological Sciences) as part of the distribution program in general education.

Required Courses

PEPR 100 Health for Better Living ............... 4
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
PEGR 514 Health Education Materials and Methods ........... 2
PEGR 516 Issues in Health Education .............. 2

Elective Courses

11-13

Basic Sciences

BIOC 211 Human Anatomy ............... 4
BIOC 240 Human Physiology ............... 4
GSCI 133 Issues in Social Biology ............... 4

Behavioral Sciences

PSY 100 General Psychology ............... 3
SOC 100/200 Principles of Sociology ............... 3
COMM 170 Interpersonal Communication .......... 3
SWRK 210 Social Work Services and Prof. Roles .......... 3
ED 350 The Young Child, His Family and Society .......... 3

Health Education Aspects of Man and His Environment

3-6

CIE 266 Food and Society ............... 3
CIE 210 Introduction to Human Sexuality .......... 3
PEPR 181 First Aid ................... 2
PEPR 380 Foundations of Sports Injuries .......... 2
PEPR 516 Issues in Health Education .............. 1-3
SOC 122 Death and Dying ................... 3

Elementary Physical Education Minor

(Must be taken as part of Elementary Group Minor)

Cognates ............... 12
BIOC 107 ................... 4
OR
BIOC 112 ................... 3
BIOC 211 ................... 4
ED 230 ................... 4

*Applicable to total General Education requirement.

Hours Required for this minor: 22

Required Professional Courses:

Academic ........................................ 12

PEPR 101 Basic Exercise Concepts ............... 1
PEPR 276 Outdoor Education ............... 2
PEPR 295 Biomechanical Analysis of Activity .......... 2

Required Courses

PEPR 320 Physical Education for the Exceptional Child .......... 3
PEPR 444 Administration and Development of Instructional Systems ........... 2
PEPR 445 Physical Education: Teaching Skills and Strategies .......... 2

Required Activity: ............... 6
PEPR 115 Tumbling: Apparatus ............... 1
PEPR 310 Track and Field ................... 1
DANC 106 Recreational Dance ............... 1
DANC 290 Teaching Dance in the Elementary School ........ 3

Elective Courses: ............... 4
Elect from the following courses and/or other PEPR/PEGR courses with permission of adviser.

PEPR 105 Softball/Volleyball ............... 1
PEPR 110 Soccer/Basketball ............... 1
PEPR 181 First Aid ................... 2
PEPR 210 Racquet Sports ............... 1
PEGN 139 Relaxation ............... 1

MINOR

Secondary Physical Education Minor

23 credit hours

(Cognates: Academic

BIOC 107 ................... 4
OR
BIOC 112 ................... 3
BIOC 211 ................... 4

*Applicable to total General Education requirement.

Hours Required: ............... 22

Required Professional Courses

PEPR 101 Basic Exercise Concepts ............... 1
PEPR 150 Foundations of Health, Physical Ed and Recreation .......... 3
PEPR 295 Biomech. Analysis of Activity ............... 2
PEPR 380 Physiol. of Motor Activity ............... 2
PEPR 392 Measurement and Evaluation in Physical Education .......... 2

Required Professional Courses

PEPR 444 Administration and Development of Instructional Systems ........... 2
PEPR 445 Physical Education: Teaching Skills and Strategies .......... 2

Activity Required: ............... 9
PEPR 236 Officiating Series ............... 1
DANC 106 Recreational Dance ............... 1

Individual Sports (4 courses) ............... 4
Team Sports (2 courses) ............... 2
Lifetime Sports/Activities (1 course) ............... 1

Required Teaching Assistant: ............... N/C

Special Physical Education Minor

23 credit hours

Designed to prepare special education and physical education majors in the area of recreation, physical education, swimming, health, and dance for the exceptional child. Students majoring in other curricula must take all courses listed for physical education majors and special education majors. (Courses A. and B.)

Required Cognates ............... 8
BIOC 107 ................... 4
OR
BIOC 112 ................... 3
BIOC 211 ................... 4

*Applicable to total General Education requirement.

Special Physical Education Courses

PEPR 320 Physical Education for the Exceptional Child ............... 3
PEPR 321 Therapeutic Needs and Exercises ............... 3
PEPR 420 Testing and Developmental Programs ............... 3
PEPR 400 Professional Field Experience/Internship ............... 4

Minors

A. Background Courses in Physical Education

PEPR 101 Basic Exercise Concepts ............... 1
PEGR 139 Recreation ................... 1
PEPR 310 Track and Field ............... 1
PEGR 325 Swimming for the Exceptional Child ............... 3
Athletic Training Minor (Non-Teaching)

18-21 credit hours

**Required Courses:**
- **Coaching Series—Prerequisites:**
  - PPR 211 Human Anatomy
  - PPR 240 Physical Anthropology

**Electives:**
- **1. Basic Sciences**
  - CHEM 101 or 102 General Chemistry
  - GSCI 100 Behavioral Science
  - PHYS 106 Physics

**Required Core:**
- **PPR 181 First Aid**
- **PPR 380 Foundations of Sports Injuries**
- **CRT 260 Nutrition**
- **PEGR 400 Field Experience At. Trn.**
- **PEGR 580 Studies Sports Medicine**

**Additional Requirement:**
- Eight hundred (800) clock hours of clinical experience.

Coaching Minor (Non-Teaching)

24 credit hours

This minor does NOT certify a student to teach physical education. The coaching minor will provide instruction in the sports which are currently emphasized by the Michigan Interscholastic Sports Programs: basketball, football, track and field, tennis, volleyball, softball, golf, and gymnastics.

**Required Cognates:**
- **BIOS 112 Introduction to Biomedical Sciences**
- **BIOS 211 Human Anatomy**
- **BIOS 240 Physical Anthropology**

**Required Courses:**
- **PPR 235 Theory of Coaching**
- **PPR 295 Biomech. Analysis of Act**
- **PPR 390 Physiology of Motor Act**
- **PPR 555 Principles Problems Coaching**
- **PPR 380 Foundations of Sports Injuries**
- **PEPR 400 Field Experience (Prereq—First Aid 181)**
- **PEGR 402 Varsity Athletic Series**

**Elective Courses**
- **TEAM**
  - Basketball
  - Baseball or Softball
  - Volleyball
  - Football
  - Soccer
  - Ice Hockey

**INDIVIDUAL**
- Gymnastics
- Tennis
- Track and Field

**PEPR 236 Officiating—Select two of the following officiating courses to complete the 11**
  - Basketball
  - Baseball
  - Volleyball
  - Football
  - Soccer

**PEPR 105-310 professional activity courses**

Recreation Minor (Non-Teaching)

24 credit hours

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

**Required Professional Courses**
- **PEPR 337 Advanced Techniques and Coaching Series—Prerequisites:**
  - Must have had first level course(s) or permission of instructor. Elect 6 hours must be one team sport and one individual sport.

**Team**
- Basketball
- Baseball or Softball
- Volleyball
- Football
- Soccer

**Individual**
- Gymnastics
- Tennis
- Track and Field

**Recreation Minor (Non-Teaching) 24 credit hours**

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

**Required Professional Courses**
- **PEPR 337 Advanced Techniques and Coaching Series—Prerequisites:**
  - Must have had first level course(s) or permission of instructor. Elect 6 hours must be one team sport and one individual sport.

**Team**
- Basketball
- Baseball or Softball
- Volleyball
- Football
- Soccer

**Individual**
- Gymnastics
- Tennis
- Track and Field

**Recruitment Minor (Non-Teaching) 24 credit hours**

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

**Required Professional Courses**
- **PEPR 337 Advanced Techniques and Coaching Series—Prerequisites:**
  - Must have had first level course(s) or permission of instructor. Elect 6 hours must be one team sport and one individual sport.

**Team**
- Basketball
- Baseball or Softball
- Volleyball
- Football
- Soccer

**Individual**
- Gymnastics
- Tennis
- Track and Field

**Recruitment Minor (Non-Teaching) 24 credit hours**

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

**Required Professional Courses**
- **PEPR 337 Advanced Techniques and Coaching Series—Prerequisites:**
  - Must have had first level course(s) or permission of instructor. Elect 6 hours must be one team sport and one individual sport.

**Team**
- Basketball
- Baseball or Softball
- Volleyball
- Football
- Soccer

**Individual**
- Gymnastics
- Tennis
- Track and Field

**Recruitment Minor (Non-Teaching) 24 credit hours**

The recreation minor is designed to prepare students to assume leadership roles in public or private recreation agencies and organizations. The 10 hours of electives within this course of study allows the student flexibility in preparing for a specific phase of recreation.

**Required Professional Courses**
- **PEPR 337 Advanced Techniques and Coaching Series—Prerequisites:**
  - Must have had first level course(s) or permission of instructor. Elect 6 hours must be one team sport and one individual sport.

**Team**
- Basketball
- Baseball or Softball
- Volleyball
- Football
- Soccer

**Individual**
- Gymnastics
- Tennis
- Track and Field

**Group III: Administrative Skills**
- Not more than four courses.

**Group IV: General Electives**
- Not more than four courses.

**Group V: Community Organization Skills**
- Not more than four courses.

**Group VI: Specialized Electives**
- Not more than four courses.

**Additional Requirement:**
- Eight hundred (800) clock hours of clinical experience.
Courses By Topic
PROFESSIONAL ACTIVITY COURSES (PEPR)
102 Cycling: Relaxation/Stress Management
105 Basketball/Softball: Volleyball
110 Soccer: Basketball
115 Tumbling: Apparatus
200 Football: Wrestling
205 Cross Country Ski: Weight Training
210 Racquet Sports
215 Aerobic Conditioning
305 Golf: Archery: Bowling
310 Track and Field

HEALTH EDUCATION ACADEMIC COURSES (PEPR)
100 Health for Better Living
211 Community Health—Public Health I
314 Elementary School Health and Safety Education
315 Secondary School Health and Safety Education
400 Field Experience in Health Education
411 Health Education: Public Health II
500 Field Experience in Health, Physical Education, and Recreation
516 Issues in Health Education

PHYSICAL EDUCATION ACADEMIC COURSES (PEPR)
101 Basic Exercise Concepts
150 Foundations of Health, Physical Education and Recreation
181 First Aid
235 Theory of Coaching
236 Officiating Series
255 Biomechanical Analysis of Activity
300 Seminar Series
320 Physical Education for the Exceptional Child
321 Therapeutic Needs and Programs for the Exceptional Child
325 Swimming for the Exceptional Child
337 Coaching and Advanced Techniques
345 Nature and Bases Motor Skills
368 Administration and Organization of Intramural Sports
380 Foundations of Sports Injuries
390 Physiology of Motor Activity
392 Measurement and Evaluation in Physical Education
400 Field Experience/Internship in HPER
411 Health Education: Public Health II
415 Principles, Practices, and Methods in Health Education
512 Principles, Practices, and Methods in Health Education
514 Methods and Materials in Health Education
516 Issues in Health Education

PROFESSIONAL RECREATION COURSES (PEPR)
170 Introduction to Recreation
172 Camp Leadership
178 Playgroup Administration
270 Recreational Leadership
276 Outdoor Education
370 Recreation Practicum
372 Recreational Programming
375 Organization and Administration of Recreation
400 Field Experience/Internship in HPER
470 Recreaional Facilities and Areas
572 Recreation for the Aging

PROFESSIONAL HEALTH, PHYSICAL EDUCATION AND RECREATION 175

530 Practicum in Teaching and Coaching
535 Principles and Problems of Coaching
540 Movement Education
560 Administration of Physical Education
562 Administration of Athletics
580 Studies in Athletic Training
590 Exercise Physiology
591 Evaluation in Health, Physical Education, and Recreation
595 Analysis of Movement in Sport
596 Readings in Health, Physical Education, and Recreation

Professional Health, Physical Education and/or Recreation (PEPR/PEGR)
(Courses described in italics are approved for General Education. Course descriptions preceded by a † are open to all students.)

PEPR 100 Health for Better Living
4 hrs. Fall, Winter
†The focus of this introductory health course is to assist students in achieving an awareness of optimal physical, mental, and social health in a changing environment. Guest lectures from the community will present some of the topics considered important to the health of modern people. Preference is given to freshmen and sophomores. This is the first course in the Health Education Curriculum.

PEPR 101 Basic Exercise Concepts
1 hr. Fall, Winter
Basic developmental, biomechanical, physiological, and nutritional concepts concerning wellness and exercise will be presented.

PEPR 102 Cycling: Relaxation/ Stress Management
1 hr. Fall

PEPR 105 Baseball/Softball: Volleyball
1 hr. Fall

PEPR 110 Soccer: Basketball
1 hr. Fall

PEPR 115 Tumbling: Apparatus
1 hr. Winter

PEPR 150 Foundations of Health, Physical Education and Recreation
3 hrs. Fall, Winter
An introduction to the University, the profession, and an attempt to assist the student in making a realistic appraisal of his/her own aptitudes and capabilities relevant to the profession via actual testing of personal competencies. Taken in conjunction with PEPR 101.

PEPR 170 Introduction to Recreation
3 hrs. Fall only
†An introduction to the field of recreation and the role of leisure in modern society including current trends, job opportunities in various settings, programming, and leadership.

PEPR 172 Camp Leadership
3 hrs. Fall (even)
†The investigation of the responsibilities of the counselor in the camp. Exploration of the aims and values of the total camp program are emphasized.

PEPR 178 Playground Administration
2 hrs. Fall only
This course is designed to give administrative and leadership skills for summer playgrounds. All areas of playground organization, operation, program planning, and a wide range of activities will be covered.

PEPR 181 First Aid
2 hrs. Fall, Winter, Spring
†The standard course in first aid techniques leading to Red Cross certification. Open to all students.

PEPR 200 Football: Wrestling
1 hr. Fall

PEPR 205 Cross Country Ski: Weight Training
1 hr. Winter

PEPR 210 Racquet Sports
1 hr. Fall

PEPR 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. Intended to give the student a broad-based knowledge of public health programs. Prerequisite: 100.

PEPR 215 Aerobic Conditioning
1 hr. Winter

PEPR 235 Theory of Coaching
2 hrs. Fall, Winter
Introduction to coaching includes basic principles, covers State Athletic Handbook, budgets, scheduling, facilities, liability, public relations, relationships with staff, faculty, students, parents, press, etc.

PEPR 236 Officiating Series
1 hr. Fall, Winter
†The discussion and application of rules and officiating techniques. The student is required to officiate in out-of-class athletic programs. Prerequisites: Must have had the first level activity or permission of instructor. Open to all students.

Fall Semester: Basketball
Winter Semester: Basketball

PEPR 241 Physical Education and Recreation for Teachers
2 hrs.
This course is open only to teachers. Topics included in the course are: Program planning, making of games and equipment, accident prevention, basic motor skills. Practice in games, stunts, rhythms and recreational activities will be included. Offered by extension only.

PEPR 270 Recreational Leadership
2 hrs. Winter only
A course studying the skills, knowledge and techniques necessary to conduct social and recreational programs for all ages. Creative and effective leadership stressed through observations, participation and the leading of activities. Prerequisite: PEPR 170 or permission of instructor.

PEPR 276 Outdoor Education
2 hrs. Winter only
†A course in the philosophy, methods, and materials of outdoor education emphasizing outdoor education activities for children and youth.

PEPR 295 Biomechanical Analysis of Activity
2 hrs. Fall, Winter
The analysis and measurement of human performance. Includes the examination and application of biomechanical principles to physical education and sport activities. Prerequisite: BIOS 211.
PEPR 300 Seminar Series
1-4 hrs. Fall, Winter
Designed to provide an opportunity for qualified students to examine and discuss a subject area in field of common interest. Enrollment by written permission of the instructor.

PEPR 305 Golf / Archery / Bowling 1 hr. Fall

PEPR 310 Track and Field 1 hr. Fall

PEPR 314 Elementary School Health and Safety Education 3 hrs. Winter only
This course is directed toward prospective elementary school teachers. It is designed to provide knowledge and experiences related to the total school health program. Prerequisite: 100, ED 371

PEPR 315 Secondary School Health and Safety Education 3 hrs. Fall only
This course is directed toward prospective secondary school teachers. Through the media of knowledge and experiences the total school health program is brought into focus as an integral part of the secondary school program. Prerequisite: 100, ED 301

PEPR 320 Physical Education for the Exceptional Child 3 hrs. Fall, Winter
The activities and games used in corrective, adaptive, and developmental programs for children with mental or physical handicaps and those with learning disabilities. An emphasis will also be placed on activities for children with perceptual handicaps and on activities to augment academic learning.

PEPR 321 Therapeutic Needs and Programs for the Exceptional Child 3 hrs. Fall
The evaluation, interpretation and planning of therapeutic and rehabilitation programs for the handicapped child. Emphasis is placed on programs for the orthopedically handicapped, the cerebral palsied, the epileptic, the blind and such conditions as multiple sclerosis, muscular dystrophy, rheumatic fever and cardiac disorders. Prerequisites: BIOS 211, PEPR 320, SPED 530.

PEPR 325 Swimming for the Exceptional Child 3 hrs. Fall
The study of physical and learning disabilities, values of swimming, and teaching techniques for these disabilities. Includes experience teaching exceptional children. Prerequisite: PEGN 350 WSI.

PEPR 337 Coaching and Advanced Technique 2 hrs. Fall, Winter
Coaching and advanced skills, selection of a team, preparation, officiating and conducting competitive events. Prerequisites: Must have had first level course(s). Fall: Tennis, Soccer. Odd Years: Baseball. Even Years: Football, Softball. Winter: Basketball, Track/Field, Volleyball. Odd Years: Wrestling. Even Years: Gymnastics.

PEPR 340 Physical Education for the Elementary Classroom Teacher 2 hrs. Fall, Winter, Spring
This course is structured for the future elementary classroom teacher and/or special education teacher. It provides experience in the participation and teaching of appropriate elementary physical education movement activities in the areas of basic skills, stunts and tumbling, simple games and sports, rhythms and classroom correlated activities. This course is not for physical education majors or minors. Prerequisite: 345.

PEPR 345 Nature and Bases of Motor Skills 2 hrs. Fall, Winter
Describes and analyzes the characteristic motor development patterns and evaluates the potential of children's motor performance. Emphasis will be placed on the introduction and explanation of the psychomotor domain. Prerequisite: BIOS 240 or permission of instructor.

PEPR 368 Administration and Organization of Intramural Sports 2 hrs. Fall. Only
The problems, policies, finances, eligibility, awards, officiating, publicity, and procedures related to the intramural program.

PEPR 370 Recreation Practicum 3 hrs. Fall, Winter, Spring
The practical field experiences in recreation for the normal and handicapped. Enrollment by permission of the instructor and acceptance of the practicum proposal. Prerequisite: PEPR 372.

PEPR 372 Recreational Programming 3 hrs. Winter only
A study of the goals development and evaluation of programs in recreational settings. Practical experience in ascertaining needs and scheduling activities to meet goals will be emphasized. Prerequisite: PEPR 270.

PEPR 375 Organization and Administration of Recreation 3 hrs. Fall, odd years
The study 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.

PEPR 380 Foundations of Sports Injuries 2 hrs. Fall, Winter
The study of injuries and emergency concepts, sports injury prevention, recognition, initial and follow-up care and studied. Principles/techniques are presented in a lecture and laboratory instructional format. Prerequisite: BIOS 211, PEPR 181.

PEPR 390 Physiology of Motor Activity 2 hrs. Fall, Winter
The effects on systems of the body under stress of motor activity—cardiopulmonary function, metabolism and the nervous system. Practical application of principles to strenuous physical exercise. Prerequisite: BIOS 240.

PEPR 392 Measurement and Evaluation in Physical Education 2 hrs. Fall, Winter
Covers evaluation techniques in terms of understanding, interpretation, and application with emphasis on administration, selection and use of tests; interpretation of results through statistical procedures; analysis of tests available in the field and techniques for developing knowledge and skills tests.

PEPR 400 Field Experience/Internship in HPER 2-6 hrs. Fall, Winter, Spring, Summer
This course will provide in-depth field experience or internships for undergraduate majors or minors in recreation, health, coaching, exercise, science, or exceptional child. Students will be assigned to classes or positions according to their selected area of emphasis. Enrollment by permission of curriculum advisers for major or minor. Prerequisite varies with area of emphasis and requires departmental approval.

PEPR 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.

PEPR 420 Testing and Developmental Programs for the Exceptional Child 3 hrs. Winter
A study of the developmental programs of various leaders in the field and the adaptation of these theories to practical situations in the local community. The various methods of assessing the exceptional child will be discussed and practiced. Students will be involved with testing children, establishing programs for children and assessing the results of the program. Prerequisites: BIOS 211, PEPR 320, SPED 430, 588.

PEPR 444 Administration and Development of Instructional Systems in Physical Education 2 hrs.
This course is designed to provide information and experience which will enable the learner to develop the skills necessary to plan and construct a comprehensive physical education curriculum based on a developmental model. Prerequisites: 100 series, PEPR 295, 345, 390, 392. Students should enroll in ED 300/301 during the same semester.

PEPR 445 Teaching Skills and Strategies 2 hrs.
This course is designed to provide information and experiences which will enable the student to implement effective physical education curricula based on a developmental model. Prerequisite: PEPR 444.

PEPR 450 Cultural Bases of Physical Education 2 hrs. Winter
The application of history, principles, sociology and philosophy of HPER to the current movements and trends in the profession. Prerequisite: PEPR 150.

PEPR 470 Recreational Facilities and Areas 3 hrs. Fall (odd)
The study of the design, use, and maintenance of recreational areas in relation to community needs, program objectives and physical surroundings.

PEPR 490 Adult Fitness and Exercise Prescription 2 hrs. Winter
The initiation, formulation, administration, and supervision of adult fitness programs will be discussed. Topics include exercise protocol, assessment tools, exercise prescription, recruitment, client identification, etc.

Professional Courses Open To Underclass and Graduate Students (PEGR)
Note: The following courses are open to undergraduate students when marked in the Schedule of Classes as "Undergraduate Students Only."

PEGR 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.

PEGR 514 Methods and Materials in Health Education 2 hrs.
Lectures and demonstrations with emphasis on the effective health supervision of school children, the principles and practices of health teaching in the various grades, and the interrelation of this teaching with that of other subjects in this curriculum. Prerequisite: PEPR 314/315 or consent of department.

PEGR 516 Issues in Health Education 1-3 hrs.
The focus will be placed on current health issues. May be designed to deal with one issue or several.

Substance Abuse Bio Feedback
Aids and Other Sexually Transmitted Diseases Stress Release Cardiac/Athletic Health Parenting
Patient Education Health Careers Consumer Health

PEGR 520 Physical Activities for Exceptional Children 3 hrs.
Physical and recreational activities and games used in corrective, adaptive and general physical education programs for special education children.

PEGR 521 Therapeutic Trends for Exceptional Children 3 hrs.
A study of past, present and future trends in habilitation and rehabilitation programs for handicapped people.

PEGR 530 Practicum in Teaching and Coaching 1-2 hrs.
Demonstrations, participation and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program.

Sports include: Archery, Badminton, Baseball, Basketball, Football, Golf, Field Hockey, Gymnastics, Ice Hockey, Judo, Karate, Soccer, Swimming, Tennis and Field, Volleyball, Wrestling, Yoga.

PEGR 535 Principles and Problems of Coaching 2 hrs.
Various dimensions and forces affecting coaching are identified and explored including educational implications of sport and coaching, characteristics of coaches and athletes, vital relationships, motivation, emotions, behavior, discipline, selecting and evaluation personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

PEGR 540 Movement Education 2 hrs.
A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

PEGR 560 Administration of Physical Education 2 hrs.
For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs for physical education and discussion of standards for evaluating such programs.

PEGR 562 Administration of Athletics 2 hrs.
Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

PEGR 572 Recreation for the Aging 2 hrs. Fall
An overview of aging especially as it relates to leisure pursuits and organized recreation. Includes observation, participation and leadership of recreational activities or programs for retirees, nursing homes, senior citizens housing units and clubs. Suggested Prerequisite: SOC 352.

PEGR 580 Studies in Athletic Training 1-2 hrs.
Listed with various topics. A lecture/demonstration course concerned with the prevention diagnosis, and treatment of sports type injuries. Prerequisite: BIOS 211, 240, PEGR 380.

PEGR 590 Exercise Physiology 2 hrs.
The mechanics of muscular contraction, nerve impulse propagation, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletes. Prerequisites: BIOS 211, 240. Open to graduate students only.

Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests. Open to graduate students only.

PEGR 595 Analysis of Movement in Sport 2 hrs.
The study of movement of muscules and the application of kinealogy to physical activity. Prerequisite: BIOS 211. Open to graduate students only.

PEGR 598 Readings in Health, Physical Education and Recreation 1-2 hrs. All Semesters
Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of the Chairperson of the Department of Physical Education. Open to graduate students only.

General Physical Education

All undergraduate students must participate in general activity physical education beginning with the first semester or session of residence, until a minimum of 2 hours is completed. Classes meet two hours weekly for one semester of credit. Exceptions:

1. Any student 30 years of age or older is not required to take physical education. (122 hours required for graduation.)
2. A student in the marching band may count band participation towards two semesters of general physical education.
3. A veteran (defined as one having served one year's continuous active duty) will be exempt from the general physical education requirement.
4. A transfer student must enroll in general physical education during the first semester or session of residence at Western and thereafter each semester or session until the 2 hour requirement is completed.
5. Only a student with a severe physical disability will receive a medical waiver from the requirement. A student with a temporary or permanent physical disability may receive counseling concerning selection of courses suited to his/her limitation. A physical examination by a Health Center physician is the first step in the counseling procedure. The procedure does not have to be followed if the student feels he/she can select two courses without medical advice. The physical examination must be given during the first semester of residence if a student wishes to follow the Medical Recommendation procedure. A copy of the procedure may be obtained from the Health Center, Office #1 Oakland Gymnasium or the Main Office, Gary Physical Education Center.
6. A varsity team member may receive up to 2 credits in general physical education by enrolling in the appropriate course in the PEGR 400 series (List follows 300 level courses). Only one dance course may be used to fulfill the general physical education graduation requirement. (List follows PEGR 100 listing.)
7. ROTC Cadets are to enroll in PEGN 132 Military Fitness I to fulfill the general physical education requirement. Permission required from ROTC.

RESTRICTIONS
1. Up to 8 hours of general physical education will be accepted as credits toward graduation.
2. A freshman or sophomore student may not enroll in more than 1 hour of general physical education in any one semester.
3. A course cannot be repeated for credit without written authorization from the Coordinator of the General Physical Education Program to the Academic Records Office. PEGN 175 Special Activities may be repeated under different course titles, i.e. 175 Military Fitness, 175 Ice Dance, etc.
All courses are co-ed. Course descriptions may be obtained from the general physical education office.

**PEGN 100-level courses** are open to all students and emphasize the beginning skills in the activity given. The student with some experience in activities marked*—"Beginners Only"—should enroll in 200/300 level courses.

**PEGN 200-level courses** are open to all students who have completed a 100-level course in the activity or the equivalent. (**Prerequisite 249 or Red Cross Intermediate Card**)

**PEGN 300-level courses** are open to all students desiring additional experience in an activity and who have completed the 200-level course or permission of instructor to enroll.

**PEGN 400**—A varsity athlete may receive PEGN credit by enrollment and completion of these courses. (1 credit hour each.) Enrollment by permission of instructor.

### General Physical Education (PEGN)

**PEGN 100** Adapted P.E. Med. Rec
1 hr.

**PEGN *101** Archery
1 hr.

**PEGN 102** Badminton
1 hr.

**PEGN 103** Aerobic Exercise
1 hr.
Course consists of a broad spectrum of fitness exercises to music.

**PEGN 104** Basketball
1 hr.

**PEGN 105** Bowling
1 hr.

**PEGN 106** Canoe Camping
1 hr.
The course combines the fundamentals of camping with canoeing. Terminates with a weekend camping trip by canoe.

**PEGN 107** Canoeing
1 hr.

**PEGN 108** Backpacking
1 hr.

**PEGN 109** Cycling
1 hr.

**PEGN 110** Cross Country Ski Camp
1 hr.
This course combines Cross Country skiing with outdoor living experiences.

**PEGN *120** Fencing
1 hr.

**PEGN 121** Field Hockey
1 hr.

**PEGN *122** Golf I
1 hr.

**PEGN 123** Gymnastics—Apparatus
1 hr.

**PEGN 124** Gymnastics—Tumbling
1 hr.

**PEGN 128** Jogging
1 hr.

**PEGN *129** Ice Hockey
1 hr.

**PEGN 130** Judo
1 hr.

**PEGN *131** Karate
2 hrs.

**PEGN 132** Military Fitness
1 hr.

**PEGN 135** Outdoor Challenge
1 hr.
This course, taught in cooperation with Pretty Lake Camp, teaches teamwork, trust of others, and responsibility through outdoor physical activities. Students work together to solve problems of survival in the outdoors.

**PEGN 136** Physical Fitness
1 hr.

**PEGN *137** Racketball
1 hr.

**PEGN 138** Rock Climbing
1 hr.
This course, taught in cooperation with Pretty Lake Camp, gives the student fundamentals of rock climbing and includes a weekend trip to cap off the experience.

**PEGN 139** Relaxation
1 hr.

**PEGN 140** Riffery
1 hr.

**PEGN *141** Sailing
1 hr.

**PEGN *142** Skating—Ice
1 hr.

**PEGN 143** Skiing—Cross Country
1 hr.

**PEGN *144** Skiing—Alpine
1 hr.

**PEGN 146** Soccer
1 hr.

**PEGN 147** Softball
1 hr.

**PEGN *149** Swimming—Unable to swim in deep water
1 hr.

**PEGN *160** Tennis I
1 hr.

**PEGN 161** Track and field
1 hr.

**PEGN 163** Volleyball
1 hr.

**PEGN 164** Wrestling
1 hr.

**PEGN 165** Yoga
1 hr.

**PEGN 166** Weight Training
1 hr.
Course consists of individualized weight training programs.

**PEGN 167** Winter Camping
1 hr.
Course includes winter survival as well as winter camping for the hardy outdoor person.

**PEGN 175** Special Activities, e.g., Wind Surfing; Kayaking; Military Sports
1 hr.

**PEGN 200** Physical Education Learning Lab Activities
1 hr.
Guided individual instruction in a variety of physical education activities. Resources such as films, books and workshops are available to aid the student learn in a manner and rate suitable to the individual skill and knowledge. Competency testing will be used to determine achievement and place individuals at beginning, intermediate or advanced levels. Course is repeatable for up to 8 hours credit (University limit) under 200 number, with different course titles. Prerequisite: GPA of 3.0 overall.

**PEGN 204** Intermediate Basketball
1 hr.

**PEGN 205** Bowling—Intermediate
1 hr.

**PEGN 206** Intermediate Backpacking
1 hr.

**PEGN 220** Fencing—Intermediate
1 hr.

**PEGN 222** Golf II
1 hr.

**PEGN 229** Ice Hockey
1 hr.

**PEGN 231** Karate
1 hr.

**PEGN 236** Intermediate Physical Fitness
1 hr.
This course is for the student desiring a higher level of fitness, training for marathons, triathlons, and/or weight competition.

**PEGN 237** Racketball—Intermediate
1 hr.

**PEGN 241** Sailing—Intermediate
1 hr.

**PEGN 242** Skating—Ice-Figure
1 hr.

**PEGN 244** Intermediate Alpine Skiing
1 hr.

**PEGN 246** Intermediate Soccer
1 hr.

**PEGN 249** Swimming—Intermediate
1 hr.

**PEGN 250** Advanced Swimming
1 hr.
Students will build on skills learned in Intermediate Swimming and learn to develop these skills in order to enter the Life Saving course. Prerequisite: PEGN 249

**PEGN **251** Swimming—Lifesaving
2 hrs.

**PEGN 252** Swim Conditioning
1 hr.

**PEGN **253** Swimming—Speed
1 hr.

**PEGN **254** Swimming—Springboard—Diving
1 hr.

**PEGN 260** Tennis II
1 hr.

**PEGN 283** Volleyball Intermediate
1 hr.

**PEGN 350** W.S.I.—Current Life Saving Certificate required
2 hrs.

**PEGN 360** Tennis—Intermediate
1 hr.

### VARSITY ATHLETICS

**PEGN 400** Baseball
1 hr.
SPECIAL EDUCATION

Alonzo E. Hannaford, Chair
Christine M. Bahr
Donna Gordon Iacobone
Elizabeth Lawrence-Patterson
Barbara L. Loss Harris
Abraham W. Nicolaou
Donald F. Selin

The Department of Special Education offers undergraduate programs for the preparation of teachers in the areas of emotionally impaired, mentally impaired, physically or otherwise health impaired and visually impaired. Students in undergraduate programs are awarded elementary provisional teaching certificates with a major in one of the above fields, which also permits them to teach in their major at either the elementary or secondary level.

The curricula in special education represent balanced programs of general, specialized, and professional education and are designed to meet state requirements for approval of teachers in the respective fields. Students officially admitted to, and enrolled in, undergraduate curricula in special education, are expected to consult with departmental advisers early in their college career. Questions regarding enrollment procedures in special education, course substitutions, or practicum placements, should be referred to the students’ advisers.

Special Education Courses (SPED)

SPED 474 Directed Teaching in Special Education
4-10 hrs.
See Description under Education and Professional Development, the College of Education.

SPED 512 In-Service Professional Development
1-4 hrs.
This course is designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals and special schools. A variety of instructional experiences are provided, including conferences. Credit not applicable toward a graduate degree in Special Education.

SPED 514 Introduction to Learning Disabilities
2 hrs.
This course focuses on basic knowledge in the area of learning disabilities. Historical perspectives, definitions, and major issues will be explored. Service delivery systems and evaluation procedures will be examined and evaluated. Prerequisite: Consent of department.

SPED 527 Exceptional Learners in Regular Elementary Programs
3 hrs.
This course is designed for prospective elementary teachers. Emphasis is placed on the types of exceptional learners found in elementary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisites: Consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

SPED 529 Exceptional Learners in Regular Secondary Programs
3 hrs.
This course is designed for prospective secondary teachers. Emphasis is placed on the types of exceptional learners found in secondary programs. Required adaptations and modifications, and available resources and services for these learners are stressed. Prerequisite: Consent of department. Not acceptable for Special Education majors or for an Endorsement Program in Special Education.

SPED 530 Education of Exceptional Persons
3 hrs.
This course deals primarily with the problems of individuals who are atypical in terms of their sensory, physical, mental, emotional, and learning characteristics. Emphasis is placed on developing an understanding of the psychological, sociological, philosophical, legal, and educational aspects of each type of exceptionality, including education in the Least Restrictive Environment. Prerequisite: Consent of department.

SPED 531 Classroom Practicum in Special Education
1 hr.
This course will provide the student with an opportunity to work within a classroom setting with a particular disability group — EI, MI, POHI, VI — at the elementary or secondary level. It is intended to provide the student with an awareness of the needs of these handicapped students and the role of the teacher in working with such students. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 530.

SPED 533 Assessment and Prescription in Special Education
3 hrs.
The major focus of this course is understanding the Clinical Teaching Model. Emphasis is placed on the relevance of assessment and prescription to the teaching of handicapped learners. Prerequisite: Consent of department.

SPED 534 Curriculum and Instruction in Special Education: Elementary
3 hrs.
The major focus of this course is the application of the Clinical Teaching Model to the education of mildly and moderately handicapped elementary and preadolescent students. Additional topics include: service delivery systems, roles of teachers and ancillary personnel, legal requirements, and major issues confronting the field of elementary special education. The course is a continuation of SPED 533 with focus on the elementary level. Prerequisite: Consent of department.

SPED 535 Adapting Teaching Strategies for Exceptional Persons
3 hrs.
This course consists of a combination of classroom and field based experiences designed to integrate the philosophy and techniques of inquiry teaching into the Clinical Teaching Model. Students are provided content and resources in science and mathematics for use with handicapped learners.

SPED 536 Curriculum and Instruction in Special Education: Secondary
3 hrs.
The major focus of this course is the application of the Clinical Teaching Model to the education of mildly and moderately handicapped adolescents and young adults. Topics include understanding of handicapped adolescents and young adults; educational, curricular and instructional approaches, and interventions; and transition programming. Prerequisite: Consent of department.

SPED 537 Technology in Special Education
3 hrs.
This course is designed to provide specific information, exposure, and experience related
to a variety of ways that current and emerging technologies may be used to improve the education and lives of handicapped learners. Prerequisite: Consent of department.

SPED 538 Introduction to Classroom Management 3 hrs.
This course deals with methods of managing classroom behavior and dealing with specific behavior problems. Classroom management strategies will be discussed and related to the establishment of a positive classroom climate. Diagnostic and prescriptive techniques will be applied to problems of aggression, conduct, withdrawal, hyperactivity, distractibility, and impulsivity. Prerequisite: Consent of department.

SPED 539 Consultation and Communication in Special Education 3 hrs.
This course will provide an introduction to consultation and communication skills needed by special educators as they work with other professionals and parents. Prerequisite: Consent of department.

SPED 540 Introduction to Mental Retardation 2 hrs.
This course provides an introduction to the field of mental retardation. Emphasis is placed on the interpretation of mental retardation in home, school, and community settings. Although primarily intended for those preparing to become teachers of the mentally retarded, it is also recommended for counselors, psychologists, social workers, and other allied professionals. Prerequisite: Consent of department.

SPED 541 Program Practicum in Special Education: MR 1 hr.
This course will provide the student with guided observations of school and community agencies serving the retarded. This course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving retarded persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 540.

SPED 542 Introduction to the Severely Impaired 3 hrs.
This course is designed to provide basic knowledge about the severely impaired, including mental, physical, emotional, and sensory impairments. The problem of severe impairment are examined in light of biomedical, legal, sociological, and educational perspectives. Special emphasis within the perspective of education includes information regarding management, assessment, instruction, and organization. Prerequisite: Consent of department.

SPED 544 Educating the Severely Impaired 3 hrs.
This course develops specific skills in the assessment, prescription, implementation, and evaluation of educational programs for the severely impaired. Course content focuses upon the areas of mobility, communication, sensorimotor development, self-help skills, cognition, and adaptive behavior. Prerequisite: Consent of department.

SPED 545 Education of Moderately and Severely Retarded Persons 2 hrs.
This course follows SPED 540 and focuses on understanding the ways in which teachers can organize curriculum and implement assessment and instruction to ensure maximum learning for students with mental retardation. Prerequisite: Consent of department.

SPED 546 Teaching Practicum in Special Education: MR 1 hr.
This course will provide the student with a structured assignment working with a retarded pupil. It is intended to enable the student to demonstrate skills in assessment and prescription, and in the implementation and evaluation of a tutorial plan of instruction for a specific mentally retarded pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 545.

SPED 550 Introduction to the Orthopedically and Otherwise Health Impaired 2 hrs.
This course provides an introduction to the field of the orthopedically and otherwise health impaired. Topics include the medical conditions leading to orthopedic impairment, and the educational, therapeutic, psycho-social, and vocational implications of such impairments. Prerequisite: Consent of department.

SPED 551 Program Practicum in Special Education: POHI 1 hr.
This course will provide the student with guided observations of school and community agencies serving the POHI population. This course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving POHI individuals and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 550.

SPED 555 Education of Physically and Multiply Handicapped 2 hrs.
This course focuses on the educational needs of physically and multiply disabled students and the implementation of educational programs through curriculum development and instructional adaptations. Special attention will be given to communication needs, self-care needs, and the life management needs of these students. In addition, recreational and vocational programs will be explored. Prerequisite: Consent of department.

SPED 556 Teaching Practicum in Special Education: POHI 1 hr.
This course will provide the student with a structured assignment working with a physically and/or multiply impaired pupil. It is intended to enable the student to demonstrate skills in assessment and prescription and in the implementation and evaluation of a tutorial plan of instruction for a specific physically and/or multiply impaired pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 555.

SPED 570 Introduction to the Emotionally Disturbed 2 hrs.
This course is intended to provide a basic foundation for understanding the condition of emotional impairment and appropriate educational and management provisions. Prerequisite: Consent of department.

SPED 571 Program Practicum in Special Education: EI 1 hr.
This course will provide the student with guided observations of school and community agencies serving the Emotionally Disturbed population. The course is intended to provide the student with an awareness of a continuum of special education placements and the role of non-school agencies serving emotionally disturbed persons and their families. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 570.

SPED 575 Education of Emotionally Disturbed Persons 2 hrs.
This course is to be taken following SPED 570 and focuses on understanding curriculum and organization and the application of a clinical teaching model to instruction in order to assure maximal learning by students with emotional impairment. Prerequisite: Consent of department.

SPED 576 Teaching Practicum in Special Education: EI 1 hr.
This course will provide the student with a structured assignment working with an emotionally disturbed pupil. It is intended to enable the student to demonstrate skills in assessment and prescription, and in the implementation and evaluation of a tutorial plan of instruction for a specific emotionally impaired pupil. Graded on a credit/no credit basis. Prerequisite: Consent of department and concurrent enrollment in SPED 575.

SPED 591 Braille and Other Communication Methods 2 hrs.
This course provides students with a basic knowledge of the braille literary code—reading and writing, and an overview of other communication methods available to the visually impaired. Prerequisite: Consent of department.

SPED 593 Methods and Techniques of Teaching Braille and Other Areas of Communication 3 hrs.
This course explores various methods and techniques of teaching essential communication skills—braille, typing, social communication, handwriting, abacus computation, the use of electronic devices and other media to the visually impaired. Opportunity for supervised practical application of methods are afforded to the student. Prerequisite: Consent of department.

SPED 598 Readings in Special Education 1-4 hrs.
This course is designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and head of the department. May be repeated for credit. Prerequisite: Consent of department.
The mission of the College of Engineering and Applied Sciences supports the three fundamental goals of the University mission of education, research, and service. The College recognizes that its primary clientele are the people and industries of the State of Michigan. The education goals are to provide balanced undergraduate and graduate programs designed to prepare individuals for professional careers, and to inculcate in students the ability to continue to learn on their own. Each academic program is structured to achieve these goals and to encourage student growth through participation in a wide range of extracurricular opportunities. The research goals are to generate knowledge and to develop new technologies. Applied research is emphasized and is structured to assist industry in design and development. Modern laboratory and research facilities enhance the undergraduate educational experience. The service goals are to apply the extensive human and physical resources of the College to the needs of the community, state, and nation, and to assist in economic development. It also includes a commitment to serve the various professions represented by the disciplines of the College.

The College of Engineering and Applied Sciences offers undergraduate programs in several curricula and majors that prepare graduates for productive careers in a wide variety of fields. Students should refer to the programs listed throughout the College section of this Catalog for specific information relative to the academic program of interest. The College also offers graduate programs leading to Master’s degrees in Home Economics, Teaching of Vocational Education, Manufacturing Administration, Operations Research, Electrical Engineering, Mechanical Engineering, and Paper Science and Engineering. Students interested in a graduate program should see the WMU Graduate Catalog for more information.

Institutes

APPLIED MECHANICS INSTITUTE
Meshulam Groper, Director
The Applied Mechanics Institute (AMI) is a faculty for research and for academic and industrial collaboration in applied mechanics and for instructional support of the graduate and undergraduate programs in the Department of Mechanical Engineering. It is a resource for basic and applied research in solid mechanics, machines and structures, fluid mechanics, and material behavior. The AMI includes a large capacity, hydraulically operated, computer controlled, combined axial torsional universal test machine, a large capacity axial load test machine, environmental chambers, a solid mechanics laboratory, and metallurgical evaluation and analysis facilities. Services are available under contract.

COMPUTER AIDED ENGINEERING CENTER
Gregory B. Lozeau, Director
Serving both WMU faculty and students as well as regional business and industry is the Computer Aided Engineering Center. The Center employs state-of-the-art CAD/CAM (Computer Aided Design/Computer Aided Manufacturing) equipment that enhances technical educational programs and provides training for regional industrial personnel. The facility houses a VAX 11/785 super mini-computer equipped with a floating point processor and has 1.5 giga-bytes of memory. The VAX is networked with other WMU computer systems and with computers throughout the State.

ENERGY LEARNING INSTITUTE
Richard C. Schubert, Director
The Energy Learning Institute (ERI) is a facility for research and for academic and industrial collaboration in energy and for instructional support of the graduate and undergraduate programs in the Department of Mechanical Engineering. It is a resource for basic and applied research in energy related areas. Its activities focus on alternative energy forms with a particular emphasis on solar energy. ERI works with commercial and residential clients designing and testing energy systems, and sponsors community programs for teachers, heating contractors, lending institutions and other interested parties. Its facilities include an experimental residential laboratory. Services are available under contract.

INSTITUTE OF TECHNOLOGICAL STUDIES
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 dynamoseters, paper, printing, and recycled fiber 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.

MATERIALS INSTITUTE FOR INNOVATION AND ENTERPRISE
Jay Easwaran, Director
The Materials Institute for Innovation and Enterprise (MIIE) is a facility for research and for academic and industrial collaboration in materials including metals, polymers, ceramics
and composites and for instructional support of the graduate and undergraduate programs in the Department of Mechanical Engineering. It is a resource for basic and applied research in materials and for industries interested in exploiting advanced materials technologies emerging from the laboratory stage. MIE offers testing services, design and development, training, research, and prototype parts manufacturing. Testing and research services are available under contract.

**PAPER AND PRINTING PILOT PLANTS**

Carl F. Shuster, Director

The Department of Paper and Printing Science and Engineering offers laboratory and classroom facilities to support educational and research programs in paper making and printing. Industrial seminars are offered during the summer months and training is available by special arrangement. Extensive testing and research facilities are available for industrial use through the pilot plant. Specific equipment available includes a fourdriner paper machine, an aqueous coater, a supercalender, a non-aqueous coater, a recycling plant, cylinder former and continuous digester. The papermaking process can be studied at all stages beginning with the tree or waste paper through the finished product. Testing of paper and paper products and process research and development are available under contract.

The Printing Center houses cut sheet and small web printing operations as well as major web-fed flexographic, rotogravure, and offset presses. The Center serves as a resource for the paper-making, printing, packaging, and publishing industries.

**Academic Advising**

A central advising office is maintained for the convenience of College of Engineering and Applied Sciences students. Because prerequisites are strictly enforced and it is essential to follow the program plans that appear in the curricula descriptions, students must contact their academic adviser in the first semester of enrollment at Western Michigan University. Failure to meet with the adviser on a regular basis may result in difficulty receiving requested class schedules and/or delayed graduation.

Advisers are available to assist in program planning, to recommend electives appropriate to the student’s educational objectives, to discuss employment opportunities, and to help with general academic problems. Transfer credit and all course substitutions must be recommended by the adviser and approved by the appropriate department curriculum committee.

**Prerequisites**

Prerequisites are designed to both increase the probabilities of successful completion of the course and to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced for all departmental courses. Exceptions must be accepted by the department no later than the end of the “add” period of the semester or session.

**Enrollment**

Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students are responsible for processing drop slips with the Registration Office before the end of the drop/add period if fees are to be refunded.

**Credit Hour Definition for the College of Engineering and Applied Sciences**

An undergraduate credit hour is a unit of academic measurement nominally equivalent to 3 hours of work per week on the part of the student. Thus, for a course in which 3 credits are earned, a student can expect to work 9 hours per week (4 credits, 12 hours per week, etc.) in various combinations of lecture hours (50 minutes), laboratory hours, and home study.

**Standard of Academic Honesty**

All courses offered by the College will be conducted in concert with the high standards of the University as stated in the Student Guide to Academic Honesty. Each student is expected to support these standards by neither giving nor accepting assistance on tests, and by submitting only his or her own work for credit. Violations of the standard of academic honesty will result in appropriate disciplinary action. Such disciplinary action may include a failing grade in the course, readmission of work, dismissal from the curriculum, probation, or dismissal from the University.

**Computer Use in College Programs**

Most degree programs offered in the College of Engineering and Applied Sciences require extensive use of computers. This is particularly true in engineering and engineering related disciplines. Although Western Michigan University and the College provide adequate computer facilities for student use, many students find it advantageous to have their own computer (students are not required to purchase one). The University maintains special marketing arrangements with several major computer manufacturers and is therefore able to offer substantial discounts to students and faculty for the purchase of microcomputers and software. Interested students may obtain current information about the purchase of computing equipment from the College of Engineering and Applied Sciences Advising Office (Room 2038 Kohrman Hall) or their academic adviser.

**Professorial and Honorary Societies**

The College and each department have student branches of professional and honorary societies whose purpose is to provide opportunities for students to become more directly involved with specific activities in their areas of interest. Students interested in enlarging their understanding of the professional field in which they intend to work are encouraged to participate in one of these societies. Students may obtain further information by contacting their academic adviser or department chair.

**Scholarships**

Many scholarships are available to both freshmen and upperclass students in the College of Engineering and Applied Sciences. The majority of these scholarships are specifically for students in the College are administered by the individual departments of the College. A listing may be found in the “Financial Aid and Scholarships” section of this catalog.

**Engineering Programs**

**Engineering Students**

Three common characteristics are prevalent among students who are attracted to engineering. All show an interest in problem-solving—not only to know how, but why, something works. Second, engineering students possess a degree of technical aptitude—the ability to think in mathematical and scientific terms—which, third, is coupled with a strong interest in mathematics and the sciences. A majority of engineering students are involved in one or more of the several professional organizations that have student chapters on campus. Such involvement enhances the “textbook learning” by providing students with opportunities to interact with other students having similar interests, to gain a closer look at the profession they have chosen to enter, and to plan and direct programs and projects.

**Engineering Graduates**

Undergraduate engineering programs offered by the College of Engineering and Applied Sciences prepare graduates for immediately productive careers and for continued professional practice in industry. A survey of graduates indicated WMU engineering alumni held positions of president, vice president, owner, plant manager, chief engineer, senior design engineer, sales manager, and lawyer. Students interested in advanced studies in engineering may pursue a Master of Science degree in Electrical Engineering, Mechanical Engineering, Operations Research, Paper Science and Engineering, or Manufacturing Administration at WMU.

**Graduation Requirements**

**BACHELOR OF SCIENCE IN ENGINEERING**

The baccalaureate programs in engineering are designed to be completed in four consecutive years. A student must meet all the requirements listed in any one of the catalogs in effect during the four year period immediately prior to the date of graduation.

**Professional Registration**

Graduates of engineering programs are encouraged to seek professional registration. Eligibility requirements in Michigan are established by the State Board of Professional Engineers. In general, only graduates of EAC/ABET accredited engineering programs are eligible to be licensed in Michigan. Students interested in professional registration should consult with their department adviser.

**Admission to Engineering Programs**

**ADMISSION TO PRE-ENGINEERING**

Admission

All students admitted to the University and planning to pursue one of the following
curricula will be enrolled in the pre-engineering (PE) curriculum:

- **Aircraft Engineering (ACE)**
- **Auto
tive Engineering (AME)**
- **Computer Systems Engineering (CSE)**
- **Electrical Engineering (EE)**
- **Industrial Engineering (IE)**
- **Mechanical Engineering (ME)**
- **Paper Engineering (PAE)**
- **General Engineering (GE, not available on campus)**

University admission standards are used for enrollment in PE. Students admitted for PE should have appropriate academic preparation.

**Academic Advising**

All students enrolled in the PE curriculum will receive academic advising by the College of Engineering and Applied Sciences.

**Enrollment Restrictions**

Pre-engineering (PE) students will not be permitted to enroll in any course offered by the College of Engineering and Applied Sciences at the 300 level or above that is required in any of the engineering curricula.

**PRE-ENGINEERING CURRICULUM REQUIREMENTS**

Displayed below are the courses required in the pre-engineering curriculum for all students planning to pursue one of the engineering curricula listed above. See the respective department catalog entry for full degree requirements.

**Common Core Courses Required For All Curricula**

- **MATH 122, 123 and 272**
- **CHEM 101 or 102**
- **PHYS 210 and 211**
- **General Education AREA I I I**
- **OR IV**
- **General Education AREA I OR II**

**Additional Courses Required by Curricula**

- **Aircraft Engineering CS 106, EE 210, IE 102, ME 256, and PHYS 212 OR PHYS 342 OR PHYS 352 OR CHEM 120**
- **Automotive Engineering CS 106, EE 210, IE 102, ME 256, and PHYS 212 OR PHYS 342 OR PHYS 352 OR CHEM 120**
- **Computer Systems Engineering CS 111, EE 210, EE 250, IE 102, and PHYS 212**
- **Electrical Engineering CS 306, EE 210, IE 102, ME 256, and PHYS 212**
- **Industrial Engineering EE 210, IE 102, IE 206, ME 256, and PHYS 212 OR CHEM 120**
- **Mechanical Engineering CS 106, IE 102 OR BIS 140 OR ENGL 105, ME 256, and PHYS 212 OR PHYS 342 OR PHYS 352 OR CHEM 120**
- **Paper Engineering CHEM 120, CS 106, IE 102, ME 253, and PAPR 204**

**Enrollment**

All students enrolled in the PE curriculum will be enrolled in the pre-engineering curricula listed above. The Aircraft Engineering (ACE), Automotive Engineering (AME), Computer Systems Engineering (CSE), Electrical Engineering (EE), Industrial Engineering (IE), Mechanical Engineering (ME), Paper Engineering (PAE), or General Engineering (GE, not available on campus) may apply for formal admission to one of these engineering curricula after successfully completing the pre-engineering curricular requirements. Only students who have demonstrated the potential for success will be admitted to an engineering curriculum.

1. All students seeking admission to a degree-granting engineering curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. The College of Engineering and Applied Sciences processes admission applications to engineering curricula and makes admission decisions to these programs.

2. Admission to an engineering curriculum is dependent on successful completion of all required courses or approved alternatives in the PE curriculum with no grade less than "C." Only students in good academic standing as defined by the University are eligible for consideration for admission to an engineering curriculum.

3. Students in an engineering curriculum will be advised by a faculty advisor from that curricular area.

4. There are no established enrollment limits for admission to engineering curricula.

**Off Campus Degree Programs**

The College of Engineering and Applied Sciences offers complete undergraduate (described below) and graduate (described in the Graduate College bulletin) degree programs off campus.

The production Technology degree program is offered to students who can attend classes only on a part-time basis. These programs are not available on the Kalamazoo campus.

Additional information can be obtained by contacting the Director of Engineering and Technical Programs at the WMU Grand Rapids Regional Center, (616) 456-6274.

**Production Technology**

**Bachelor of Science Degree**

This manufacturing-oriented program is especially designed for the individual with a two-year associate degree in a technical field from an accredited institution, who may be working in industry, and who wants to earn a Bachelor of Science degree. This degree provides the technological background necessary for growth and advancement.

The program builds on the 60 semester hours of academic credit from the associate degree with an additional 60 semester hours of academic credit from Western Michigan University. Two semester hours of physical education (which can be substituted with two hours of course work for those over age 30) is also required, bringing the total hours needed for the degree to 122.

The entering student is expected to have taken a total of six courses in the following areas as part of the associate degree work:

- **Engineering graphics**
- **General physics**
- **Humanities**
- **Social studies (two courses)**
- **English composition**

A student lacking any courses in the above areas will be required to complete them in addition to the 60 hours needed at Western Michigan University.

The entering student must also have had three years of full-time work experience in an area related to studies for the associate degree. A student lacking this experience may be substituted by registering for and successfully completing 3 hours of IC 300 Cooperative Education. The cooperative education credits generated will not count as part of the 60 hours required at Western Michigan University.

**PROGRAM REQUIREMENTS**

To earn a Bachelor of Science degree in Production Technology, the following courses must be completed in addition to meeting other University requirements applicable to transfer students:

**Industrial Engineering (18 hours)**

- **IE 305 Work Analysis**
- **IE 316 Report Preparation**
- **IE 320 Engineering Cost Analysis**
- **IE 326 Operations Planning and Control**
- **IE 328 Quality Assurance and Control**
- **IE 402 Supervision of Industrial Operations**

**Engineering Technology (17 hours)**

- **ET 256 Properties of Materials**
- **ET 281 Statics and Stress of Materials**
- **ET 387 CAD/CAM Fundamentals**
- **ET 453 Maintenance in Manufacturing**
- **ET 487 Manufacturing Productivity Techniques**

**Other (25 hours)**

- **MATH 366 Introduction to Statistics**
- **Humanities Elective (Area I)**
- **Non-Western World Elective (Area IV)**
- **Approved electives (the courses in this group must be approved in advance by the program adviser to meet University General Education/Computer Literacy program requirements as listed in the current undergraduate catalog)**

- **At least one of these courses must be at the 300-400 level.**

**General Programs**

General programs in the College of Engineering and Applied Sciences are designed to meet specific student needs not satisfied by any other curricula in the college.

**General College Curriculum (GCA)**

Charon L. Sanford, Adviser

Non-engineering students who have not decided on a particular program in the College
of Engineering and Applied Sciences may initially enroll in the General College Curriculum (GCA).

Written permission of the academic adviser is required to enroll in this curriculum beyond the second year.

Pre-Architecture
Charon L. Sanford, Adviser

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

Recommended Semester Requirements Hours
Math ........................................ 4
Computer Language .................. 2
Physics .................................... 8
Natural Science ........................ 4
Economics ................................ 3
Social Science ............................ 7
English .................................... 4
Humanities ................................. 12
Drawing ..................................... 6
Electives .................................. 8-15

Engineering and Applied Sciences College Courses (AAS)
AAS 497 General University Studies (Variable Credit) Fall, Winter, Spring, Summer Evaluation of work experience and/or course work relevant to the area of specialty in the Technical-Scientific area studies. Prerequisite: Permission of the Technical-Scientific Studies adviser, Room 2038, Kohrman Hall.

Related Academic Programs

COOPERATIVE EDUCATION PROGRAM
Lawrence A. Williams, Coordinator

Students enrolled in engineering and related degree curricula may gain experience and knowledge about a professional field of interest by enrolling in a cooperative education program or in a field experience course. Additional information may be obtained from the Coordinator in Room 1005, Trimpe Distributive Education Building.

Students are usually selected in pairs and alternate by semester between campus and industry. While on the job, the student must be enrolled in the course IE 300, Co-operative Education. During their employment periods, Co-op students are paid an appropriate salary by their employer.

Cooperative education students work in such areas as manufacturing, assembly, research, design, quality control, and safety. They may perform tests, prepare engineering drawings, collect and record data, design tools and fixtures, and assist in supervision. The student's cooperative program is closely supervised by a college coordinator.

OTHER COOPERATIVE EDUCATION PROGRAMS
Other cooperative education programs are available in consumer resources and technology in the fields of food and petroleum distribution and fashion management, marketing and merchandising. The arrangement of work assignments varies by curriculum.

FOUNDRY PROGRAM
Any student enrolled in an engineering or related curriculum and interested in a career in the metal casting industry may be admitted into the Foundry Program. While engaged in this special program, the student must also meet the requirements for a B.S. degree offered by the College of Engineering and Applied Sciences. The Foundry Program is designed to allow the student an opportunity to elect various specific interest courses while earning a degree in any standard curriculum.

Foundry Program students must join the student chapter of the American Foundrymen’s Society and register with the Foundry Educational Foundation. Upon reaching the sophomore year, it is recommended that all students apply for the Co-operative Education Program by contacting the coordinator of Engineering Cooperative Education in agreement with many sponsoring industries. Students following the Foundry Program are eligible to be considered for scholarship awards made available each semester by the Foundry Educational Foundation.

AIRCRAFT AND AUTOMOTIVE ENGINEERING
M. Jerry Kenig, Chair
Richard B. Hathaway
Arthur W. Hoadley
Panviz Merati
Pradipkumar Sagdeo
Curtis N. Swanson

The Department of Aircraft and Automotive Engineering offers a program leading to the degree of Bachelor of Science in Engineering (Aircraft and Automotive). The program is designed to provide engineering expertise appropriate to the aviation industry and to the automotive industry in product development, product design, and other related areas requiring an appropriate engineering background. It includes mathematics, general education subjects, the basic sciences, the engineering sciences, design and an integrated computer experience. The engineering science courses and design experiences specifically emphasize applications to the aircraft and automotive fields in such areas as internal combustion engines and structures. Up to fifteen (15) credit hours may be specialized to aircraft or automotive engineering. Graduates of the program find opportunities in the aircraft and automotive industries and in other engineering areas capitalizing on their strong engineering background. Opportunities for graduates continue to develop with the rapid expansion of our knowledge base and population growth.

Academic Advising
Students should contact their adviser as early as possible. The adviser is available to assist in individual program planning, recommend electives appropriate to a student’s educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the adviser, the curriculum committee, and the department chairman. The academic adviser is located in Room 2038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic adviser for proper course sequence.

Additional Information
General information regarding admissions, advising, scholarships, and special programs of interest to students in this department may be found at the beginning of the College of Engineering and Applied Sciences section of the catalog.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in such areas as manufacturing, product development, quality control, and maintenance management of major companies, as well as any type of automotive or aircraft engineering activity.
Electives

All electives must be approved by the departmental academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual program. Non-related courses will not normally be approved.

Lists of appropriate electives are available from the academic advisor office.

Aircraft and Automotive Degree Program

Candidates for the Bachelor of Science in Engineering (Aircraft and Automotive Engineering) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences.) The sequence must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A "C" average or better must be earned in courses presented for graduation with an AAE, EE, IE, or ME prefix.

3. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

4. Complete the following program of 134 semester credit hours. The schedule below is an example of one leading to graduation in eight semester, beginning in the fall. Pre-engineering requirements are in darker print.

First Semester—16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 102</td>
<td>OR 101 General Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>CS 108</td>
<td>EE 102 Technical Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 123</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics and Heat</td>
<td>4</td>
</tr>
<tr>
<td>ET 142</td>
<td>EE 102 Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>ME 250</td>
<td>MATH 122, PHYS 210, ET 142</td>
<td>3</td>
</tr>
</tbody>
</table>

Third Semester—18 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 272</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>Electricity and Light</td>
<td>4</td>
</tr>
<tr>
<td>ME 232</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EE 210</td>
<td>Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ME 256</td>
<td>Statics</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Semester—17 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 374</td>
<td>Introduction to Linear Algebra and Diff. Eq.</td>
<td>4</td>
</tr>
<tr>
<td>EE 211</td>
<td>Machine and Electric Circuits</td>
<td>3</td>
</tr>
<tr>
<td>ME 258</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>AAE 266</td>
<td>Vehicle Systems</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>Introduction to Modern Physics</td>
<td>4</td>
</tr>
<tr>
<td>OR 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>OR 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>General Chemistry II</td>
<td>4</td>
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</table>

Fifth Semester—17 hours

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ME 350</td>
<td>Material Science II</td>
<td>3</td>
</tr>
<tr>
<td>ME 257</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ME 358</td>
<td>Mechanism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ME 356</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>AAE 357</td>
<td>Fluid Mechanics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>AAE 363</td>
<td>Inter. Comb. Engines I</td>
<td>3</td>
</tr>
<tr>
<td>PEGN</td>
<td>Physical Education</td>
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Sixth Semester—16 hours

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ME 365</td>
<td>Machine Design I</td>
<td>3</td>
</tr>
<tr>
<td>ME 360</td>
<td>Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>AAE 368</td>
<td>Inst. Systems and Design</td>
<td>4</td>
</tr>
<tr>
<td>ME 431</td>
<td>Heat Transfer</td>
<td>3</td>
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AIRCRAFT ENGINEERING ELECTIVE:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AAE 361</td>
<td>Fvt. Veh. Aerodynamic and Perf</td>
<td>3</td>
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OR

AUTOMOTIVE ENGINEERING ELECTIVE:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AAE 362</td>
<td>Subsonic Aerodynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

Seventh Semester—17 hours

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>AAE 461</td>
<td>Engng. Design Concepts</td>
<td>2</td>
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<tr>
<td>AAE 467</td>
<td>Int. Comb. Engines II</td>
<td>3</td>
</tr>
<tr>
<td>AAE 470</td>
<td>Vehicle Struct. Design</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>&quot;General Education&quot;</td>
<td>3</td>
</tr>
<tr>
<td>AREA II</td>
<td>&quot;General Education&quot;</td>
<td>3</td>
</tr>
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</table>

AIRCRAFT ENGINEERING ELECTIVE:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AAE 460</td>
<td>Aircraft P., S. and C.</td>
<td>3</td>
</tr>
</tbody>
</table>

OR

AUTOMOTIVE ENGINEERING ELECTIVE:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAE 465</td>
<td>Vehicle Dynamics</td>
<td>3</td>
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</table>

Eighth Semester—16 hours

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AAE 468</td>
<td>Engine Design</td>
<td>3</td>
</tr>
<tr>
<td>AAE 480</td>
<td>Engineering Design Project</td>
<td>3</td>
</tr>
<tr>
<td>AAE 472</td>
<td>Compress, Aerodynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

APPROVED ELECTIVE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREA IV</td>
<td>&quot;General Education&quot;</td>
<td>3</td>
</tr>
</tbody>
</table>

APPROVED DESIGN ELECTIVE

* At least two of these courses must be at the 300-400 level.

Aircraft and Automotive Engineering Courses (AAE)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). * After title denotes course is for students following catalogs prior to the 1989-91 issue.

AAE 261 Aircraft Systems and Propulsion (3-3)*

3 hrs. Fall

Introduction to aircraft systems, including airframe construction and design, propulsion systems, fluid power systems, and auxiliary systems, such as cabin environment, ice and rain control, fire warning and control, and fuel systems. Prerequisites: MATH 122, PHYS 210, ET 142, or concurrent.

AAE 263 Fuel Metering Systems (2-2)*

3 hrs. Winter

The design and operation of fuel management systems including induction, fuel metering, and exhaust systems. Carburation, fuel injection, injection carburetion, emission reduction, manifold design, and volumetric and thermal efficiencies as applied to naturally aspirated and supercharged gasoline and diesel engines, as well as gas turbine engines. Prerequisites: AAE 261 or AAE 264, CS 106, MATH 123.

AAE 264 Vehicle Systems and Power (2-2)*

3 hrs. Winter

Introduction to automotive vehicles and engines. This course includes chassis construction and design, engine systems, safety, braking, and fuel systems. Prerequisite: MATH 122 or concurrent.

AAE 265 Power Transmission Systems (2-2)*

3 hrs. Fall

Introduction to vehicle power transmission, transmission requirements, load analysis, and gearing, system dynamics, transmission design configurations, and application. Prerequisite: MATH 122.

AAE 266 Vehicle Systems (2-3)

3 hrs. Fall

Introduction to vehicle systems to include auxiliary systems, speed reducing systems, fluid power systems, system dynamics, vehicle inertial characteristics, design configurations and applications. Prerequisites: MATH 123, PHYS 211, corequisite ME 258

AEE 357 Fluid Mechanics Laboratory (0-3)

1 hr. Fall, Winter, Spring

Experiments to include hydrostatics and aerodynamics, calibration of flow meters, flow through a nozzle, hydraulic jump in a horizontal channel, open channel flows, friction loss in a pipe for laminar and turbulent flows, drag force, lift force and pitching moment. In a wind tunnel, flow visualization around bluff bodies using smoke-wire technique, flow velocity measurements using pitot-static and hot-wire probes, measurement of flow velocities in a wave channel. Prerequisite: ME 356 or concurrent.

AAE 361 Flight Vehicle Aerodynamics and Performance (3-0)

3 hrs. Winter

A study of incompressible and compressible flow around bluff bodies. Computer applications to the solution of the problems of flight vehicle aerodynamics. Prerequisite: ME 356.

AAE 362 Subsonic Aerodynamics (3-0)

3 hrs. Winter

Subsonic aerodynamics for engineers. The study of incompressible and compressible flow around bluff bodies. Computer applications to the solution of aerodynamic problems. Prerequisite: ME 356.

AAE 363 Internal Combustion Engines I (2-3)

3 hrs. Fall, Spring

Introduction to internal combustion engine systems and mechanical design. Consideration of factors affecting engine design using principles of engineering science. Analysis of common engine systems for reciprocating and continuous flow internal combustion engines. Prerequisite: MATH 272, ME 258, ME 232.

AAE 364 Electronic Systems (2-2)*

3 hrs. Fall

Application of electricity and electronics to the design, operation, and service requirements of vehicle systems including power systems. Emphasis on analysis and synthesis of system functions and design parameters. Prerequisites: AAE 261 or AAE 264, CS 106, EE 211 or concurrent.

AAE 367 Instrumentation and Testing (2-2)*

3 hrs. Fall, Winter

Principles of engineering measurements as applied to engine and structure testing. Laboratory assignments include calibration of instruments, obtaining data, dynamometer operation, and engine testing. Data will be analyzed with the aid of the computer. Graphing and analysis techniques will be utilized in formal written reports. Prerequisites: AAE 364, ME 356.
AAE 368 Instrumentation Systems and Design (3-3) 4 hrs. Winter

Analysis and design of instrumentation systems, including microprocessor based instrumentation systems, electronic interfacing, signal conditioning, statistical analysis of data, and control of actuators. Lab projects emphasizing the design of computer based instrumentation systems. Prerequisite: EE 211.

AAE 460 Aircraft Stability and Control (3-0) 3 hrs. Fall

Analysis and synthesis of aircraft stability and control. Design of the aircraft control surfaces for different configurations to provide the required stability and control power. Man-machine interaction and effect on control surface sizing. Prerequisite: AAE 361, ME 356

AAE 461 Engineering Design Concepts (2-0) 2 hrs. Fall

An introduction to the design process including problem definition and project planning with social, ethical, aesthetic and technical consideration. Preliminary planning will be accomplished for the major design project. Prerequisite: Consent of adviser.

AAE 462 Aircraft Dynamic Design (3-0) 3 hrs. Fall

Aerodynamic design of aircraft emphasizing performance, stability, and control characteristics. Prerequisite: ET 461 or taking concurrently.

AAE 463 Aircraft Structural Design (3-0) 3 hrs. Fall

Structural design of aircraft emphasizing structural integrity under imposed static and dynamic loads. Design considerations include weight, cost, and mission constraints. Prerequisite: AAE 461 or concurrently, ME 356

AAE 464 Aircraft Engineering Lab (0-6)* 3 hrs. Winter

Aerodynamic and structural analysis of aircraft. Emphasis on design and application of wind tunnel and flight testing techniques. Prerequisites: AAE 460, AAE 461, AAE 463, AAE 472.

AAE 465 Vehicle Dynamics (3-0) 3 hrs. Fall

Design of ground vehicle suspension and steering systems. Vehicle ride, handling and safety systems. Passive and active suspension control. Prerequisites: AAE 266, AAE 362, ME 358, ME 360, ME 365.

AAE 466 Automotive Engineering Lab (0-6)* 3 hrs. Winter

Special topics in automobile design including problems of performance and economy, compatibility of engine and transmission, aerodynamic design applications, and noise and vibration control. Prerequisites: AAE 461, AAE 465, AAE 475.

AAE 467 Internal Combustion Engines II (3-3) 4 hrs. Fall


AAE 468 Engine Design (1-6) 3 hrs. Winter

Application of the knowledge of the mechanics, thermodynamics and fluid mechanics to the design of internal combustion engines to meet specific mission requirements. Optimization of the design using computer modeling and parametric studies. Prerequisites: AAE 461, AAE 467.

AAE 470 Vehicle Structural Design (3-0) 3 hrs. Fall

Structural design of surface and air vehicles to meet specific mission requirements. Design of structures with minimum weight and cost while maintaining structural integrity under the imposed loads. Prerequisites: AAE 361 or AAE 362; ME 358, and ME 365.

AAE 472 Compressible Fluid Flow (3-0) 3 hrs. Fall

Introduction to compressible flow focusing on isentropic flow of perfect gases, normal and oblique shock waves, Prandtl-Meyer flow, linearized flow, and design of supersonic aircrafts, nozzles, and wind tunnels. Prerequisites: AAE 361, AAE 362.

AAE 475 Vehicle Structural Design (3-0) 3 hrs. Fall

Structural design of automotive vehicles, emphasis on maintaining structural integrity under imposed loads while optimizing weight and cost. Prerequisites: AAE 461 or concurrent, ME 365.

AAE 480 Aircraft and Automotive Engineering Design Project (1-6) 3 hrs. Fall, Winter, Spring

An engineering experience emphasizing an open-ended design project directed toward a surface or air vehicle problem with possible interaction with industry. Prerequisites: AAE 461 or equivalent or consent of department.

AAE 495 Topics in Aircraft and Automotive Engineering (1-4) 1-4 hrs. Fall, Winter, Spring, Summer

A specialized course dealing with a particular area of aircraft and/or automotive engineering not included in other course offerings. May be repeated for credit with a different topic for up to a total of six credits. Prerequisite: Departmental consent.

AAE 499 Independent Study (1-6) 1-6 hrs. Fall, Winter, Spring, Summer

An independent study assignment available only by special arrangement with an instructor and approved by the department curriculum committee. A written report will be required and filed with the department on completion. May be repeated for up to a total of six hours. Prerequisite: Departmental consent.

CONSUMER RESOURCES AND TECHNOLOGY

Sue S. Coates, Chair
Max E. Benne
Linda L. Dannison
Frank M. Gambino
Gail A. Havens
Jack T. Humber
John R. Lindbeck
Judith A. Little
Rebecca S. Marvin
Collene Molenaar
Richard Neischich
Maiga Petersens
Carla Noe
Norman E. Slack
Nancy H. Steinhaus
Darrel B. Thomas
Donna R. VanWestrienen
Patricia B. Viard
Lawrence A. Williams
Carl A. Woloszyk

The Department of Consumer Resources and Technology offers education in value and efficient use of human and material resources, and in the development of the skills and knowledge appropriate to careers that can 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 Teaching
Interior Design
Textiles and Apparel Technology Vocational Education Teaching

Minors offered in the department include:

Family Life Education (Teaching)
Food Occupations (Teaching)

Academic Advising

Room 3033, Kohrman Hall. An academic advisor is available to assist in individual program planning, recommend electives appropriate to a student’s educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by departmental adviser.

Vocational Education

Students desiring to become qualified as teachers of Vocational Home Economics, Vocational Technical Education (Drafting, Graphic Arts, Metal Working, Power/ Automatics, Woodworking), or Marketing 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 utilize 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 class meeting (lecture or lab) unless prior arrangements have been made with the Instructor. Students not attending courses for whatever reasons are responsible for processing drop slips with the Registration Office if fees are to be refunded and an "X" grade avoided.

Agriculture

Bachelor of Science Degree

Adviser: Dr. Max Benne

The agriculture curriculum is a four-year degree program that deals with the production, distribution, and service aspects of the agricultural industry. The student Agriculture Club provides additional opportunities for professional interaction and experiences.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—15 hours

CRT 161 Animal Industry .4
AREA V General Education College Writing .3
PEGN Physical Education .1
Approved Elective .3

Second Semester—15 hours

MATH 110 Algebra I .3
OR
MATH 111 Algebra II .3
COM 104 Public Speaking .3
CS 105 Introduction to Computers .3
AREA I General Education* .3
Approved Elective .3

Third Semester—15 hours

CRT 201 Agronomy .4
CRT 266 Food and Society .3
ECON 201 Principles of Economics (Micro) .3
AREA III General Education* .3
PEGN Physical Education .1

Fourth Semester—15 hours

CRT 262 Principles of Horticulture .4
SOC 200 Principles of Sociology .3
General Education Elective* .2
Approved Elective .3

Fifth Semester—16 hours

CRT 361 Introduction to Soils .4
MATH 216 Business Statistics
OR
FCL 340 Legal Environment .3
AREA I General Education* .3
General Education Elective* .3
CRT 463 Agriculture Marketing .3

Sixth Semester—15 hours

CRT 362 Landscape Gardening .3
CRT 365 Farm Organizations and Management .4
ACTY 201 Accounting Concepts and Applications
OR
ACTY 210 Principles of Accounting .3
AREA III General Education* .3
Approved Elective .2

Seventh Semester—16 hours

CRT 467 Agriculture Finance .3
AREA IV General Education* .3
Approved Elective .10

Eighth Semester—15 hours

CRT 364 Land Use and Soil Conservation .4
General Education Elective* .7
Approved Elective .4

* At least two of these courses must be at the 300-400 level.

Dietetics

Bachelor of Science Degree

Adviser: Dr. Maija 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. After the internship, the dietitian is eligible for positions in hospitals such as food administrator, therapeutic dietitian, or teaching dietitian; for positions in commercial food establishments such as restaurants, hotels, airlines, food service in the armed forces, industrial facilities, and school cafeterias; and community nutrition positions. The Student Dietetic Association of Southwest Michigan provides additional involvement of students with dietetic professionals.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. A grade of "C" or better must be earned in courses with a CRT prefix and in other specified courses presented for graduation. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—14 hours

MATH 110 Algebra I .3
E 102 Technical Communication .3
BIS 102 Introduction to Information Processing .3
CHEM 101 General Chemistry I .4
PEGN Physical Education .1

Second Semester—16 hours

COM 170 Interpersonal Communication .3
PSY 100 General Psychology .3

Fourth Semester—16 hours

CRT 160 Principles of Horticulture .4
SOC 200 Principles of Sociology .3
General Education Elective* .4
Approved Elective .3

Third Semester—14 hours

CRT 100 Career Seminar .1
CRT 165 Food Science Principles .3
CRT 260 Nutrition .3
SOC 200 Principles of Sociology .3
CHEM 120 General Chemistry II .4

Fourth Semester—16 hours

CRT 368 Quantity Foods .4
ECON 201 Principles of Economics (Micro) .3
ANTH 220 Cultural Anthropology .3
Approved Elective .6

Fifth Semester—15 hours

CHEM 365 Introduction to Organic Chemistry .4
BIOS 230 Microbiology and Man .3
PEGN Physical Education .1
General Education Elective* .4
Approved Elective .3

Sixth Semester—16 hours

BIOS 240 Human Physiology .4
MGMT 300 Fundamentals of Management .3
PSY 517 Psychology of Learning for Teachers .3
Approved Elective .6

Seventh Semester—15 hours

CRT 460 Advanced Nutrition .3
CRT 468 Advanced and Experimental Foods .4
CRT 469 Institutional Management .4
AREA I General Education* .4

Eighth Semester—16 hours

CRT 461 Diet and Disease .4
CRT 462 Community Nutrition .3
ANTH 531 Medical Anthropology .3
CHEM 450 Introductory Biochemistry .3
Approved Elective .3

* At least two of these courses must be at the 300-400 level.

Fashion Merchandising

Bachelor of Science Degree

The fashion merchandising curriculum is designed for students wishing to pursue fashion careers in buying and/or management in large department stores, specialty shops, and boutiques. Manufacturing, fabrication, buying offices, and various types of media are related fields of interest for students with this orientation. The student organization, FABS, provides additional fashion experiences and interaction with fashion professionals.

Third year fashion merchandising students have the option of attending the Fashion Institute of Technology, New York, New York, for two semesters if a 3.0 grade point average has been maintained.

Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—15 hours

CRT 100 Career Seminar .1
CRT 126 Fashion Merchandising I .3
CRT 155 Design Principles .3

Second Semester—15 hours

CRT 262 Principles of Horticulture .4
SOC 200 Principles of Sociology .3
General Education Elective* .4
Approved Elective .3

Third Semester—14 hours

CRT 100 Career Seminar .1
CRT 260 Nutrition .3
SOC 200 Principles of Sociology .3
CHEM 120 General Chemistry II .4

Fourth Semester—16 hours

CRT 368 Quantity Foods .4
ECON 201 Principles of Economics (Micro) .3
ANTH 220 Cultural Anthropology .3
Approved Elective .6

Fifth Semester—15 hours

CHEM 365 Introduction to Organic Chemistry .4
BIOS 230 Microbiology and Man .3
PEGN Physical Education .1
General Education Elective* .4
Approved Elective .3

Sixth Semester—16 hours

BIOS 240 Human Physiology .4
MGMT 300 Fundamentals of Management .3
PSY 517 Psychology of Learning for Teachers .3
Approved Elective .6

Seventh Semester—15 hours

CRT 460 Advanced Nutrition .3
CRT 468 Advanced and Experimental Foods .4
CRT 469 Institutional Management .4
AREA I General Education* .4

Eighth Semester—16 hours

CRT 461 Diet and Disease .4
CRT 462 Community Nutrition .3
ANTH 531 Medical Anthropology .3
CHEM 450 Introductory Biochemistry .3
Approved Elective .3

* At least two of these courses must be at the 300-400 level.
<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
</table>
| First Semester—16 hours | CRT 130 Food Distribution Industry  
CRT 205 Supermarket Foods  
AREA I General Education  
AREA III General Education  
AREA V General Education College Writing  
PEN Physical Education  |
| Second Semester—16 hours | CRT 132 Food Distribution Merchandising  
BIS 242 Business Communications  
COM 104 Public Speaking  
AREA I General Education  
PEN Physical Education  
General Education Elective  |
| Third Semester—16 hours | CRT 202 Field Experience  
CRT 231 Food Distribution Supervision  
ACTY 210 Principles of Accounting  
ECON 201 Principles of Economics (Micro)  
AREA II General Education  
AREA III General Education  |
| Fourth Semester—6 hours | CRT 202 Field Experience  
General Education Elective  |
| Spring/Summer—3 hours | CRT 202 Field Experience  
General Education Elective  |
| Fifth Semester—6 hours | CRT 302 Coordinated Distribution Practices  
AREA II General Education  
AREA III General Education  |
| Sixth Semester—16 hours | CRT 222 Food Distribution Operations  
FCL 340 Legal Environment  
MGMT 300 Fundamentals of Management  
AREA IV General Education  
General Education Elective  |
| Spring/Summer—3 hours | CRT 302 Coordinated Distribution Practices  
AREA II General Education  |
| Seventh Semester—16 hours | CRT 331 Food Distribution Managerial Processes  
CRT 438 Current Issues in Food Distribution  
MGKT 370 Marketing  
Elective  |
| Eighth Semester—16 hours | CRT 332 Food Distribution Systems Control  
CRT 436 Problems in Food Distribution  |

**Food Service Administration**

**Bachelor of Science Degree**

The food service administration curriculum is scientifically oriented for in-depth study of foods in relation to the business field. Students may pursue supervisory/managerial careers in commercial food institutions, the equipment field, food research, public utility companies, mass media productions, quality testing, technical writing, or governmental food agencies. Student Food Service Association (FOOSA) activities provide additional professional experiences.

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
| First Semester—16 hours | CRT 100 Career Seminar  
BIS 142 Informational Writing  
CHEM 101 General Chemistry I  
MATH 110 Algebra I  
AREA I General Education  
PEN Physical Education  |
| Second Semester—14-15 hours | CRT 165 Food Science Principles  
CRT 205 Topics: Microwave  
CRT 280 Nutrition  
BIO 230 Microbiology and Man  
ECON 201 Principles of Economics I (Micro)  
AREA I General Education  |
| Spring/Summer—3 hours | CRT 165 Food Science Principles  
CRT 205 Topics: Microwave  
CRT 280 Nutrition  
BIO 230 Microbiology and Man  
ECON 201 Principles of Economics I (Micro)  |
| Fifth Semester—16 hours | CRT 202 Field Experience  
CRT 251 Food Distribution Supervision  
ACTY 210 Principles of Accounting  
ECON 201 Principles of Economics (Micro)  
AREA II General Education  
AREA III General Education  |
| Sixth Semester—16 hours | CRT 302 Coordinated Distribution Practices  
AREA II General Education  
AREA III General Education  |
| Spring/Summer—3 hours | CRT 302 Coordinated Distribution Practices  
AREA II General Education  |
| Seventh Semester—16 hours | CRT 331 Food Distribution Managerial Processes  
CRT 438 Current Issues in Food Distribution  
MGKT 370 Marketing  
Elective  |
| Eighth Semester—16 hours | CRT 332 Food Distribution Systems Control  
CRT 436 Problems in Food Distribution  |
| Required Related Elective**  |
| Approved Elective**  |

**Definite Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CRT 202</td>
<td>Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CRT 231</td>
<td>Food Distribution Supervision</td>
<td>3</td>
</tr>
<tr>
<td>CRT 251</td>
<td>Food Distribution Supervision</td>
<td>3</td>
</tr>
<tr>
<td>CRT 260</td>
<td>Computers in Distribution</td>
<td>3</td>
</tr>
<tr>
<td>CRT 302</td>
<td>Coordinated Distribution Practices</td>
<td>3</td>
</tr>
<tr>
<td>CRT 331</td>
<td>Food Distribution Managerial Processes</td>
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<td>CRT 332</td>
<td>Food Distribution Systems Control</td>
<td>3</td>
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<tr>
<td>CRT 436</td>
<td>Problems in Food Distribution</td>
<td>3</td>
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<tr>
<td>CRT 438</td>
<td>Current Issues in Food Distribution</td>
<td>3</td>
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<tr>
<td>ACTY 210</td>
<td>Principles of Accounting</td>
<td>3</td>
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<tr>
<td>ACTY 251</td>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACTY 402</td>
<td>Principles of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACTY 500</td>
<td>Seminar in Distribution</td>
<td>3</td>
</tr>
<tr>
<td>BIS 142</td>
<td>Informational Writing</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 101</td>
<td>General Chemistry I</td>
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<tr>
<td>MATH 110</td>
<td>Algebra I</td>
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<tr>
<td>AREA I</td>
<td>General Education</td>
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<tr>
<td>BIO 101</td>
<td>Animal Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 112</td>
<td>Introduction to Biomedical Science</td>
<td>3</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Finite Mathematics with Applications</td>
<td>3</td>
</tr>
<tr>
<td>BIO 145</td>
<td>Food Science Principles</td>
<td>3</td>
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<tr>
<td>CRT 205</td>
<td>Topics: Microwave</td>
<td>1</td>
</tr>
<tr>
<td>CRT 280</td>
<td>Nutrition</td>
<td>3</td>
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<tr>
<td>BIO 230</td>
<td>Microbiology and Man</td>
<td>3</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Economics I (Micro)</td>
<td>3</td>
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<tr>
<td>AREA II</td>
<td>General Education</td>
<td>4</td>
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<tr>
<td>IE 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
</tr>
<tr>
<td>AREA I</td>
<td>General Education</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advisers:** Frank Gambino, Richard Neschich

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.
CONSUMER RESOURCES AND TECHNOLOGY 189

**Seventh Semester**—15 hours
- CRT 466 Institutional Management 4
- CRT 468 Advanced and Experimental Foods 4
- Required Related Elective** 3
- Approved Elective 3

**Eighth Semester**—16 hours
- CRT 590 Project/Problems in CRT 3
- Required Related Elective** 3
- Approved Elective 10
  * At least two of these courses must be at the 300-400 level.

**Required Related Electives—choose 15 hours from the following list:**
- MATH 216 Business Statistics 3
- ACTY 210 Principles of Accounting I 3
- ACTY 211 Principles of Accounting II 3
- BIS 242 Business Communication 3
- MGMT 300 Fundamentals of Management 3
- FCL 320 Business Finance 3
- FCL 340 Legal Environment 3
- FCL 341 Business Law 3
- MKTG 370 Marketing 3

**Approved Electives—choose 6 hours from the following list:**
- CRT 160 Introduction to Agriculture 4
- CRT 209 Consumer Education 3
- MGMT 210 Small Business Management 3
- CRT 265 Meal Management 3

**Individual and Family Relationships**

**Bachelor of Science Degree**

The individual and family relationships curriculum is an interdisciplinary program designed with flexibility to meet individual needs and goals. This program is also intended for those desiring to pursue a Master’s degree program in home economics, counseling, and other related fields. The student organization, New Dimensions, provides additional opportunities for professional interaction and experiences.

**Requirements**
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester**—16 hours
- SOC 122 Death, Dying, and Bereavement 3
- Required Related Elective* 3
- AREA II General Education** 3
- AREA V General Education College Writing 1
- PEGIN Physical Education 1
- Approved Elective 3

**Second Semester**—16 hours
- CRT 209 Consumer Education 3
- SOC 190 Men and Women in Contemporary Society 3
- Required Related Elective* 3
- AREA I General Education** 3
- PEGIN Physical Education 1
- General Education Elective** 3

**Third Semester**—15 hours
- CRT 210 Sex Education—Intro to Human Sexuality 3
- CRT 214 Human Growth and Development 3
- Required Related Elective* 3
- AREA IV General Education** 3
- General Education Elective** 3

**Fourth Semester**—16 hours
- CRT 256 Food and Society 3
- Required Related Elective* 3
- AREA II General Education** 3
- AREA III General Education* 3
- CRT 215 Transitions to Adulthood 3

**Fifth Semester**—15 hours
- CRT 318 Mate Selection and Marriage 3
- CS 105 Introduction to Computing 3
- Required Related Elective* 3
- AREA I General Education** 3
- Approved Elective 3

**Sixth Semester**—15 hours
- SOC 314 Ethnic Relations 3
- Required Related Elective* 3
- AREA III General Education** 3
- Approved Elective 3

**Seventh Semester**—14 hours
- CRT 415 Interpersonal Family in Maturity 3
- Required Related Elective* 3
- Approved Elective 8

**Eighth Semester**—15 hours
- CRT 415 Effective Parenting 3
- COM 571 Theories of Interpersonal Communication 3
- Required Related Elective* 3
- General Education Elective** 3
- Approved Elective 3

**Social Science**

**Bachelor of Science Degree**

The Social Science curriculum is designed to provide students with an understanding of the social sciences and to develop critical thinking skills. The student must select one major and one minor from the technical areas available. An interdisciplinary curriculum, including 20 hours of technical courses plus six hours of professional vocational education courses, VE 342 and VE 344, is required.

**First Semester**—13 hours
- CRT 150 Introduction to Interior Design 3
- CRT 155 Design Principles 3
- ET 131 Introduction to Building Practices 3
- IE 102 Technical Communication 3
- PEGIN Physical Education 1

**Second Semester**—16 hours
- ET 330 Woods and Materials for the Interior Designer 3
- COM 104 Business and Professional Speech 3
- ET 141 Introduction to Technical Drawing 3
- CHEM 107 Chemistry of Textiles and Design Media 4
- Approved Elective 3

**Third Semester**—15 hours
- CRT 220 Textiles I 3
- CRT 251 Period Interiors I 3
- CRT 254 Interior Design Materials 3
- ART 221 History of Art 3
- CRT 241 Interior Design Graphics I 3

**Fourth Semester**—14 hours
- CRT 265 Topics in Consumer Resources and Technology 1
- CRT 252 Period Interiors II 3

**Industrial Education Curriculum**

**Bachelor of Science Degree**

The Industrial Education curriculum is designed to prepare teachers of industrial education for the junior and senior high school levels. The student must select one major and one minor 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. Technical major in one of the following areas 30 hrs.
   - General Industrial Arts
   - Drafting
   - Graphic Arts
   - Metallurgy
   - Power-Energy
   - Woodworking
4. Technical minor in any one of the above areas other than the major 20 hrs.
5. Professional Education Courses 21 hrs.
   - ED 250 Human Development and Learning 3
   - ED 301 Teaching and Learning 3
   - ED 322 Teaching of Reading (Secondary) 3
   - ED 450 School and Society 3
   - ED 475 Directed Teaching (Secondary) 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. Elective 3 hrs.
8. Physical Education 2 hrs.

**Interior Design**

**Bachelor of Science Degree**

Interior design is an interdisciplinary curriculum for the student who desires a career in residential or commercial interior design, retaining home furnishings or visual merchandising, marketing of building products, or in the interior design aspects of the building construction and real estate fields. Active student chapters of the American Society of Interior Design and the Institute of Business Designers provide additional opportunities for professional activities.

**Requirements**
Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester**—13 hours
- CRT 150 Introduction to Interior Design 3
- CRT 155 Design Principles 3
- ET 131 Introduction to Building Practices 3
- IE 102 Technical Communication 3
- PEGIN Physical Education 1

**Second Semester**—16 hours
- ET 330 Woods and Materials for the Interior Designer 3
- COM 104 Business and Professional Speech 3
- ET 141 Introduction to Technical Drawing 3
- CHEM 107 Chemistry of Textiles and Design Media 4
- Approved Elective 3

**Third Semester**—15 hours
- CRT 220 Textiles I 3
- CRT 251 Period Interiors I 3
- CRT 254 Interior Design Materials 3
- ART 221 History of Art 3
- CRT 241 Interior Design Graphics I 3

**Fourth Semester**—14 hours
- CRT 265 Topics in Consumer Resources and Technology 1
- CRT 252 Period Interiors II 3
### Textile and Apparel Technology

#### Bachelor of Science Degree

The textile and apparel technology curriculum is designed for students interested in careers in the creative, protective, functional, and communicative aspects of clothing and textiles. Students will develop a required career direction option through the selection of electives in consultation with a department adviser in preparation for a variety of positions in the textile and apparel or related industries.

A specialized career direction may be developed through the interface of textile/apparel requirements with other academic disciplines. Students may consider choices in design, drafting, construction, quality control, manufacturing or CAD/CAM operations.

#### Requirements

Candidates for the Bachelor of Science degree must complete the following program of 122 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

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<th>Semester</th>
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<td><strong>First Semester</strong>—15 hours</td>
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<tr>
<td>CRT 255 Lighting for Interiors</td>
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<td>ET 341 Interior Design Graphics II</td>
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<td>CRT 220 Textiles</td>
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<td>COM 170 Interpersonal Communication I</td>
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<td>PSY 100 General Psychology</td>
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<td>CRT 224 Experimental Clothing Techniques</td>
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<td><strong>Fifth Semester</strong>—15 hours</td>
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<td>CRT 222 Flat Pattern Design I</td>
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<td>CRT 326 History of Costume I</td>
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<td>CRT 524 Social and Psychological Aspects of Clothing</td>
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<td>General Education Elective**</td>
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<tr>
<td>Elective* (21-26 hours depending on career direction courses) and option requirements (18-23 hours) must be planned and approved with an adviser.</td>
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<td>CRT 100 Career Seminar</td>
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<td>CRT 205 Topics in CRT</td>
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<td>CRT 225 Computers in Distribution</td>
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<td>CRT 221 Fashion Analysis</td>
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<td>CRT 224 Experimental Clothing (repeatable)</td>
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<td>CRT 320 Visual Merchandising</td>
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<td>CRT 322 Flat Pattern Design II</td>
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<td>CRT 324 Dressmaker Tailoring</td>
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<td>CRT 329 Promotion and Coordination</td>
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<td>CRT 350 Textiles for Interiors</td>
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<td>CRT 405 Travel/Study Seminar</td>
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<td>CRT 429 Internship</td>
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**Minors**

**Requirements**

Students should consult with the appropriate department adviser to plan one of the following minors.

#### Family Life Education (Teaching)

**REQUIRED COURSES—18 hours**

- CRT 210 Introduction to Human Sexuality | 3
- CRT 214 Human Growth and Development | 3
- CRT 215 Transitions to Adulthood | 3
- CRT 318 Mate Selection and Marriage | 3
- CRT 410 Teaching of Sex Education in the School | 3
- CRT 415 Effective Parenting | 3

**ELECTIVES—6 hours**

Choose six hours from the following. Courses with * apply toward General Education credit.

- ANT 220 Cultural Anthropology* | 3
- BIOS 201 Animal Biology* | 4
- BIOS 240 Human Physiology* | 4
- BAS 314 The Black Community | 3
- BAS 320 Ecology and The Black Community | 3
- COM 170 Interpersonal Communication I | 3
- CRT 202 Field Experience | 3
- CRT 209 Consumer Education | 3
- CRT 266 Food and Society | 3
- CRT 413 Marriage and Family in Maturity | 3
- CRT 524 Sociology of Clothing | 3
- GHUM 316 Mass Media: Messages and Manipulation | 4
- PSY 160 Child Psychology | 3
- PSY 100 General Psychology* | 3
- SOC 122 Death, Dying and Bereavement 3
- SOC 190 Men and Women in Contemporary Society* | 3
- SOC 200 Principles of Sociology* | 3
- SOC 210 Modern Social Problems | 3
- SOC 320 Introduction to Social Psychology | 3

#### Food Occupations (Teaching)

**REQUIRED COURSES—24 hours**

- CRT 165 Food Science Principles | 3
- CRT 202 Field Experience | 4
- CRT 260 Nutrition | 3
- CRT 368 Quantity Foods | 4
- CRT 466 Institutional Management | 4
- CRT 588 Independent Study in Consumer Resources and Technology | 1
- VE 542 Occupational Education (Foods) | 2
- VE 543 Coordination Techniques in Cooperative Education | 3

Elective courses, if needed, to complete the 24 semester hours:

- ACTY 201 Accounting Concepts and Application | 3
- MGMT 352 Personnel Management | 3
- ECON 201 Principles of Economics | 3
- CECP 580 Principles and Philosophy of Guidance | 2
- PSY 100 General Psychology | 3
- SOC 200 Principles of Sociology | 3

**Additional requirement**

Completion of two years (4000 clock hours) of relevant work experience in food service industry. 2000 of these hours may be completed in an equivalent directed supervised program. (See CRT 202 above.)

#### Consumer Resources and Technology Courses (CRT)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).
An overview of retailing and introduction to 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.

CRT 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.

CRT 132 Food Distribution Merchandising (3-0) 3 hrs. Fall, Winter
The responsibilities and activities of the professional personnel in the food distribution units with regard to efficiency in organization, planning, and control. Resource people from the industry utilized to enrich classroom activities.

CRT 135 Introduction to Petroleum Industry (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.

CRT 140 Introduction to Interior Design (3-0) 3 hrs. Fall, Winter
Basic construction techniques, pattern alteration, fitting and design as related to the individual construction of garment. Test available for those desiring placement in upper level courses.

CRT 141 Flat Pattern Design I (2-3) 3 hrs. Fall, Winter
Introduction to basic principles and elements of designing and furnishing interiors.

CRT 142 Flat Pattern Design II (2-3) 3 hrs. Fall, Winter
A study of the drafting techniques employed in the flat pattern method for designing clothing. Prerequisite: CRT 141.

CRT 144 Experimental Clothing Techniques (2-3) 3 hrs. Fall
Experiences in clothing construction with emphasis on specific problems relative to varied fabrics and design. May be repeated once. Prerequisite: CRT 142.

CRT 145 Interior Design Principles (2-3) 3 hrs. Fall, Winter
A comprehensive study of the properties of fibers, garments, accessories, and the organizational structure peculiar to this industry.

CRT 212 Texiles I (3-0) 3 hrs. Fall, Winter
A study of the information available to consumers in our economy with emphasis on personal decision-making in money management and product and services choices, and consumer protection.

CRT 214 Human Growth and Development (2-3) 3 hrs. Fall
A study of physical, social, emotional, and intellectual growth of young people. Three hours per week required participation and observation in youth-oriented centers. (Hours are arranged).

CRT 215 Transitions to Adulthood (3-0) 3 hrs. Winter
A study of interpersonal relationships and the physical and emotional development of the person in early and later adolescence. Prerequisite: CRT 214.

CRT 220 Textiles I (3-0) 3 hrs. Fall, Winter
Consumer-oriented textiles emphasizing fibers, yarns, fabric constructions and finishes as related to use, serviceability, and care. Prerequisite: CHEM 101 or equivalent.

CRT 221 Fashion Analysis (3-0) 3 hrs. Fall, Winter
Investigation and evaluation of elements comprising the total fashion appearance most appropriate in individual apparel selections and/or customer recommendations.

CRT 222 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, markdown, and OPEH-TO-BUY computation.

CRT 223 Introduction to the Principles of Fashion (3-0) 3 hrs. Fall
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.

CRT 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, markdown, and OPEN-TO-BUY computation.

CRT 229 Menswear (3-0) 3 hrs. Fall
The course includes history, terminology, fabrics, garments, accessories, and the organizational structure peculiar to this industry.

CRT 231 Food Distribution Operation (3-0) 3 hrs. Fall
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.

CRT 232 Food Distribution Supervision (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.

CRT 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.

CRT 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 serving to the consumer are included.

CRT 251 Period Interiors I (3-0) 3 hrs. Fall
Influences and characteristics in period decoration and furniture of historical interiors and exteriors from antiquity up to English Victorian.

CRT 252 Period Interiors II (3-0) 3 hrs. Winter
Influences and characteristics in period decoration and furniture of historical interiors and exteriors from Early American through contemporary.

CRT 254 Interior Design Materials (3-0) 3 hrs. Fall
A study of products and finishing materials for the interior environment which considers basic materials, manufacturing processes and the generic characteristics of goods specified by the interior designer. Prerequisites: CRT 150, ET 141.

CRT 255 Lighting for Interiors (3-0) 3 hrs. Winter
Consider light as an element of design and investigates its role in designing interiors.
Material covered will emphasize the practicalities of appropriate fixture location and specification, blueprint reading and budgets. Prerequisites: CRT 150, ET 131, ET 141.

CRT 256 Sketching for Interior Designers
2 hrs. Winter
Development of freehand drawing skills pertaining to interior designers by emphasizing non-mechanical perspective, controlled line quality and presentation. Prerequisites: CRT 155, ET 241.

CRT 260 Nutrition (3-0)
3 hrs. Fall
Fate of the essential nutrients and their function in the human body. Prerequisites: CHEM 101 or BIOS 101 or 107, 112.

CRT 261 Agronomy (Crop Production) (4-0)
4 hrs. Fall, Winter
The principles of crop production, management, breeding, weed control, and crop quality are considered as they relate to field crops.

CRT 282 Principles of Horticulture (4-0)
4 hrs. Fall, Winter
Basic principles of modern horticulture including the study of fruits, vegetables, flowers, ornamental trees, turf management, plant propagation, and nursery culture.

CRT 285 Meal Management (3-0)
3 hrs. Winter-Odd Years
Planning, preparing, and serving meals with emphasis on meal quality and on time, money, and energy management. Prerequisite: CRT 165.

CRT 286 Food and Society (3-0)
3 hrs. Fall, Winter
Study of the effects of culture and environment on the problems of food production and meeting nutrient needs in western and non-western countries.

CRT 300 Careers in Interiors (1-0)
1 hr. Fall
A survey of the diversified career opportunities available in the interior design industry.

CRT 302 Coordinated Distribution Practices
3 hrs. Fall, Winter, Spring, Summer
Advanced supervised work experience under the supervision of the University and the participating company. Written reports required, and a performance appraisal of the trainee is made by the employer. Students may elect two units for a total of six semester hours. Prerequisite: Junior or senior standing.

CRT 305 Preparing for Employment (3-0)
3 hrs. Fall, Winter
Explanatory investigation of basic elements involved in a job search, including job resume, letter of application, career resources and establishing contacts, and questions and kinesics in the job interview.

CRT 309 Industry Survey (3-0)
3 hrs. Spring, Summer
Trips are made to representative businesses and industrial establishments to observe such functions as production, transportation, storage, research, and marketing. Company representatives address the class on the phases listed. Written reports are made of the visits, and a fee for transportation and housing is required from each student.

CRT 318 Male Selection and Marriage (3-0)
3 hrs. Fall, Winter, Summer
Exploration of research, literature, and practical issues related to courtship, mate selection, and marriage, marital communication, conflict resolution, and family relationships included.

CRT 320 Visual Merchandising (3-0)
3 hrs. Fall, Winter
Specific development of display fundamentals in composition, lighting, color, signing, motion, ideas, organization and management, installation, budget, tools, props, materials, management, store planning, point of purchase, exhibits, showrooms, and special promotion. Prerequisite: CRT 155.

CRT 322 Flat Pattern Design II (5-0)
3 hrs. Winter-Even Years
A study of advanced drafting techniques, including computer-aided designing, employed in the flat pattern method for designing clothing. Prerequisite: CRT 222.

CRT 324 Dressmaker Tailoring (2-3)
3 hrs. Winter
Construction of tailored garments using time-saving methods. A minimum of two garments will be completed. Prerequisite: CRT 124, 224, or consent of instructor.

CRT 326 History of Costume I (3-0)
3 hrs. Fall
Survey of the development of costume from prehistoric people to the French Revolution with its application to contemporary dress.

CRT 327 History of Costume II (3-0)
3 hrs. Winter
Survey of the development of costume from the French Revolution to present day with emphasis on 20th century designers and analysis of historic fashion cycles and current trends as a basis for future prediction and design.

CRT 329 Promotion and Coordination (3-0)
3 hrs. Fall, Winter
Principles and special techniques and sources of information for presenting fashion products. Prerequisites: CRT 126, CRT 155.

CRT 331 Food Distribution Managerial Processes (3-0)
3 hrs. Fall, Every fourth Spring beginning Spring 1987
A study of advanced techniques in the development of food distribution personnel. Emphasis will be placed on job understanding, career dynamics, performance review, performance interview, behavior principles, and career discussions including appraising promotability. Classroom practice of these techniques using role-playing procedures. Prerequisite: CRT 231.

CRT 332 Food Distribution Systems Control (3-0)
3 hrs. Fall, Winter, Spring-Even Years
An analysis of the systems and controls used in the food distribution industry for controlling operations, maximizing profits and minimizing costs, the use of special operating data and ratios to measure performance, budget manpower, and forecast sales and profits, as well as other strategies and control systems applicable to food distribution. Prerequisite: CRT 132, CRT 225 or equivalent.

CRT 338 Petroleum Jobber Operations (3-0)
3 hrs. Fall
An overall study of petroleum jobber operations with special emphasis on heating oil, including degree day forecasting, delivery dispatching, credit and collection control, sales and cost analyses, employee productivity, and operating expense accounting with the use of electronic processing.

CRT 337 Distribution and Handling of Petroleum Products (3-0)
3 hrs. Winter
A study of wholesale and retail distribution channels used by major and independent companies. The transportation and handling of petroleum products from the oil field to the retail outlet. The analysis of a sales territory and the selection of a service station site.

CRT 350 Textiles for Interiors (3-0)
3 hrs. Fall
Examination and analysis of carpets, drapery and upholstery fabrics, and decorative fabric products with regard to quality, selection, performance, and maintenance for home and office. Special attention devoted to material estimating and installation. Prerequisites: CRT 150, CRT 155, CRT 220.

CRT 351 Contract Design I (2-3)
3 hrs. Winter
Introduction of the design of the business environment. Concentrates on offices and the use of systems products. Prerequisites: CRT 155, CRT 205, CRT 251, CRT 252, CRT 255, CRT 350, and ET 341.

CRT 359 Visual Design Techniques (2-3)
3 hr. Fall, Winter
Course involves the designing or specifying of store furnishings, fixtures and lighting necessary in coordinating promotional exhibits. Course also addresses signage design and layout. Prerequisite: CRT 150, CRT 155, ET 131, ET 141.

CRT 360 Feeding and Animal Nutrition (4-0)
4 hrs. Winter
The science of feeding, caring for, and managing livestock, including the formulation of rations for beef, dairy, sheep, swine, poultry, and horses.

CRT 361 Introduction to Soils (4-0)
4 hrs. Fall, Winter
The origin and development of soils as natural entities with certain inherent characteristics. Basic relationships between soils and plants and the principles involved in practical use and conservation of the soil. Prerequisites: CHEM 100 or one unit H.S. Algebra and Chemistry.

CRT 362 Landscape Gardening (3-0)
3 hrs. Winter or Spring
Care and planting of trees, flowers and shrubs, lawn establishment and care, identification and selection of planting materials.

CRT 363 Landscape Design (3-0)
3 hrs. Winter or Spring
Emphasis in this course will be placed on the environmental approach to landscaping. This concept considers the relationship between a house and its lot and consequently their relationship to the neighborhood, the community, and ultimately the whole region.

CRT 364 Land Use and Soil Conservation (4-0)
4 hrs. Winter
A study of the utilization of land by individuals and ways and means of promoting better use of various land types, including recommended practices for conservation of the productivity of our lands.

CRT 365 Farm Organizations and Management (4-0)
4 hrs. Winter
The farm as a business and efficient use of all resources. Basic principles of production, management, farm accounting and related fields of agriculture science and the various organizations serving agriculture.

CRT 366 Quantity Foods (3-3)
4 hrs. Winter
Course emphasizes quantity food purchasing techniques, safety and sanitation, and quantity foods preparation in residence hall kitchens, school lunchrooms, and other quantity food institutions. Prerequisites: CRT 165, CRT 260.

CRT 405 Travel/Study Seminar
1-4 hrs. Winter, Spring
Student participation in departmentally sponsored travel/study program in U.S. and/or
CONSUMER RESOURCES AND TECHNOLOGY 193

CRT 451 Contract Design II (3-3)
3 hrs. Fall
Continues investigating the design of business/commercial interiors with an emphasis on the total design process in developing complex architecturally oriented projects. Prerequisites: CRT 351, CRT 450.

CRT 459 Senior Studio (2-3)
3 hrs. Winter
Capstone course in investigation and execution of special problems and projects in the field of interior design. Prerequisite: CRT 450, CRT 451.

CRT 460 Advanced Nutrition (3-2)
4 hrs. Fall
Recent developments in nutrition through readings and experiences. Students will be required to work as peer educators in the Syracuse Health Center’s Weight Control Program. Prerequisites: CRT 260, BIOS 240, CHEM 365.

CRT 461 Diet and Disease (3-2)
4 hrs. Winter
Study of the dietetic treatment of impaired digestive and metabolic conditions. Planning of diets and reports of current research. Students will work as peer educators in the University Health Center’s Weight Control Program. Prerequisites: CRT 460, dietetic major or consent of instructor.

CRT 462 Community Nutrition (3-0)
3 hrs. Winter-Even Years
Explores the role of nutrition in the health of a community. Field trips will emphasize professional competencies necessary for dietitians working in various community situations. Prerequisite: Junior or senior in dietetics.

CRT 463 Agriculture Marketing (3-0)
3 hrs. Fall
A study of the cash and futures markets and marketing strategies for grain, livestock, and other agricultural products.

CRT 466 Institutional Management (4-0)
4 hrs. Fall-Odd Years
Application of institutional administration principles, including job analyses, labor policies, personnel problems, cost control, and food service equipment to different food service systems. Prerequisite: CRT 260.

CRT 467 Agriculture Finance (3-0)
3 hrs. Winter
A study of the methods and institutions involved in the financing of agricultural enterprises.

CRT 468 Advanced and Experimental Foods (3-3)
4 hrs. Fall
Concentrated study of advanced principles of food preparation, development of experimental techniques, and opportunities for individual studies. Prerequisites: CHEM 101, CRT 165.

CRT 469 Home Management and Equipment (3-0)
3 hrs. Winter-Even Years
A study of principles, functions, care, and application of home equipment as related to theory and principles of home management.

CRT 500 Seminar in Distribution (3-0)
2-4 hrs. Fall, Winter
An intensive study of problems related to distribution involving investigative processes, gathering of data/information, and analysis and presentation of findings. This seminar is especially recommended for seniors and graduates in all programs of distribution.
ELECTRICAL ENGINEERING

Cassius A. Hesselberth, Chair
Gurbux Atag
Charles A. Davis
Sam Esmail
Raghvendra Gejji
John W. Gesink
Joseph Kelemen
John L. Mason
William M. Mc Cabe
S. H. Mousavinezhad
Joseph J. Root
Frank Severance
Lambert R. VanderKooi
Ece Yaprak

The Department of Electrical Engineering offers curricula designed primarily to prepare personnel for professional careers in electrical engineering or computer engineering.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which electrical engineers and computer engineers may be found.

Academic Advising

Students should contact the electrical engineering academic 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 transfer credit must be approved by a departmental adviser, curriculum committee, and department chairman. The academic adviser is located in Room 2038, Kohrman Hall, (616) 387-4033.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the Engineering and Applied Sciences’ section of the catalog. Enrollment will not be honored in any course when the instructor is requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students not attending courses are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Prerequisites are designed to both increase the probabilities of successful completion of the course as well as to insure the proper conduct of the course. Therefore, prerequisites will be strictly enforced in all departmental courses. Exceptions must be accepted by the department no later than the end of the add period of the semester or session.

Computer Systems Engineering

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Candidates for the Bachelor of Science in Engineering (Computer Systems) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A “C” average or better must be earned in courses presented for graduation with an EE, IE, or ME prefix.

3. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.

4. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning with fall. Pre-engineering requirements are in darker italic print.

First Semester—15 hours
MATH 122 Calculus I .......................... 4
CHEM 101 /102 General Chemistry ........ 4
EE 250 Digital Logic ........................ 3
EE 102 Technical Communication .......... 3
PEGN Physical Education .................. 3

Second Semester—15 hours
MATH 123 Calculus II ........................ 4
PHYS 210 Mechanics and Heat .............. 4
CS 111 Computer Programming I .......... 3
AREA I General Education* .............. 3
PEGN Physical Education .................. 3

Third Semester—16 hours
MATH 272 Vector and Multivariate Calculus .. 4
PHYS 211 Electricity and Light .............. 4
CS 112 Computer Programming II .......... 3
CS 201 Programming in FORTRAN ........ 2
AREA II General Education* ............. 3

Fourth Semester—16 hours
MATH 374 Introduction to Linear Alg. and Diff. Equations .... 4
PHYS 212 Introductory Modern Physics ...... 4
EE 210 Circuit Analysis .................... 4
EE 251 Digital Systems I .................. 4

Fifth Semester—16 hours
MATH 145 Discrete Mathematical Structures . 3
EE 221 Electronics I ...................... 4
EE 310 Network Analysis ................... 3
EE 355 Digital Logic II .................... 3
CS 223 Computer Org. and Assembly Language .... 3

Sixth Semester—16 hours
EE 350 Digital Electronics .................. 4
EE 357 Computer Architecture ............. 3
EE 371 Linear Systems ..................... 3
EE 380 Probabilistic Methods in Signal and Systems Analysis .... 3
CS 331 Design and Analysis of Algorithms and Data Structures .... 3

Seventh Semester—17 hours
EE 481 Electrical Engineering Design I .... 4
CS 554 Operating Systems ................... 3
CS 485 Programming of Languages ......... 3
AREA I General Education* .............. 3
AREA II General Education* .............. 4
ME Engineering Science Elective .............. 3

Eighth Semester—17 hours
EE 455 Digital Signal Processing .......... 3
EE 451 Digital Systems II .................. 3
EE 482 Electrical Engineering Design II .... 3
Approved Elective (Humanities, Fine Arts, Social Science or Behavioral Science)* ..... 3
AREA IV General Education* .............. 4
Department Approved Elective ............... 1

* At least two of these courses must be at the 300-400 level. Item “1” above must also be satisfied.

** See Departmental Adviser for a list of approved electives.

Electrical Engineering Program

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Candidates for the Bachelor of Science in Engineering (Electrical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A “C” average or better must be earned in courses presented for graduation with an EE, IE, or ME prefix.

3. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.

4. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.

First Semester—15 hours
MATH 122 Calculus I .......................... 4
CHEM 101 /102 General Chemistry ........ 4
EE 250 Digital Logic ........................ 3
EE 102 Technical Communication .......... 3
PEGN Physical Education .................. 3

Second Semester—15 hours
MATH 123 Calculus II ........................ 4
PHYS 210 Mechanics and Heat .............. 4
CS 111 Computer Programming I .......... 3
AREA I General Education* .............. 3
PEGN Physical Education .................. 3

Third Semester—16 hours
MATH 272 Vector and Multivariate Calculus .. 4
PHYS 211 Electricity and Light .............. 4
CS 112 Computer Programming II .......... 3
CS 201 Programming in FORTRAN ........ 2
AREA II General Education* ............. 3

Fourth Semester—16 hours
MATH 374 Introduction to Linear Alg. and Diff. Equations .... 4
PHYS 212 Introductory Modern Physics ...... 4
EE 210 Circuit Analysis .................... 4
EE 251 Digital Systems I .................. 4

Fifth Semester—16 hours
MATH 145 Discrete Mathematical Structures . 3
EE 221 Electronics I ...................... 4
EE 310 Network Analysis ................... 3
EE 355 Digital Logic II .................... 3
CS 223 Computer Org. and Assembly Language .... 3

Sixth Semester—16 hours
EE 350 Digital Electronics .................. 4
EE 357 Computer Architecture ............. 3
EE 371 Linear Systems ..................... 3
EE 380 Probabilistic Methods in Signal and Systems Analysis .... 3
CS 331 Design and Analysis of Algorithms and Data Structures .... 3

Seventh Semester—17 hours
EE 481 Electrical Engineering Design I .... 4
CS 554 Operating Systems ................... 3
CS 485 Programming of Languages ......... 3
AREA I General Education* .............. 3
AREA II General Education* .............. 4
ME Engineering Science Elective .............. 3

Eighth Semester—17 hours
EE 455 Digital Signal Processing .......... 3
EE 451 Digital Systems II .................. 3
EE 482 Electrical Engineering Design II .... 3
Approved Elective (Humanities, Fine Arts, Social Science or Behavioral Science)* ..... 3
AREA IV General Education* .............. 4
Department Approved Elective ............... 1

* At least two of these courses must be at the 300-400 level. Item “1” above must also be satisfied.

** See Departmental Adviser for a list of approved electives.
EE 101 Fundamentals of Electronics and Machines (3-3)
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 curricula. Prerequisite: EE 100.

EE 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 transients. Sinusoidal steady state analysis. Prerequisites: PHYS 211 or taken concurrently, MATH 123.

EE 211 Machines and Electronic Circuits (3-3)
3 hrs. Fall, Winter, Summer
Introduction to machines and electronics for non-electrical engineering students. Principles of operation, characteristics, ratings, and applications of transformers, alternators, motors, diodes, and transistors. EE and CSE students may not use credit in EE 211 toward graduation. Prerequisite: EE 210.

EE 221 Electronics I (3-3)
4 hrs. Fall, Winter
Analysis and design of electronic circuits and systems, diode circuits, transistor biasing and stabilization, small and large signal models. Computer-aided analysis and design of multistage circuits. Prerequisites: EE 210, PHYS 211.

EE 250 Digital Logic I (2-3)
3 hrs. Fall, Winter, Summer
Analysis and design of combinational and sequential logic systems. Prerequisite: MATH 111 or equivalent.

EE 251 Digital Systems I (3-3)
4 hrs. Fall, Winter
Analysis and design of microcomputer-based systems. Prerequisites: EE 250, CS 106 or CS 111 or CS 306.

EE 301 Network Analysis (3-0)
3 hrs. Fall, Winter
Classical and transform methods of network analysis, signals and waveforms. Fourier series and Fourier transforms. Frequency response. Prerequisites: EE 210, CS 112 or CS 306, MATH 374, PHYS 211.

EE 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 photodevices. Prerequisites: EE 221, EE 310.

EE 330 Electrical Machinery (3-3)
4 hrs. Fall, Winter
Three-phase analysis. Analysis and design of transformers, electromechanical devices, and machines. Prerequisites: EE 310, EE 361.

EE 350 Digital Electronics (3-3)
4 hrs. Winter
Three-phase analysis. Analysis and design of asynchronous sequential logic circuits. Prerequisite: EE 250.

EE 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, EE 355.

EE 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.

EE 371 Linear Systems (3-0)
3 hrs. Fall, Winter
Systems and their models, state variable formulation. Convolution, feedback systems and their analysis, S-plane and frequency response. Prerequisite: EE 310.

EE 380 Probabilistic Methods of Signal and System Analysis (3-0)
3 hrs. Fall, Winter, Spring
Analysis and design of industrial electronic systems, power sources, motor controls, timing and sequencing circuits. Industrial applications of solid-state devices. Laboratory analysis of industrial equipment. Prerequisites: EE 250, EE 320, EE 330.

EE 430 Electrical Power Systems (3-0)
3 hrs. Fall
Transmission lines, network analysis, loadflow, system faults, fault calculation, transients, and system stability. Prerequisite: EE 330.

EE 451 Digital Systems II (2-3)
3 hrs. Winter
Analysis and design of microcomputer-based digital systems. Prerequisites: EE 221, EE 251.

EE 455 Digital Signal Processing (3-0)
3 hrs. Winter

EE 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, EE 380.

EE 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, EE 380.

EE 481 Electrical Engineering Design I (1-3)
2 hrs. Fall, Winter
First of a two-semester sequence on engineering design in which students work in teams on approved design projects. A preliminary design is expected at the conclusion of this course. Prerequisite: Consent of department chairperson.

EE 482 Electrical Engineering Design II (0-6)
3 hrs. 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.

EE 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
course offerings. Maybe taken more than once.

EE 495 Topics in Electrical Engineering
1-4 hrs.
A specialized course dealing with some particular area of electrical engineering not included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Consent of department.

EE 496 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.

EE 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.

EE 501 Introductory Power Systems (3-0)
3 hrs. Fall
An introduction to electrical power systems for non-electrical engineering students. Prerequisites: EE 211, MATH 374.

EE 520 Solid-state Devices (3-0)
3 hrs.
Semiconductor materials and solid state devices, atomic structure, quantum mechanics, crystalline structures, transport phenomena, thermal effects, and recombination. Devices include P-N junctions, tunnel diodes, IMPATI diodes, BJT's, and JFETS. Prerequisites: EE 361 and EE 221.

EE 530 Power System Analysis I (3-0)
3 hrs. Winter
Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

EE 560 Time-varying Fields (3-0)
3 hrs.
Electrodynamics, Maxwell's equations, Boundary value problems and solutions of Helmholtz Equation in different coordinate systems, Green's functions, transmission lines and wave guides. Introduction to perturbational and variational methods. Engineering EM background needed for more advanced topics. Prerequisite: EE 361.

EE 561 Data Communications (3-0)
3 hrs.
Overview of digital communications systems and networks, analysis of current standards, design techniques, routing procedures, and protocols. Prerequisites: EE 355 and EE 380.

EE 570 Digital Control Systems (3-0)
3 hrs.
State variable technique, controllability and observability, digital control system design with state or output feedback, maximum principle, optimal linear regulator-deterministic, and stochastic state observers. Prerequisite: EE 455.

EE 595 Introduction to Advanced Topics (3-0)
3 hrs. Fall, Winter
To introduce students to advanced topics in electrical engineering not included in other course offerings. May be taken more than once up to six hours.

ENGINEERING TECHNOLOGY

Harley D. Behm, Chair
Robert J. Aardema
Michael B. Atkins
Philip L. Bruce
John W. Cummings
Thomas L. Deckard
J.S. Duggal
Paul V. Engelman
Neil D. Opler
Daniel E. Peacock
Arden D. Priggen
Roman J. Rabej
Ronald L. Sackett
Fred Z. Sikiris
George K. Stegman
Peter J. Strazdas
Ralph E. Tanner
Roger R. Urich
James VanDalle
Charles F. Woodward
Leard L. Wylie
Adjunct Faculty
Richard Heintz
David P. Krueger

The Department of Engineering Technology offers the following curricula:

Aircraft Maintenance Engineering Technology—B.S. degree
Automotive Technology and Management—B.S. degree
Aviation Technology and Operations—B.S. degree
Construction Science and Management—B.S. degree
Engineering Graphics—B.S. degree
Engineering Metallurgy—B.S. degree
Industrial Design—B.S. degree
Manufacturing Engineering Technology—B.S. degree

These programs are designed to provide graduates with the background necessary to successfully assume a variety of positions in engineering technology, manufacturing, construction, and service industries. The combination of specialized and general education is intended to allow employment flexibility, although most graduates are placed in industries closely related to their field of study.

Enrollment
Enrollment will not be honored in any course when other students are requesting that course if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students not attending courses, for whatever reason, are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Satisfactory completion of basic writing, mathematics, and science courses is required before enrollment in upper level (300-400) courses. Students should contact their academic advisor for the list of required courses that applies to their curriculum.

Enrollment in flight courses is subject to a waiting list which is maintained at the aviation building and administered according to departmental policy.

Students will be permitted to enroll in advanced flight courses on the basis of results of the department's Pilot Profile Analysis program. Participation in this program is required of all flight students.

Academic Advising
Students should contact their advisor as early as possible. The advisor is available to assist in individual program planning, recommend electives appropriate to a student's educational objectives, discuss employment opportunities, and help solve academic problems. Substitutions and transfer credit must be approved by the adviser, the curriculum committee, and the department chairman. The academic adviser is located in Room 20038, Kohrman Hall, phone (616) 387-4033. Because of prerequisites and limited offering times, students must consult with an academic advisor for proper course sequence.

Additional Information
General information regarding admissions, advising, scholarships, and special programs of interest to students in this department may be found at the beginning of the College of Engineering and Applied Sciences section of the catalog.

Aviation students, who are not in the Aircraft Maintenance Engineering Technology curriculum, may qualify for the F.A.A. Airframe and Powerplant License with some additional coursework. A specially approved curriculum must be completed prior to taking the F.A.A. examination. Qualified students will be admitted to the program by departmental advisers.

Credit by examination may be allowed with appropriate evidence of preparation, experience, or certification. Credit by examination will not be granted for ET 402, Multi-Engine Flight.

Additional Costs
Special lab fees are in effect for flight courses to cover the cost of airplane operation. The fee is subject to change without notice and currently varies from $800 to $2,000, depending on the course.

Students are required to have their own tools for aviation courses required for the Airframe and Powerplant License. A basic set of required tools may be purchased for about $100.

Class-related charges are assigned for some laboratory courses to help cover cost of materials and services.

Cooperative Education
Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in such areas as manufacturing, product development, quality control, and maintenance management of major companies, as well as other types of automotive or aircraft engineering support activity.

Approved Electives
Electives must be approved by the department academic advisor. While choice of electives is intended to provide flexibility for students, they must be selected to provide a thrust and add strength to the individual's program. Non-related courses will not normally be approved. Lists of appropriate electives are available from the academic advisor office.
Airway Science Management Recognition
A special program sponsored and approved by the Federal Aviation Administration (F.A.A.) in Airway Science Management is available for aviation students who are enrolled in either Option A (Technical Management) or Option B (Professional Pilot) of the Aviation Technology and Operations curriculum. This is part of the F.A.A.‘s National Airway Science program. Students should contact an aviation adviser for the specific requirements of this program.

Aircraft Maintenance Engineering Technology
Bachelor of Science Degree
The aircraft maintenance engineering technology curriculum provides preparation for a variety of positions in the demanding field of aircraft maintenance including such areas as: performance testing, engineering maintenance liaison, maintenance logistics, flight test engineering, product technical support, and aircraft maintenance engineering. Satisfactory completion of all requirements prepares one to take the Airframe and Powerplant licensing examination from the Federal Aviation Administration.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. A “C” average or better must be earned in required courses with an EE, ET, IE, or ME prefix.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete the following program of 139 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus a spring and summer session.

First Semester—16 hours
ET 110 Aeroscience .................................. 3
ET 117 Aircraft Reciprocating Powerplants .......... 4
MATH 118 Pre-Calculus Math .......................... 4
PHYS 110 General Physics I .......................... 4
PEGN Physical Education ............................ 1

Second Semester—17 hours
ET 118 Aircraft Structures ............................. 3
CS 105 Introduction to Computers .................... 3
IE 102 Technical Communication ..................... 3
MATH 200 Calculus with Applications ................. 4
PHYS 111 General Physics II .......................... 4

Third Semester—16 hours
ET 119 Reciprocating Powerplant Overhaul .......... 2
ET 142 Engineering Graphics .......................... 3
EE 100 Fundamentals of Circuits and Electronics ................. 3
CHEM 103 General Chemistry I ....................... 4
AREA I Humanities/Fine Arts .......................... 3
PEGN Physical Education ............................ 1

Fourth Semester—18 hours
ET 213 Airframe Hydraulic, Pneumatic, and Auxiliary Systems ......... 4
COM 170 Interpersonal Communication I ............... 3
EE 101 Fundamentals of Electronics and Machines ......... 3
ET 256 Properties of Materials .......................... 4
ET 281 Statics and Strength of Materials ................. 4

Fifth Semester—16 hours
ET 216 Aircraft Structural Repair ..................... 3
ET 222 Fuels and Lubricants ........................... 3
ET 313 Aircraft Electrical Systems ..................... 3
ECON 201 Principles of Economics ..................... 3
MATH 260 Elementary Statistics .......................... 4

Sixth Semester—16 hours
ET 116 Aircraft Propellers ............................ 2
ET 311 Powerplant Systems Evaluation and Testing ......... 3
ET 316 Avionics Systems ............................... 3
ET 381 Thermo-Fluid Dynamics .......................... 4
AREA II Social/Behavioral Science ...................... 3

Spring/Summer—10 hours
ET 312 Powerplant Service and Management ............. 5
ET 318 Aircraft Service and Management ................. 5

Seventh Semester—15 hours
ET 315 Propulsion System Performance ................. 3
ET 415 Aircraft Turbine Powerplants .......................... 4
ET 416 Maintenance Regulations ......................... 2
ME 375 Experimental Stress Analysis .................... 3
AREA IV Non-Western World* ......................... 3

Eighth Semester—15 hours
ET 418 Systems Reliability and Maintainability .......... 3
ET 419 Advanced Maintenance Systems .................. 3
IE 423 Conference Leadership .......................... 3
Approved Elective ................................. 3
AREA I Humanities/Fine Arts* .......................... 3
* At least two of these courses must be at the 300-400 level.

Automotive Technology and Management
Bachelor of Science Degree
The automotive technology and management curriculum prepares students for positions in supervision or management, sales, and service where technical knowledge of automobile construction and operation is necessary.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. A “C” average or better must be earned in required courses with an EE, ET, or IE prefix.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus a spring and summer session.

First Semester—16 hours
ET 102 Technical Communication ..................... 3
MATH 118 Pre-Calculus Math .......................... 4
MATH 200 Calculus with Applications ................. 4
CS 105 Introduction to Computers .................... 3

Second Semester—17 hours
ET 119 Introduction to Manufacturing ................. 3
ET 121 Automotive Chassis .......................... 3
ET 124 Automotive Engines .......................... 3
MATH 118 Precalculus Mathematics .................... 3
EE 102 Technical Communication ....................... 3
CS 105 Introduction to Computers .................... 3
ET 150 Introduction to Manufacturing ................. 3

Third Semester—17 hours
ET 142 Engineering Graphics .......................... 3
EE 100 Fundamentals of Circuits and Electronics ................. 3
ET 124 Automotive Engines .......................... 3
MATH 200 Calculus with Applications .................. 3
PHYS 110 General Physics I .......................... 4
PEGN Physical Education ............................ 1

Fourth Semester—16 hours
ET 222 Fuels and Lubricants ........................... 3
ECON 201 Principles of Economics ..................... 3
EE 100 Fundamentals of Circuits and Electronics ................. 3
PHYS 111 General Physics II .......................... 4
CHEM 103 General Chemistry I ....................... 4

Fifth Semester—16 hours
ET 224 Automotive Fuel and Electrical Systems ................. 3
MATH 216 Business Statistics .......................... 3
ET 381 Thermo-Fluid Dynamics .......................... 4
AREA II Social/Behavioral Science* .................... 3
Approved Elective ................................. 3
PEGN Physical Education ............................ 1
* At least two of these courses must be at the 300-400 level.

Sixth Semester—15 hours
ET 421 Automotive Analysis ........................... 3
EE 422 Conference Leadership .......................... 3
FCL 340 Legal Environment ........................... 3
AREA IV Non-Western World* ......................... 4
MKTG 370 Marketing ................................. 3

Seventh Semester—15 hours
ET 421 Automotive Analysis ........................... 3
EE 422 Conference Leadership .......................... 3
FCL 340 Legal Environment ........................... 3
AREA IV Non-Western World* ......................... 4
Approved Elective ................................. 3
* At least two of these courses must be at the 300-400 level.

Aviation Technology and Operations
Bachelor of Science Degree
The aviation technology and operations curriculum provides preparation for a variety of positions in operations management or technical support areas of the aviation industry. The technical management option leads to careers in areas such as technical sales or service, production, and general aviation management. The professional pilot option prepares general aviation pilots who are competitive in both technical and business backgrounds. The aviation maintenance management option emphasizes aircraft systems, reliability and maintainability, licensing requirements, and repair facility management.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:
1. A “C” average or better must be earned in required courses with an EE, ET, or IE prefix.
2. No more than two grades of “D” or “DC” in courses presented for graduation may be counted for graduation.
3. Complete one of the following programs.
   The schedule below is an example of one
leading to graduation in eight semesters, beginning in fall, plus a spring and summer session for the aviation maintenance management option.

**A. TECHNICAL MANAGEMENT OPTION—128 hours**

**First Semester—15 hours**
- ET 110 Aerospace
- PHYS 106 Elementary Physics
- MATH 200 Calculus with Applications
- IE 102 Technical Communication
- PEGN Physical Education

**Second Semester—16 hours**
- ET 118 Aircraft Structures
- CHEM 103 General Chemistry
- PHYS 106 Elementary Physics
- MATH 200 Calculus with Applications
- IE 102 Technical Communication
- PEGN Physical Education

**Third Semester—17 hours**
- ET 117 Aircraft Reciprocating Powerplants
- COM 104 Public Speaking
- MATH 260 Elementary Statistics
- CS 106 BASIC for Engineers
- PEGN Physical Education

**Fourth Semester—18 hours**
- ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems
- EE 101 Introduction to Meteorology
- ET 205 Aviation Safety
- ECON 201 Principles of Economics
- PEGN Physical Education

**Fifth Semester—16 hours**
- ET 311 Powerplant Systems Evaluation and Testing
- ACTY 201 Accounting Concepts and Applications
- AREA I Humanities/Fine Arts
- AREA V Summer

**Sixth Semester—15 hours**
- ET 313 Aircraft Electrical Systems
- ET 310 Airline Management
- ET 317 Air Transportation
- IE 328 Quality Assurance and Control
- GMT 300 Fundamentals of Management
- FCL 340 Legal Environment

**Seventh Semester—16 hours**
- ET 415 Aircraft Turbine Powerplants
- IE 326 Operations Planning and Control
- FCL 320 Business Finance
- IE 402 Supervision of Industrial Operations

**Eighth Semester—14 hours**
- Approved Electives

**B. PROFESSIONAL PILOT OPTION—128 hours**

Enrollment in flight courses is usually subject to a waiting list. A private pilot certificate is required to enroll in flight courses in this curriculum. Candidates for flight courses must complete an application at the aviation building before registering for these courses.

**First Semester—15 hours**
- ET 110 Aerospace
- PHYS 106 Elementary Physics
- MATH 200 Calculus with Applications
- IE 102 Technical Communication
- PEGN Physical Education

**Second Semester—17 hours**
- ET 117 Aircraft Reciprocating Powerplants
- CHEM 103 General Chemistry
- GEOG 105 Our Physical Environment
- MATH 260 Elementary Statistics
- CS 106 BASIC for Engineers

**Third Semester—16 hours**
- ET 118 Aircraft Structures
- EE 100 Fundamentals of Circuits and Electronics
- CHEM 103 General Chemistry
- GEOG 225 Introduction to Meteorology and Climatology
- ET 280 Transportation in the U.S.
- COM 104 Public Speaking

**Fourth Semester—18 hours**
- ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems
- ET 222 Fuels and Lubricants
- EE 100 Fundamentals of Electronics and Machines
- ET 205 Aviation Safety
- ECON 201 Principles of Economics
- BIS 242 Business Communication

**Fifth Semester—16 hours**
- ET 311 Powerplant Systems Evaluation and Testing
- ET 301 Commercial Flight I
- AREA II Social/Behavioral Science
- ACTY 201 Accounting Concepts and Applications
- AREA I Humanities/Fine Arts

**Sixth Semester—14 hours**
- ET 300 Navigation Systems
- ET 303 Commercial Flight II
- ET 317 Air Transportation
- GMT 300 Fundamentals of Management
- ET 302 Aircraft Systems and Operations
- PEGN Physical Education

**Seventh Semester—16 hours**
- ET 313 Aircraft Electrical Systems
- ET 305 Commercial Flight III
- MKTG 370 Marketing
- FCL 340 Legal Environment
- AREA IV Non-Western World

**Eighth Semester—16 hours**
- ET 415 Aircraft Turbine Powerplants
- ET 402 Aerodynamics and Flight Principles
- ET 402 Multi-Engine Flight
- ET 405 Flight Operations Analysis
- IE 402 Supervision of Industrial Operations
- AREA I Humanities/Fine Arts

* At least two of these courses must be at the 300-400 level.

**C. AVIATION MAINTENANCE MANAGEMENT OPTION—136 hours**

**First Semester—17 hours**
- ET 110 Aerospace
- PHYS 106 Elementary Physics
- MATH 200 Calculus with Applications
- IE 102 Technical Communication
- PEGN Physical Education

**Second Semester—16 hours**
- ET 118 Aircraft Structures
- CHEM 103 General Chemistry
- IE 102 Technical Communication
- ET 142 Engineering Graphics
- AREA I Humanities/Fine Arts

**Third Semester—17 hours**
- ET 213 Airframe Hydraulic, Pneumatic and Auxiliary Systems
- ET 222 Fuels and Lubricants
- EE 100 Fundamentals of Circuits and Electronics
- MATH 260 Elementary Statistics
- ET 280 Transportation in the U.S.

**Fourth Semester—16 hours**
- ECON 201 Principles of Economics
- ACTY 201 Accounting Concepts and Applications
- ECON 201 Principles of Economics
- ET 205 Aviation Safety
- PEGN Physical Education

**Fifth Semester—16 hours**
- ET 216 Aircraft Structural Repair
- ET 311 Powerplant Systems Evaluation and Testing
- ET 313 Aircraft Electrical Systems
- AREA II Social/Behavioral Science
- AREA I Humanities/Fine Arts

**Sixth Semester—15 hours**
- GMT 300 Fundamentals of Management
- ET 316 Avionics Systems
- ET 310 Airport Management
- ET 317 Air Transportation
- COM 104 Public Speaking
- FCL 340 Legal Environment

**Spring/Summer—10 hours**
- ET 312 Powerplant Service and Maintenance
- ET 318 Aircraft Service and Management

**Seventh Semester—15 hours**
- ET 315 Propulsion Systems Performance
- ET 416 Maintenance Regulations
- MKTG 370 Marketing
- BIS 242 Business Communication
- AREA IV Non-Western World

**Eighth Semester—14 hours**
- ET 418 Systems Reliability and Maintainability
- ET 415 Aircraft Turbine Powerplants
- IE 402 Supervision of Industrial Operations
- AREA V Optional Elective

* At least two of these courses must be at the 300-400 level.
Construction Science and Management
Bachelor of Science Degree

The construction science and management curriculum prepares students for entry positions in construction planning, management, or development. Technical, business, and human relations knowledge and skills are developed in classroom settings and on residential and commercial construction job sites.

Requirements
Candidates for the Bachelor of Science degree must complete the following program of 129 semester hours as well as University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in required courses with an EE, ET, or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 129 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, with two spring and/or summer sessions.

**First Semester—16 hours**
- ET 131 Introduction to Building Practices 3
- ET 141 Introduction to Technical Drawing 3
- CHEM 103 General Chemistry I 4
- IE 102 Technical Communication 3

**Second Semester—15 hours**
- CS 105 Introduction to Computers 3
- MATH 118 Precalculus Mathematics 4
- COM 104 Public Speaking 3
- AREA I Humanities/Fine Arts* 3
- PEGN Physical Education 1

**Third Semester—15 hours**
- ET 235 Structural Framing 3
- ET 241 Machine Drafting 3
- MATH 200 Calculus with Applications 4
- PEGN Physical Education 1

**Fourth Semester—14 hours**
- ET 281 Statics and Strength of Materials 4
- ACTY 210 Principles of Accounting 3
- ECON 201 Principles of Economics 3

**Spring/Summer—1 hour**
- ET 399 Field Experience 1

**Seventh Semester—15 hours**
- ET 433 Specifications and Estimating 3
- ET 441 Residential Architectural Design 3
- FCL 340 Legal Environment 3
- MGMT 300 Fundamentals of Management 3
- Approved Elective 3

**Eighth Semester—16 hours**
- ET 435 Commercial Construction Methods 3
- ET 437 Advanced Estimating and Bidding 3
- ET 439 Scheduling and Project Management 3
- FCL 320 Business Finance 3
- AREA I Humanities/Fine Arts* 4

* At least two of these courses must be at the 300-400 level.

Engineering Graphics
Bachelor of Science Degree

The engineering graphics curriculum deals with symbolic communication related to product and tooling activities of industry including documentation methods, graphic science, technical areas such as cast metals, plastics, or computers. The program prepares students to assume leadership roles in designing and drafting activities as section leader, checker, reproductigraphic supervisor, standards administrator, and chief draftsman.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in courses presented for graduation with an EE, ET, or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—17 hours**
- ET 142 Engineering Graphics 3
- ET 150 Introduction to Manufacturing 3
- MATH 118 Precalculus Mathematics 4
- CHEM 103 General Chemistry I 4
- CS 105 Introduction to Computers 3

**Second Semester—17 hours**
- ET 144 Descriptive Geometry 3
- ET 154 Machining Fundamentals 3
- MATH 200 Calculus with Applications 4
- PHYS 110 General Physics I 4
- IE 102 Technical Communication 3

**Third Semester—17 hours**
- ET 246 Introduction to Computer Aided Design 3
- ET 248 Technical Illustration I 3
- EE 100 Fundamentals of Circuits and Electronics 3
- PHYS 111 General Physics II 4
- PEGN Physical Education 1

**Fourth Semester—17 hours**
- ET 242 Production Drafting 3

**Spring/Summer—1 hour**
- ET 399 Field Experience 1

**Seventh Semester—16 hours**
- ET 346 Programming for Computer Aided Design 3
- ET 381 Thermo-Fluid Dynamics 3
- AREA IV Non-Western World* 4

**Eighth Semester—12 hours**
- ET 449 Drafting/Design Management 2
- ET 485 Senior Project 3
- Approved Elective 3
- AREA I Humanities/Fine Arts* 4

* At least two of these courses must be at the 300-400 level.

Engineering Metallurgy
Bachelor of Science Degree

The engineering metallurgy curriculum is an applied program of study in materials including process control, product development, production, and supervision. Selection of approved electives allows tailoring the program toward business, supervision, or technical areas such as cast metals and metal fabrication.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin.

1. A "C" average or better must be earned in courses presented for graduation with an EE, ET, IE, or ME prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

**First Semester—15 hours**
- ET 142 Engineering Graphics 3
- MATH 122 Calculus I 4
- CHEM 101 General Chemistry I 4

**Second Semester—16 hours**
- ET 143 Descriptive Geometry 3
- MATH 123 Calculus II 4
- PHYS 210 Modern Physics 4
- COM 104 Public Speaking 3
- PEGN Physical Education 1

**Third Semester—15 hours**
- ET 246 Introduction to Computer Aided Design 3
- ET 248 Technical Illustration I 3
- EE 100 Fundamentals of Circuits and Electronics 3
- PHYS 111 General Physics II 4
- PEGN Physical Education 1

**Fourth Semester—17 hours**
- ET 242 Production Drafting 3

**Spring/Summer—1 hour**
- ET 399 Field Experience 1

**Seventh Semester—16 hours**
- ET 346 Programming for Computer Aided Design 3
- MATH 260 Elementary Statistics 4
- CS 306 Introduction to Programming: FORTRAN 2
- ECON 201 Principles of Economics 3
- Approved Elective 3
- PEGN Physical Education 1

**Eighth Semester—16 hours**
- ET 449 Drafting/Design Management 2
- ET 485 Senior Project 3
- Approved Elective 3
- AREA I Humanities/Fine Arts* 4
**AREA IV Non-Western World* 4

* At least two of these courses must be at the 300-400 level.
Third Semester—17 hours
EE 100 Fundamentals of Circuits and Electronics 3
ET 154 Machining Fundamentals 3
ET 256 Properties of Materials 4
PHYS 211 Electricity and Light 4
PHYS 111 General Physics II 4
AREA I Humanities/Fine Arts* 3

Fourth Semester—17 hours
ET 352 Metal Casting 3
ET 281 Statics and Strength of Materials 4
ET 250 Plastics Properties and Processing 3
MATH 260 Elementary Statistics 4
AREA II Social/Behavioral Science* 4

Fifth Semester—16 hours
MATH 118 Precalculus Mathematics 4
ET 458 Advanced Manufacturing Industry 3
ET 350 Plastic Processing 3
ET 280 Composites 3
MATH 200 Calculus with Applications 4
AREA II Social/Behavioral Science* 3

Sixth Semester—16 hours
ET 351 Chemical Metallurgy 4
ET 320 Engineering Cost Analysis 3
AREA IV Non-Western World* 4
Approved Elective 3

Seventh Semester—15 hours
ET 452 Die Casting 3
ET 457 Metal Fabrication 3
ET 454 Physical Metallurgy II 3
IE 402 Supervision of Industrial Operations 3
AREA I Humanities/Fine Arts* 3

Eighth Semester—16 hours
ET 455 Electronic Metallurgy 3
ET 321 Engineering Graphics 3
ET 343 Industrial Design Studio I 3
ET 247 Industrial Design Studio 3
ET 347 Industrial Design Studio II 3
ET 401 Principles of Manufacturing 3
ET 256 Properties of Materials 4
ET 154 Machining Fundamentals 3
ECON 201 Principles of Economics 3
ET 250 Plastics Properties and Processing 3
FCL 340 Legal Environment 3
ET 346 Industrial Design Studio II 3
AREA I Humanities/Fine Arts* 3

Second Semester—17 hours
ET 144 Descriptive Geometry 3
ET 147 Industrial Design Studio I 2
ET 150 Introduction to Manufacturing 3
ART 102 Foundation 2D Design 3
PHYS 110 General Physics I 4
IE 102 Technical Communication 3

Third Semester—17 hours
ET 248 Technical Illustration I 3
ET 243 Industrial Design Studio I 1
ET 245 Design for Manufacturing 3
CS 105 Introduction to Computers 3
ART 103 Theory of Art 3
MATH 200 Calculus with Applications 4

Fourth Semester—17 hours
ET 242 Production Drafting 3
ET 281 Statics and Strength of Materials 4
AREA I General Education, Art Elective (900 and higher) 3
ET 247 Industrial Design Studio I 1
COM 104 Public Speaking 3
ART 231 Sculpture . 3

Fifth Semester—16 hours
ET 246 Introduction to Computer Aided Design 3
ET 256 Properties of Materials 4
ET 154 Machining Fundamentals 3
ECON 201 Principles of Economics 3
ACTY 210 Principles of Accounting 3

Sixth Semester—15 hours
ET 250 Plastics Properties and Processing 3
FCL 340 Legal Environment 3
ET 343 Industrial Design Studio II 2
PEGN Physical Education 1
AREA II Social/Behavioral Science* 3

Seventh Semester—16 hours
ART 245 Graphic Design 3
ART 240 Painting 3
MGMT 451 Administrative Behavior 3
ET 347 Industrial Design Studio II 2
AREA IV Non-Western World* 4
PEGN Physical Education 1

Eighth Semester—15 hours
ET 445 Product Design and Development 3
ET 447 Industrial Design Studio II 2
ART 248 Photography 3
MKTG 370 Marketing 3
AREA I Humanities/Fine Arts* 4

*At least two of these courses must be at the 300-400 level.

Industrial Design
Bachelor of Science Degree

The curriculum in industrial design is a blend of technology, business, art, and general studies with courses in mechanical design, drafting, illustration, processing, design philosophy, and practices. This program prepares designers with the aesthetic and technical potential to set new directions in product development and design, based on knowledge of materials, processes, quality, and production standards.

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements stated elsewhere in this bulletin:

1. A "C" average or better must be earned in required courses with an ET or IE prefix.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—15 hours
ET 142 Engineering Graphics . 3
MATH 118 Precalculus Mathematics . 4
CHEM 103 General Chemistry I . 4

Second Semester—17 hours
ET 144 Descriptive Geometry . 3
ET 147 Industrial Design Studio I . 2
ET 150 Introduction to Manufacturing . 3
ART 102 Foundation 2D Design . 3
PHYS 110 General Physics I . 4
IE 102 Technical Communication . 3

Third Semester—17 hours
ET 248 Technical Illustration I . 3
ET 243 Industrial Design Studio I . 1
ET 245 Design for Manufacturing . 3
CS 105 Introduction to Computers . 3
ART 103 Theory of Art . 3
MATH 200 Calculus with Applications . 4

Fourth Semester—17 hours
ET 242 Production Drafting . 3
ET 281 Statics and Strength of Materials . 4
AREA I General Education, Art Elective (900 and higher) . 3
ET 247 Industrial Design Studio I . 1
COM 104 Public Speaking . 3
ART 231 Sculpture . 3

Fifth Semester—16 hours
ET 246 Introduction to Computer Aided Design . 3
ET 256 Properties of Materials . 4
ET 154 Machining Fundamentals . 3
ECON 201 Principles of Economics . 3
ACTY 210 Principles of Accounting . 3

Sixth Semester—15 hours
ET 250 Plastics Properties and Processing . 3
FCL 340 Legal Environment . 3
ET 343 Industrial Design Studio II . 2
PEGN Physical Education . 1
AREA II Social/Behavioral Science* . 3

Seventh Semester—16 hours
ART 245 Graphic Design . 3
ART 240 Painting . 3
MGMT 451 Administrative Behavior . 3
ET 347 Industrial Design Studio II . 2
AREA IV Non-Western World* . 4
PEGN Physical Education . 1

Eighth Semester—15 hours
ET 445 Product Design and Development . 3
ET 447 Industrial Design Studio II . 2
ART 248 Photography . 3
MKTG 370 Marketing . 3
AREA I Humanities/Fine Arts* . 4

*At least two of these courses must be at the 300-400 level.

Manufacturing Engineering Technology
Bachelor of Science Degree

The manufacturing engineering technology curriculum offers preparation for entry positions in manufacturing industries. Understanding of materials and production processes equips graduates to plan manufacturing practices and to develop tooling, machines and systems necessary for efficient production. Program options allow students to specialize in cast metals technology, plastics technology, or wood products manufacturing.

1. A "C" average or better must be earned in required courses with an EE, ET, ME, or IE prefix.

2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.

3. Complete the following program of 132 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
IE 102 Technical Communication . 3

Second Semester—16 hours
ET 154 Machining Fundamentals . 3
CHEM 103 General Chemistry I . 4
PHYS 110 General Physics I . 4
MATH 200 Calculus with Applications . 4
PEGN Physical Education . 1

Third Semester—17 hours
ET 100 Fundamentals of Circuits and Electronics . 3
ET 246 Introduction to Computer Aided Design . 3
PHYS 110 General Physics II . 4
COM 104 Public Speaking . 3
AREA I Humanities/Fine Arts* . 3

Fourth Semester—18 hours
ET 101 Fundamentals of Electronics and Electronics . 3
ET 246 Introduction to Computer Aided Design . 3
ECON 201 Principles of Economics . 3
ET 250 Plastics Properties and Processing . 3
ET 281 Statics and Strength of Materials . 4
ET 256 Properties of Materials . 4

Fifth Semester—16 hours
ET 240 Production Drafting . 3
ET 280 Composites . 3
ET 357 Metal Fabrication . 3
ET 343 Industrial Design Studio II . 2
AREA I Humanities/Fine Arts* . 3

Sixth Semester—16 hours
ET 351 Chemical Metallurgy . 4
ET 320 Engineering Cost Analysis . 3
ET 350 Plastic Processing . 3
ET 352 Metal Casting . 3
ET 381 Thermo-Fluid Dynamics . 4
IE 328 Quality Assurance and Control . 3

Seventh Semester—17 hours
ET 357 Fabrication and Pressworking . 3
ME 375 Experimental Stress Analysis . 3
ET 458 Advanced Manufacturing Systems . 3
ET 483 Project Design and Control . 3
Approved Elective . 3
AREA IV Non-Western World* . 4

Eighth Semester—16 hours
ET 485 Senior Project . 3
ET 481 Metrology . 3
IE 422 Conference Leadership . 3
Approved Elective . 3
AREA I Humanities/Fine Arts* . 4

*At least two of these courses must be at the 300-400 level.

Cast Metals Option (total hours for graduation—136) Replaces ET 357 plus 9 hours of approved electives with:

ET 353 Physical Metallurgy I . 4
ET 455 Advanced Metal Casting . 3
ET 452 Die Casting . 3
IE 300 Co-op Internship (in Cast Metals Industry) . 3
Wood Products Option (total hours for graduation—135)

Replaces 9 hours of approved electives with:
ET 132 Wood Processing 3
ET 230 Machine Woodworking 3
ET 332 Wood Finishing 3
ET 432 Production Woodworking 3

Plastics Option (total hours for graduation—135)

Replaces 9 hours of approved electives with:
ET 350 Production Thermoplastic Processing 3
ET 450 Engineering Polymers and Composites 3
ET 451 Plastics Assembly and Testing 3
ET 459 Mold Design and Construction 3

Manufacturing Technology Minor

The manufacturing technology minor is available to Haworth College of Business students majoring in industrial marketing. It is recommended that students selecting the manufacturing technology minor fulfill their General Education Area III requirements by taking CHEM 101 or 103 and/or PHYS 106. The manufacturing technology minor totals 16 semester credit hours including three required courses and two approved elective courses selected in consultation with a student's major advisor.

REQUIRED COURSES—10 hours
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
IE 326 Operations Planning and Control 3
IE 328 Quality Assurance and Control 3
ET 154 Machining Fundamentals 3
ET 352 Metal Casting 3
PAPR 354 Paper Industry Processes 3

Engineering Technology Courses (ET)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours). The first digit of a course number indicates level of work while the second digit indicates areas of study as follows:
1. Aviation
2. Automotive
3. Construction and Woods
4. Graphics and Design
5. Materials and Processes
6. General
7. Special
8. Engineering and Technology Minor
9. Special

ET 100 Private Pilot Ground School (3-0) 3 hrs. Fall, Winter
A beginning course for students engaged in primary flight instruction or interested in such instruction. Topics include flight theory, federal air regulations, aviation weather, navigation, performance factors, and weight and balance. Upon completion, the student may take the Federal Aviation Administration written examination for private pilots.

ET 110 Aeronautics (3-0) 3 hrs. Fall
A first course in aviation including a review of aviation history, theory of flight, aerodynamics, performance, weight and balance, helicopter theory, and regulatory structure of the industry. Prerequisite: PHYS 106 or taking concurrently.

ET 116 Aircraft Propellers (1-3) 2 hrs. Winter
Theory, operation, troubleshooting, and servicing of aircraft propellers. Laboratory includes disassembly, inspection of engines and components, and engine operation. Prerequisite: ET 110 or consent of department.

ET 117 Aircraft Reciprocating Powerplants (3-2) 4 hrs. Fall, Winter
Reciprocating aircraft engine principles, designs, and operations. Laboratory work includes disassembly and inspection of engines and components and engine operation. Prerequisite: ET 110 or concurrent.

ET 118 Aircraft Structures (2-2) 3 hrs. Fall, Winter
Airframe structures and coverings including fabric, sheet metal, honeycomb, plastics, and hardware. Laboratory practice in preventive maintenance and inspection. Prerequisite: ET 110 or taking concurrently.

ET 119 Reciprocating Powerplant Overhaul (0-5) 2 hrs. Fall
Comprehensive laboratory study of aircraft reciprocating powerplants involving inspection, repair, and overhaul procedures for students seeking the A and P license. Prerequisite: ET 117.

ET 121 Automotive Chassis (2-3) 3 hrs. Fall, Winter
The design, operation, and service of automotive suspension, wheel alignment, steering, brakes, clutches, standard transmissions, drivelines, differentials, and air conditioning units. Laboratory work will involve disassembly, inspection, calculation of loads, and operation of parts needed to restore to service.

ET 124 Automotive Engines (2-3) 3 hrs. Fall, Winter
The design, dynamic characteristics, elementary thermodynamics, and basic service techniques for automotive engines. Theory is supplemented with laboratory work involving disassembly, visual and mechanical inspection of parts, plotting charts and graphs of engine characteristics, performing service operations, assembly, and engine operation. Prerequisite: MATH 111 or equivalent.

ET 131 Introduction to Building Practices (3-0) 3 hrs. Fall, Winter
An overview of all the operations involved in constructing a residential dwelling. Emphasis is placed on understanding common practices, materials, nomenclature, and blueprint reading in construction. Careers in the construction industry are discussed. An introduction to computer activities in construction is practiced.

ET 132 Wood Processing (2-3) 3 hrs. Fall, Winter
Selecting materials for proper use, seasoning and grading of lumber, fabricated wood products, and planning and layout. Joinery applications involving clamping, adhesives and fasteners. Also included is the use of hand tools, power hand tools, and introduction to machinery, and selection and application of finishing materials.

ET 141 Introduction to Technical Drawing (2-3) 3 hrs. Fall, Winter
Principles of graphic communication in engineering and technology. Topics covered are: orthographic projection, sketching, engineering lettering, sections, dimensioning practices, auxiliary views, pictorial drawing (oblique and isometric), and charts and graphs. Students are expected to develop a basic degree of skill in each of these areas. Current ANSI standard practices are followed.

ET 142 Engineering Graphics (3-3) 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.

ET 143 Industrial Design Studio (0-3) 1 hr. Fall, Winter
Industrial design methods, sketching and introduction to rendering.

ET 144 Descriptive Geometry (2-3) 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. Prerequisite: ET 142.

ET 147 Industrial Design Studio (0-3) 1 hr. Fall, Winter
Advanced sketching, rendering, introduction to model building. Prerequisite: ET 143.

ET 150 Introduction to Manufacturing (3-0) 3 hrs. Fall, Winter
Industrial methods employed in current manufacturing processes. Analysis of hot and cold working processes, products, materials, case studies, management techniques, manufacturing productivity, performance testing, engineering design and economic considerations.

ET 152 General Metals (2-3) 3 hrs. Fall, Winter
Metalworking technology principles and practices. Includes cutting, forming, forming, fabricating, and finishing techniques. Prerequisite: ET 150.

ET 154 Machining Fundamentals (2-3) 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.

ET 183 Principles of Auto Maintenance (2-0) 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.

ET 190 Childhood/Adulthood Crafts and Adapted Techniques (3-3) 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.
202 COLLEGE OF ENGINEERING AND APPLIED SCIENCES

ET 205 Aviation Safety (2-0)
2 hrs. Winter
Physiological and psychological factors relating to flight safety; emphasizing cause and effect of airplane accidents and related problem-solving; includes a systems approach to safety program development and management. Prerequisite: ET 110 or consent of department.

ET 213 Airframe Hydraulic, Pneumatic, and Auxiliary Systems (2-4)
4 hrs. Fall, Winter, Spring
Classroom and laboratory study of aircraft hydraulic and pneumatic components and systems, air conditioning and pressurization, fire detection and extinguishing systems and other auxiliary systems. Prerequisites: ET 110, CS 106 or concurrently.

ET 216 Aircraft Structural Repair (0-6)
3 hrs. Fall, Winter
Major structural repair methods including procedures for metal, plastics, composites, and welded structures. Prerequisites: ET 118, ET 212.

ET 221 Automatic Transmissions (2-2)
3 hrs. Fall, Winter
Torque converters, pumps, controls, gear trains, and holding devices used in automatic transmissions. Emphasis will be placed on principles of design, operation, application, and service of major components as well as limitations and requirements relating to lubrication, sealing and bearings. Laboratory work will involve disassembly, inspection, service operations, calculation of torque capacities, and plotting of test results on an operating unit. Prerequisite: PHYS 106.

ET 222 Fuels and Lubricants (2-2)
3 hrs. Fall, Winter
A study of petroleum products and their application to the fuel and lubricant requirements of automobiles and aircraft. Laboratory tests are conducted to ascertain octane requirements, octane numbers, viscosity, volatility, flash and fire point, grease penetration, API degree, and dropping point of greases. Prerequisite: CHEM 101 or CHEM 102 or CHEM 103. 

ET 224 Automotive Fuel and Electrical Systems (3-4)
4 hrs. Fall, Winter
Theory and practice in diagnosing, adjusting, and 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.

ET 230 Machine Woodworking (2-3)
3 hrs. Fall, Winter
Project analysis and design including the development of process routes sheets. Specifications and function of common woodworking machines, theory, and laboratory experiences in their safe operation. Prerequisite: ET 132.

ET 233 Building Codes (3-0)
3 hrs. Fall
Application of model codes to residential and commercial structures, nonstructural and structural plan review, fire codes, codes governing the installation of the electrical, plumbing and heating elements of the building, inspection techniques, and code administration. Prerequisite: ET 131.

ET 235 Structural Framing (2-3)
3 hrs. Fall
Wood and steel framing systems for residential and commercial building. Includes traditional and non-traditional methods of framing and construction practices, emphasizing cost-effective techniques. Prerequisite: ET 131.

ET 236 Construction Measurements and Layout (1-6)
3 hrs. Spring
Construction surveying, building layout and structural alignment. Includes route alignment, topographic surveys, earthwork volume surveys, and preparation of reports. Prerequisites: ET 141, IE 102, MATH 200.

ET 237 Concrete Construction and Masonry (2-3)
3 hrs. Spring
Design and control of concrete mixtures. Form design, concrete cure, concrete testing, and reinforced concrete problems are practiced. Pre-stressed and post-tensioned concrete construction is included. Masonry skills involving block, brick, and stone and concrete construction practices are performed on a job site. Prerequisites: ET 131, ET 235.

ET 239 Interior Trim and Finish (2-3)
3 hrs. Winter
Installation of interior wall, floor, and ceiling coverings, interior trim, cabinet construction, hanging doors, and working with plastic laminate is practiced. Also involves kitchen layout and design activities. Prerequisites: ET 230.

ET 241 Interior Design Graphics I (2-3)
3 hrs. Fall
Designed to acquaint the student with basic architectural office techniques and to develop a degree of skill in mechanically prepared, parallel, and angular perspective drawing, proportion in perspective sketching, sketching techniques, and shades and shadows in renderings. Prerequisite: ET 141.

ET 242 Production Drafting (2-3)
3 hrs. Fall, Winter
Engineering documentation as it relates to product development, the design and material specifications of components, manufacturing process considerations, geometric tolerancing, metrization, checking, standards, and family of parts processing. Emphasis will be placed on the role that CAD plays in the production process. Prerequisites: ET 142, ET 246, ET 154 or concurrent.

ET 243 Industrial Design Studio (0-3)
1 hr. Fall, Winter
Assimilation of market, manufacturing, and design information leading to presentation renderings and models. Prerequisite: ET 147.

ET 245 Design for Manufacturing (2-3)
3 hrs. Winter
Design procedures applied to product development. Consideration of function, materials, and design in ultimate product performance. An understanding of the team approach to product design and development in the manufacturing environment. Prerequisite: ET 150.

ET 246 Introduction to Computer-Aided Design (2-3)
3 hrs. Fall, Winter
Principles of computer graphics technology and its applications in CAD, systems hardware and software components, and CAD systems operation. An introduction to program structure and FORTRAN programming techniques for 2D software development. Prerequisites: ET 142, CS 105.

ET 247 Industrial Design Studio (0-3)
1 hr. Fall, Winter
Applied ergonomics in product design and development, sketching, rendering, and advanced model building. Prerequisite: ET 243.

ET 248 Technical Illustration I (2-3)
3 hrs. Fall
Paralleling and perspective drawing, charting use of varied black and white media, texture, and percentage films and tapes as they apply to catalogs, technical manuals, reports, and sales engineering publications. Prerequisite: ET 142 or equivalent.

ET 250 Plastic Properties and Processing (2-3)
3 hrs. Fall, Winter
Effects of polymer chemistry, additives, plasticizers, fillers, and reinforcements on the properties of plastics. Molding, forming, extrusion, casting, laminating, coating, welding, and decorating of thermoplastic and thermoset materials. Prerequisites: ET 150, CHEM 103.

ET 254 Advanced Machining (2-3)
3 hrs. Winter
Advanced theory and practice in the application of machine tool metalworking processes. Prerequisite: ET 154.

ET 258 Properties of Materials (3-0)
4 hrs. Fall, Winter, Spring
Relationship of chemical and physical properties of solids, internal structure and response to their environment. Prerequisites: CHEM 103, PHYS 108 or PHYS 110.

ET 280 Transportation in the United States (3-0)
3 hrs. Fall
A survey of transportation in the U.S. including ground, air, and sea transport systems. Historical origins, current status and problems, and alternatives for the future are discussed.

ET 281 Statics and Strength of Materials (4-0)
4 hrs. Fall, Winter, Spring
Forces on structures, moments, equilibrium. Stresses and deformation in axially-loaded members, torsion members and beams. Elementary design of structural members. Prerequisite: MATH 200.

ET 297 Elementary Flight (0-3)
1 hr. Fall, Winter, Spring, Summer
Flight instruction leading to private pilot certification. Arranged to meet individual needs. May be repeated as necessary. Credit/No Credit only. Prerequisite: ET 100 or concurrent.

ET 300 Navigation Systems (3-0)
3 hrs. Winter
Advanced navigation systems and equipment including area navigation, radar displays, flight directors, and airborne radar application and interpretation. Prerequisites: ET 205, MATH 200, CS 106.

ET 301 Commercial Flight I (0-5.5)
3 hrs. Fall, Winter, Spring, Summer
Initial flight, ground, and simulator instruction in aeronautical skills and knowledge necessary for commercial flying application. Includes introduction to high performance aircraft and instrument flight. Prerequisites: Private pilot certificate and second class medical certificate.

ET 302 Aircraft Systems and Operations (1-0)
1 hr. Fall, Winter
Aircraft pre-flight and post-flight requirements, specifications, equipment requirements, maintenance systems, airworthiness determination, special operational needs, dispatching, winter operations, and related topics.

ET 303 Commercial Flight II (0-5.5)
3 hrs. Fall, Winter, Spring, Summer
Continuing flight, ground, and simulator instruction in aeronautical skills, knowledge, and experience pursuant to commercial-instrument pilot certification. Particular emphasis upon use of air traffic control facilities and airways in visual as well as instrument environments. Prerequisite: ET 301.
ET 305 Commercial Flight III (0-5.5) 3 hrs. Fall, Winter, Spring
Completion of instruction and experience requirements for commercial and instrument pilot certificate. Includes flight, ground, and simulator instruction. Prerequisites: ET 303, ET 300 or taking concurrently.

ET 309 Air Traffic Control (2-0) 2 hrs. Fall, Winter
An overview of the existing and proposed traffic control procedures, the role of the air route traffic control center, approach control, control towers, and flight service stations.

ET 310 Airport Management (3-0) 3 hrs. 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 curriculum or approval of instructor.

ET 311 Power Plant Systems Evaluation and Testing (3-2) 4 hrs. Fall, Winter
Principles of reciprocating engine fuel, induction, exhaust, ignition, and cooling systems. Classroom and lab experiences covering engine instruments, engine operation and testing. Prerequisites: ET 117, EE 101.

ET 312 Power Plant Service and Management (2-10) 5 hrs. Spring
Aircraft power plant inspection, repair and overhaul procedures including reciprocating engines, turbine engine hot section, propellers, and accessory systems. Emphasis on repair station procedures, organization, and management. Prerequisites: ET 311, MGMT 300, and consent of department.

ET 313 Aircraft Electrical Systems (2-3) 3 hrs. Fall, Winter, Spring
A review of basic electricity, study and laboratory practice in aircraft electrical components and systems, electrical instrumentation, and auto pilot systems. Prerequisites: ET 110, EE 101.

ET 315 Propulsion System Performance (0-6) 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.

ET 316 Avionics Systems (2-2) 3 hrs. Fall, Winter
Advanced topics in airborne electrical and electronics systems including multiplexing, flight control, and navigation applications. Prerequisite: ET 313.

ET 317 Air Transportation (3-0) 3 hrs. Winter
Regulation, organization, and operations peculiar to the air transportation industry. Includes a study of legal aspects of air transportation and fundamentals of the air traffic control system.

ET 318 Aircraft Service and Management (2-10) 5 hrs. Summer
Airframe inspection, repair, and servicing including routine and 100-hour inspections, minor repairs, and preventive maintenance. This course will also include management aspects of FBO service centers and related service management problems and solutions. Prerequisites: ET 213, ET 216, ET 312.

ET 322 Automotive Service Management (2-0) 2 hrs. 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, ACT 210, MGMT 300.

ET 326 Automotive Diagnosis (2-3) 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, ET 124, ET 221, ET 222, ET 224.

ET 330 Wood and Related Materials for the Interior Designer (2-3) 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.

ET 331 Upholstering and Wood Turning (2-3) 3 hrs. Fall

ET 332 Wood Finishing (2-3) 3 hrs. Winter
Principles and use of color in mixing and matching finishes. Purpose and characteristics of finishing materials and their application. Study of techniques 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.

ET 335 Soil Mechanics and Foundations (2-2) 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, ET 281, GEOL 130.

ET 337 Heating, Ventilation, and Air Conditioning (2-2) 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, ET 141, CS 105.

ET 339 Plumbing and Electrical Practices (2-3) 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 are practiced. Utility designs are drawn by students and installed at a job site. Prerequisites: ET 131, ET 141, ET 235, CS 105.

ET 341 Interior Design Graphics II (2-3) 3 hrs. Winter
Study of angular and parallel perspective in interior design. Further emphasis is placed on shades, shadows, and shadowlining in drawings rendered in pencil, ink, and color as they apply to client and commercial presentation drawings. Likeness and diascopic techniques are included. Introduction to computer aided planning. Prerequisite: ET 241.

ET 342 Machine Drafting (2-3) 3 hrs. Fall
Advanced study in the design and representation of machine components. Mechanical components for motion and power transmission are analyzed according to application and design constraints. CAD/CAM is incorporated at all phases of the design process. Prerequisites: ET 144, ET 242, ET 354.

ET 343 Industrial Design Studio (1-3) 2 hrs. Fall
Design and development of a transportation product with sketches, renderings and clay models. Prerequisite: ET 247.

ET 344 Tool Design I (2-3) 3 hrs. Fall
Basic practices, standards, and components will be applied to tooling and design considerations for group technology. Prerequisite: ET 342.

ET 346 Programming for Computer-Aided Design (2-3) 3 hrs. Winter
Software development for interactive CAD. Topics include the principles of display technologies, creating graphic entities, storing and retrieving object data, 3D graphic displays with transformations and hidden-line removal, and menu development and software documentation. Prerequisites: ET 246, CS 306.

ET 347 Industrial Design Studio (1-3) 2 hrs. Winter
Design and development of an industrial trade show with sketches, renderings and model. Presentation will include market and cost studies. Prerequisite: ET 247.

ET 348 Tool Design II (2-3) 3 hrs. Winter
Part analysis for design of metal stampings, and the design of dies to produce stamped metal parts. Wire formimg, cold forming, forging, and NC punching centers will be studied. Prerequisite: ET 344.

ET 350 Production Thermoplastic Processing (2-3) 3 hrs. Winter
Injection molding, blow molding, extrusion and thermforming. Effects of thermo-plastic melt characteristics on product design and part quality. Effects of machine design, set-up, and operation on part cost and profitability.Overview of processing machinery including take-off and sizing equipment. Prerequisites: ET 250, ET 256.

ET 351 Chemical Metallurgy (4-0) 4 hrs. Fall
Introduction to chemical thermodynamics, thermodynamic properties of the liquid and the solid states, extractive metallurgy, solidification of alloys, and electrochemistry. Prerequisites: ET 256, MATH 123.

ET 352 Metal Casting (2-3) 3 hrs. Fall, Winter, Spring
Principles of pattern design and construction using a variety of materials and production techniques. Theory and practice in metalcasting principles using green sand, plaster, investment, centrifugal, and vacuum processes. Prerequisites: ET 154, ET 256.
ET 353 Physical Metallurgy I (4-0)
4 hrs. Winter
Introduction to the electron theory of metals, crystal growth, and the defect structure of metals and their application to solid state diffusion, deformation and fracture, and oxidation and corrosion of metals. Prerequisites: CHEM 101, CHEM 102, or CHEM 103; MATH 123 or MATH 200; PHYS 110.

ET 357 Fabrication and Pressworking (2-3)
3 hrs. Fall
Principles of operation of multi-engine aircraft. Prerequisite: ET 305 or equivalent.

ET 358 Computer-Aided Manufacturing (3-3)
4 hrs. Winter, Spring
Principles of application of computer-aided manufacturing systems for metalworking. Prerequisites: ET 242, ET 256, ET 281.

ET 359 Welding Design Analysis (3-0)
3 hrs. Winter
Production methods and design using modern techniques of electron beam welding, inertia welding, and application of lasers for welding. Use of various protective enclosures, plasma arc welding, automated electronic welding, welding techniques. Prerequisites: ET 256, ET 281.

ET 381 Thermo-Fluid Dynamics (4-0)
4 hrs. Fall, Winter, Summer
Fundamentals of fluid mechanics, thermodynamics, and heat transfer using a unified approach. Prerequisites: ET 281, PHYS 110.

ET 382 Structural Theory and Design (3-0)
3 hrs. Winter
Design of beams, trusses, retaining walls, floor systems and columns in steel, reinforced concrete, and timber. Prerequisite: ET 281.

ET 387 CAD/CAM Fundamentals (2-3)
3 hrs. Application of computer graphics to drafting and design. Translation of drawings to part programs for CNC machine control. Considerations for computer-integrated manufacturing. (Not for majors in EGR and MFT.)

ET 399 Field Experience
1-3 hrs. Fall, Winter, Spring, Summer
A program of practical experience and independent study to supplement and enrich classroom learning. Written reports are required. May be repeated to a maximum of eight semester credit hours. Credit/No Credit status only. Prerequisite: Consent of department.

ET 400 Aerodynamics and Flight Principles (2-0)
2 hrs. Winter
Aerodynamics and flight principles related to aero-engine operation and performance. An advanced course for pilots to enable them to understand and predict aircraft performance in a wide range of flight applications. Prerequisites: ET 303, MATH 200, CS 106.

ET 402 Multi-Engine Flight (0-1.3)
1 hr. Fall, Winter, Spring, Summer
Principles of flight in multi-engine airplanes. Provides transition from complex single-engine airplane to procedures and techniques peculiar to multi-engine operation. Prerequisite: ET 305 or equivalent.

ET 403 Flight Instruction Fundamentals (1-5)
3 hrs. Fall, Winter, Spring, Summer
A study of airplane performance skills, flight maneuvers, critical situations, and airplane type differences emphasizing instructional methods and techniques. Features flight instruction, solo flight practice, ground instruction, and actual teaching experience after certification. Prerequisites: ET 205, ET 305, ET 400.

ET 404 Instrument Flight Instructing (1-1)
1 hr. Fall, Winter, Spring, Summer
Techniques of flight instruction applied to instrument flight. Designed to upgrade an airplane flight instructor to an instrument instructor. Instructional techniques of attitude instrument flying, flight simulator utilization, instrument en route procedures, radio navigation, critical situations, and performance analysis. After certification, supervised teaching experience is required. Prerequisite: ET 403.

ET 405 Flight Operations Analysis (3-0)
3 hrs. Winter
Advanced topics in aviation operations with consideration of human factors, efficiency, air traffic control, environmental problems, and equipment constraints. Prerequisites: ET 300, ET 305, ET 400 or concurrent.

ET 415 Aircraft Turbine Powerplants (3-3)
4 hrs. Fall, 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 200, ET 263 or ET 311.

ET 416 Maintenance Regulations (2-0)
2 hrs. Fall
Regulatory impact on maintenance practices, legal considerations, specific requirements for licensing and certification of airmen, repair stations, and aircraft. Prerequisites: ET 312, ET 318.

ET 418 System Reliability and Maintainability (3-0)
3 hrs. Winter
A review of aircraft maintenance practices, monitoring and control procedures, analysis of data essential for planning and quality control. Database management applications. Prerequisites: ET 311, ET 318, MATH 260, CS 106.

ET 419 Advanced Maintenance Systems (2-3)
3 hrs.
This is the final course taken prior to FAA certification of the airplane and powerplant mechanic. Each subject area required for certification will be studied and the student will demonstrate competence by passing an FAA written, oral, and practical examination administered by a designated mechanic examiner. Students electing this course must have completed or be currently completing all courses required in the special program.

ET 421 Automotive Analysis (2-0)
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 reusability. Prerequisite: ET 325.

ET 432 Production Woodworking (2-3)
3 hrs. Fall

ET 433 Specifications and Estimating (3-0)
3 hrs. Fall
Reading and interpretation of the contract documents for construction. Plans and specifications for a variety of structures will be utilized. Principles and theories of estimating, classifications of work and quantity survey techniques applied to different types of structures and projects will be covered. Estimating quantities and listing of work items in a standard quantity survey will be practiced. Computer application in construction estimating will be emphasized. Prerequisites: ET 335, ET 337, ET 339.

ET 434 Wood Technology (1-3)
2 hrs.
Wood and wood products as engineering materials in construction and manufacturing. Characteristics, methods of identification, and performance testing of structures. Prerequisite: Consent of department.

ET 435 Commercial Construction Methods (3-0)
3 hrs. Winter
An introduction to the principles and practices that are peculiar to heavy construction. Covers excavating equipment, cranes, dewatering, drainage, and paving. Erection methods of commercial buildings will be studied. Structural steel frame practices, vertical transportation, curtainwalls, and membrane type roofs are included. Prerequisites: ET 335, ET 382.

ET 436 Problems in Woodworking (1-3)
2 hrs.
Advanced theory and practice working with new materials and methods. Written reports and discussions based on current literature are required. Topics represent special needs of the participants. Prerequisite: Consent of department.

ET 437 Advanced Estimating and Bidding (3-0)
3 hrs. Winter
The planning and control of construction projects. Construction estimating techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: ET 433, MGMT 200, MGMT 300.

ET 439 Scheduling and Project Management (3-0)
3 hrs. Winter
The planning and control of construction projects. Construction scheduling techniques such as critical path methods (CPM) and program evaluation and review (PERT) as well as computerized graphic techniques will be practiced. Management principles as applied to the construction contractor will be emphasized. Prerequisites: ET 433, MGMT 200, MGMT 300.

ET 441 Residential Architectural Design (2-3)
3 hrs. Fall
The study of architectural plans and principles of residential structures. Plans produced and studied include floor plans, plot plans, foundation plans, electrical plans, elevations, and all necessary details and specifications. Prerequisites: ET 141, ET 131.

ET 442 Tool Design III (2-3)
3 hrs.
Designing tooling systems for producing plastic parts. A study of part design for efficient part production and considerations for tooling secondary operations. Prerequisites: ET 250, ET 348.
ET 443 Commercial Architectural Design (2-3)
3 hrs. Spring
Experience in designing light commercial structures. Study of systems planning, traffic flow and area utilization, exterior design, structural analysis and material selection, site design and documentation. Prerequisite: ET 441.

ET 445 Product Design and Development (2-3)
3 hrs. Winter
The team approach to the design and development of a product with complete analysis and documentation. The final presentation will include a model and written and oral reports. Prerequisites: ET 242, ET 243, ET 256.

ET 446 CAD Applications (2-3)
3 hrs. Fall
Applications programming for computer graphics. Investigation of existing graphics packages and advanced software design. Development of program applications in each student's major area of interest. Prerequisite: ET 345.

ET 447 Industrial Design Studio (1-3)
2 hrs. Winter
Development of a final critique portfolio of student work for presentation at a graduating senior show. Prerequisite: Senior standing in Industrial Design.

ET 448 Technical Illustration II (2-3)
3 hrs. Winter
Advanced illustrating, new techniques and presentation methods. Laboratory work will center around industrial illustrating methods and computer aided illustrating aids. Prerequisite: ET 248.

ET 449 Drafting/Design Management (2-0)
2 hrs. Winter
Organization, administration, procedures, and methods involved in personnel, planning, management, equipping an industrial drafting/design department. Includes scheduling, estimating, referencing, numbering, and changing relative to existing documentation. Will also include material related to CAD/CAM. Prerequisite: Senior standing.

ET 450 Engineering Polymers and Composites (2-3)
3 hrs. Fall

ET 451 Plastics Assembly and Testing (2-3)
3 hrs. Winter
Product assembly, testing, and finishing. Welding, adhesive and snap-fit assembly methods, painting, printing, plating, hot stamping, and in-mold decorating. Application of ASTM standard plastics testing methods to product design, inspection, and analysis of stress, wear, and failure characteristics. Prerequisites: ET 281, ET 350.

ET 452 Die Casting (2-3)
3 hrs. Winter
A study of the elements of the process and control limits to produce sound castings. An analysis of gating systems will be evaluated with industry computer programs. Alloys will be studied in relation to parts being produced. Prerequisite: ET 352.

ET 453 Maintenance in Manufacturing (2-3)
3 hrs. Winter, Spring
Installation, adjustment, and maintenance of equipment. Machinery monitoring, diagnostics, and maintenance systems. Prerequisite: Senior standing.

ET 454 Physical Metallurgy II (2-2)
3 hrs. Winter
Introduction to X-ray diffraction of metals, phase diagrams and solid state phase changes and phase equilibrium. Prerequisite: ET 353.

ET 455 Advanced Metal Casting (2-3)
3 hrs. Fall
Metallurgical factors affecting iron and aluminum melting, solidification patterns, and final microstructures. Casting failure analysis, multi-directional load analysis, and resulting design considerations. Current and emerging casting techniques. Prerequisites: ET 281, ET 352.

ET 456 Studies in Cast Metal Technology 1-2 hrs. Spring
Spring schedule course offered during the week between winter and spring. Transportation charge is required. Student will tour industrial cast metal facilities to study management, current applications, and opportunities. Prerequisite: Consent of department.

ET 457 Metal Fabrication (3-0)
3 hrs. Winter

ET 458 Advanced Manufacturing Systems (3-0)
3 hrs. Winter
Application and analysis of computer-integrated manufacturing systems. Includes IDEF modeling of manufacturing systems, MAP (Manufacturing Automation Protocol), group technology, computer-aided process planning, robotics, and other technologies for flexible manufacturing. Prerequisites: ET 358, senior status.

ET 459 Mold Design and Construction (2-3)
3 hrs. Winter
Mold and die design, processing and part requirements, molded holes and undercuts, threads, inserts, types of molds, tool-making processes, tooling, materials, special fixtures. Mold and die construction using a wide range of cavity production methods. Computer analysis of temperature, pressure, and filling characteristics of a mold. Prerequisites: ET 154, ET 250.

ET 461 Metrology (2-3)
3 hrs. Winter
Precision measurement, its relationship to geometric tolerances, critical dimensions, and calibration. Statistical process control and quality assurance using manual and automated gauges, checking fixtures, non-destructive testing, and coordinate measuring systems. Use of vision, laser, and other non-contact measuring systems. Prerequisites: ET 242, MATH 260.

ET 483 Project Design and Control (1-0)
1 hr. Fall
Problem definition, project planning and scheduling, follow-up and control techniques. Results in presentation and plan for senior project. Prerequisite: Senior status and Department approval.

ET 485 Senior Project (1-6)
3 hrs. Winter
Open-ended team projects involving systems design, analysis, or application. Results in a tangible system, written report and presentation. Prerequisite: ET 483 and approved project.

ET 487 Manufacturing Productivity Techniques (3-0)
3 hrs.
Application of modern processes, principles of productive tooling and inspection methods to quality production. The impact of emerging materials on processing techniques, organization, and systems for automation.

ET 496 Topics in Engineering Technology
1-6 hrs. Fall, Winter, Spring, Summer
A specialized course dealing with some particular area of technology not usually included in other course offerings. May be repeated for credit with different topics to a maximum of six credit hours. Prerequisite: Consent of department.

ET 497 Special Flight Instruction
1-3 hrs. Fall, Winter, Spring, Summer
Instruction tailored to the individual needs of students pursuing the professional pilot course sequence. Develop skills to progress efficiently in normal course sequence. Credit/No Credit only. May be repeated.

ET 499 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

Bachelor of Science in Engineering (Industrial) Degree

The Industrial Engineering curriculum provides the essential foundation, experience, and understanding to science, mathematics, humanities, and engineering so that graduates may find employment in production and service industries. This program is also a basis for graduate study. Industrial engineering involves the design, installation, and improvement of systems integrating people, materials, equipment, and energy. An industrial engineer might work in facilities planning and design, plant automation, quality assurance, plant safety, or employee/employer relations. Jobs are available in manufacturing and in service-related industries such as hotels, banks, food, transportation, and hospitals.

Admission

1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section. The Pre-engineering course requirements for this curriculum are in darker print in the schedule below.

2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Industrial Engineering Program Requirements

Candidates for the Bachelor of Science in Engineering (Industrial) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours) in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas I, II, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. A "C" average or better must be earned in courses presented for graduation with an EE, IE, OR ME prefix. At least two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
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 relations 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 in meeting its objectives. Employment may be in the general areas of manufacturing and service industries.

A selection of a group of courses provides the student an opportunity to concentrate in one of the several specialized areas* listed below:

- CAD/CAM
- Plastics
- Metal Casting
- Metal Working
- IE Staff
- Technical Sales
- Small Business Management

In addition, the student can also obtain a minor in the Haworth College of Business by taking additional courses.** The minor can be earned in:

- Accounting
- Finance
- Law
- General Business
- Marketing
- Management
- International Business

Requirements

Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. A "C" average or better must be earned in courses presented for graduation with an IE, ET, or ME prefix.
2. No more than two grades of "D" or "D+" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 128 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall, plus one spring session.

First Semester—14 hours

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<tr>
<th>Course Code</th>
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<tr>
<td>MATH 111</td>
<td>Algebra II</td>
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<td>CHEM 103</td>
<td>General Chemistry I</td>
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<tr>
<td>IE 102</td>
<td>Technical Communication</td>
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<td>ET 150</td>
<td>Introduction to Manufacturing</td>
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Second Semester—16 hours

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<td>COM 170</td>
<td>Interpersonal Communication I</td>
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<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
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<td>ECON 201</td>
<td>Principles of Economics</td>
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Third Semester—17 hours

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<td>PHYS 110</td>
<td>General Physics I</td>
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<td>IE 102</td>
<td>Introduction to Computers</td>
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Fourth Semester—14 hours

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<td>General Physics II</td>
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<td>ACTY 210</td>
<td>Principles of Accounting</td>
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<td>PEGN</td>
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<tr>
<td>Technical Elective*</td>
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<tr>
<td>Free Elective</td>
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</table>

Fifth Semester—16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>IE 305</td>
<td>Work Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IE 320</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>IE 326</td>
<td>Operations Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>IE 322</td>
<td>Safety in Industry</td>
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</tr>
<tr>
<td>ET 256</td>
<td>Properties of Materials</td>
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Sixth Semester—16 hours

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>IE 328</td>
<td>Quality Assurance and Control</td>
<td>3</td>
</tr>
<tr>
<td>IE 316</td>
<td>Report Preparation</td>
<td>3</td>
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<tr>
<td>FCL 340</td>
<td>Legal Environment</td>
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<tr>
<td>Technical Elective*</td>
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<td>3</td>
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<tr>
<td>AREA I General Education***</td>
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Seventh Semester—13 hours

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<tr>
<th>Course Code</th>
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<tr>
<td>IE 422</td>
<td>Conference Leadership</td>
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<tr>
<td>IE 405</td>
<td>Senior MAD Design Project</td>
<td>4</td>
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<tr>
<td>Technical Elective*</td>
<td></td>
<td>3</td>
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<td>AREA IV General Education***</td>
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Eighth Semester—16 hours

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<tr>
<td>IE 402</td>
<td>Supervision of Industrial Operations</td>
<td>3</td>
</tr>
<tr>
<td>IE 403</td>
<td>Industrial Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>IE 404</td>
<td>Plant Layout and Material Handling</td>
<td>4</td>
</tr>
<tr>
<td>Technical Elective*</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>AREA I General Education***</td>
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Spring Semester of Senior Year—6 hours

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>IE 420</td>
<td>Modern Industrial Practices</td>
<td>6</td>
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</tbody>
</table>

* See departmental adviser for a list of approved electives.
** Specific coursework must be approved by the appropriate Haworth College of Business adviser.
*** At least two courses at the 300-400 level are required.

Technical Elective Requirements

Fifteen hours of approved technical elective courses must be completed to satisfy the requirements for a B.S. degree. At least two of these courses must be at the 300-400 level. IE 300 Co-op Internship can be used for three hours of technical elective but is not included in the requirements for the 300-400 level courses. See the Departmental Adviser for specific course information approved technical electives.

Industrial Engineering Courses (IE)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IE 102</td>
<td>Technical Communication</td>
<td>3</td>
</tr>
<tr>
<td>Fall, Winter</td>
<td>Principles of objective presentation of factual material, logical organization, summarizing, ethical practices, information gathering techniques, oral communication, and listening through practical applications.</td>
<td>3</td>
</tr>
</tbody>
</table>

IE 205 Work Design (2-3)

3 hrs. Fall

Design of jobs and working environments in business and industry. Topics include techniques for job design, human factors engineering, work measurement, and economic analysis. A semester project requiring the design of a work station is required. Prerequisite: MATH 123.

IE 206 Engineering Computations (2-0)

2 hrs. Winter

A basic course in engineering computations including instruction in use of hand held calculators, personal computers, and the VAX network. Familiarization with the facilities in the Computer Aided Engineering Center. Prerequisite: Proficiency in BASIC programming. This prerequisite may also be met by completion of CS 106 or equivalent. Corequisite: MATH 122.

IE 261 Engineering Statistics (3-0)

3 hrs. Fall

Introduction to statistical methodology, emphasizing applications in engineering. Topics include descriptive and inferential statistics, least squares curve fitting, correlation, and analysis of variance. Prerequisite: MATH 123; a course in the use of computers. (Cross listed with MATH 261.)

IE 262 Probability for Engineers (3-0)

3 hrs. Winter

Introduction to probability emphasizing applications in engineering. Use of discrete and continuous random variables common to engineering problems. Random processes used in engineering models. Corequisite: MATH 272. (Cross listed with MATH 262.)

IE 300 Cooperative Education (Arr.)

1-3 hrs. Fall, Winter, Spring, Summer

A cooperative education program involves a full-time planned and supervised work experience in industry during the semester or the equivalent on a part-time basis. A written report of the student's activities will be required. May be elected four semesters for a maximum of twelve semester credit hours. Must be taken on a credit/no credit basis.

IE 305 Work Analysis (3-0)

3 hrs. Fall, Winter, Spring

Methods engineering and measurement of human work systems. Techniques for operation analysis, work measurement, and work sampling. Predetermined basic motion-time systems and standard data development are introduced. NOT FOR ENGINEERING CREDIT.

IE 307 Computer Controlled Manufacturing Systems (3-3)

4 hrs. Fall

Analysis and design of computer controlled manufacturing systems. Students must enroll in IE 308 during the semester following IE 307. Prerequisites: IE 206, EE 211 (EE 211 may be taken concurrently).

IE 308 Computer Controlled Manufacturing Design Lab (3-4)

2 hrs. Winter

A continuation of IE 307 in which students design and construct a physical computer controlled model to simulate a manufacturing process. IE 307 and IE 308 must be taken during the same academic year. Prerequisite: IE 307.

IE 310 Engineering Economy (3-0)

3 hrs. Fall, Winter, Spring

Application of principles of engineering economy for establishment of equipment and system feasibility. Interest, equivalence, taxes, depreciation, uncertainty and risk, incremental and sunk costs, and replacement models. Prerequisites: CS 106 or CS 306 or IE 206, MATH 123.
IE 311 Introduction to Operations Research (3-0)
3 hrs. Winter
The development of mathematical concepts and models concerned with industrial engineering problems. Topics include queuing theory, game theory, linear, and dynamic programming. Prerequisite: IE 261, IE 262.

IE 316 Report Preparation (3-0)
3 hrs. Fall, Winter
Learning techniques and procedures for preparation of technical documents. Intensifying critical, analytical process of thinking, and executing written and oral strategies for different situations. Prerequisite: IE 102, junior standing.

IE 318 Statistical Quality Control (3-0)
3 hrs. Winter
Methods of applying statistics and probability theory to control production processes. Application of computer programs to analyze quality control problems. Prerequisites: IE 206, IE 262.

IE 320 Engineering Cost Analysis (3-0)
3 hrs. Fall, Winter
A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: IE 200.

IE 322 Safety in Industry (3-0)
3 hrs. Fall, Winter, Spring
Importance of safety in industry. Cost of accidents, fundamentals of accident prevention, elements of effective safety programs, accident investigation, and OSHA. Prerequisite: Upperclass standing.

IE 326 Operations Planning and Control (3-0)
3 hrs. Fall, Winter
Methods of controlling and coordinating production using production planning, scheduling, inventory control, and dispatching. NOT FOR ENGINEERING CREDIT. Prerequisites: MATH 216 or MATH 260 or MATH 366.

IE 328 Quality Assurance and Control (3-0)
3 hrs. Fall, Winter, Spring, or Summer
Techniques of controlling quality in manufacturing systems. Topics include organization of quality, methods of measuring and basic statistical tools. NOT FOR ENGINEERING CREDIT. Prerequisite: IE 206 or MATH 260 or MATH 366.

IE 402 Supervision of Industrial Operations (3-0)
3 hrs. Fall, Winter, Spring
Supervisory duties and responsibilities of foremen, engineers, and technicians in industrial operations. Prerequisite: Junior standing.

IE 403 Industrial Labor Relations (3-0)
3 hrs. Fall, Spring or Summer
Relationships between government agencies, labor organizations, and management. Emphasis on development of collective bargaining procedures. Prerequisite: Senior standing.

IE 404 Plant Layout and Material Handling (3-3)
4 hrs. Winter
Comprehensive design of an industrial production system. Problems involved in and the interrelationship of plant location, product analysis, process design, equipment selection, materials handling, and plant layout. Assignments include projects designed to include the application of previous industrial engineering courses. NOT FOR ENGINEERING CREDIT. Prerequisites: IE 305, IE 326, senior standing.

IE 405 Senior MAD Design Project (2-6)
4 hrs. Fall, Winter
Concepts and strategies for the analysis, design, improvement, and operation of integrated systems of persons, material, and equipment with concentration on methods of successful implementation. A project oriented course covering previous courses in the student's program. NOT FOR ENGINEERING CREDIT. Prerequisites: IE 305, senior standing.

IE 410 Senior Seminar (1-0)
1 hr. Fall
A seminar for senior industrial engineering students. Topics for discussion will be centered about the role of the industrial engineer and supervisor at place of work and obligation to society. Prerequisite: Senior standing.

IE 414 Material Handling and Facilities Design (3-3)
4 hrs. Fall
Methodology for planning and designing manufacturing and related facilities, facilities location, material handling analysis and design, and warehouse design. Includes an intensive semester project to plan and design a manufacturing facility. Prerequisites: IE 205, IE 310, IE 316, IE 416 or taken concurrently.

IE 415 Senior Industrial Engineering Design Project (2-6)
4 hrs. Fall, Winter
Student project teams will be assigned system design problems with participating southwestern Michigan firms. Each team will design a solution to the problem and be responsible for writing a justification for their design proposal, and will make a formal oral presentation to representatives of the client firm. Prerequisite: IE 414.

IE 416 Operations Control in Industry (3-3)
4 hrs. Fall
The function of production and inventory operations. Control of manufacturing production systems and modeling. Prerequisites: IE 206, IE 261, IE 262.

IE 420 Modern Industrial Practices (4-6)
6 hrs. Spring
Students will observe and analyze actual supervisory and managerial functions in industrial and service establishments. Conference procedures will be involved in exploring many facets of supervisory and managerial practices and procedures. A charge for transportation is required. Prerequisites: Spring session prior to graduation.

IE 422 Conference Leadership (3-0)
3 hrs. Fall, Winter
Methods of understanding, planning and presenting a conference with oral and written components. Task groups will be used to explore creativity, controversy, power, and process in leadership situations. Prerequisites: COM 104 or COM 170, upperclass standing.

IE 430 Simulation Modeling and Analysis (3-0)
3 hrs. Winter
Use of computer simulation as a modeling tool, with emphasis on discrete-event simulation. Both FORTRAN-based simulation languages and GPSS are used. Statistical analysis of both input data and simulation results. Prerequisites: IE 206, IE 262.

IE 442 Ergonomics (2-3)
3 hrs. Winter
Design of industrial tasks with respect to physiological, anatomical, biomechanical and psychological capabilities. Emphasis is placed on health and safety. A design project is required. Prerequisites: IE 205, IE 261, IE 316.

IE 450 Senior Design Project I (3 hrs)
The first of a two-semester sequence in which the student works on an approved engineering design project. A preliminary design and report are required at the end of the course. Project will be completed in IE 451. FOR OFF-CAMPUS PROGRAMS ONLY. Prerequisite: Consent of instructor.

IE 451 Senior Design Project II (3 hrs)
Completion of the engineering design project started in Senior Design Project I. A formal written report and oral presentation are required. FOR OFF-CAMPUS PROGRAMS ONLY. Prerequisite: IE 450.

IE 490 Independent Research and Development (Arr.)
1-4 hrs. Fall, Winter, Spring, Summer
Individual research or special project in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

IE 495 Special Topics in Industrial Engineering (3-0)
3 hrs. Fall, Winter, Spring
A specialized course dealing, each time it is scheduled, with some particular aspect of industrial engineering not usually included in other course offerings. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

IE 498 Readings in Engineering (Arr.)
1-6 hrs. Fall, Winter, Spring, Summer
Independent readings in engineering. Open only to juniors and seniors having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

IE 499 Studies in Engineering (Arr.)
1-6 hrs. Fall, Winter, Spring, Summer
Independent studies in engineering. Open only to students having the approval of the faculty member under whom the student will work and the approval of the department chair. Students may register more than once, not to exceed 6 hours.

IE 500 Advanced Industrial Relations (3-0)
3 hrs. Winter
Interplay among government agencies, labor organization, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Prerequisite: IE 403 or permission of instructor.

IE 505 Advanced Work Analysis (3-0)
3 hrs. Spring
Synthesis of effective work methods using a predetermined basic motion-time system. Methods-Time Measurement, standard data system development, and administration. Prerequisite: IE 205, IE 305 or permission of instructor.

IE 507 Computer Integrated Manufacturing (3-0)
3 hrs. Spring
Topics related to computer integrated manufacturing. Topics include computer process control, robotics, group technology, CNC, CAD, FMS. Hands-on experience with
MECHANICAL ENGINEERING

M. Jerry Kenig, Chair
Judah Ari-Gur
Christopher S.K. Cho
Jay Easwaran
Meshulam Groper
Philip J. Guchelaar
Jerry H. Hamelin
Jerome H. Hemmey
Raymond N. House, Jr.
James B. Matthews
Iskender Sahin
Richard C. Schubert
Rameshwar P. Sharma
William J. Steket, III
Dennis J. VandenBrink
Molly W. Williams

Adjunct Faculty
Prina Ari-Gur

The Department of Mechanical Engineering offers a program leading to the degree of Bachelor of Science in Engineering (Mechanical). The program is designed to provide engineering expertise appropriate to the diversity in mechanical engineering. It includes mathematics, general education subjects, the basic sciences, the engineering sciences, design, and an integrated computer experience. Electives may be used to deepen or broaden the program.

Mechanical engineers are found in almost every industry. Examples of areas for career opportunities include manufacturing, machine tool design, and product development; land, sea, air, and space vehicles and systems; energy conversion and energy distribution; computer hardware and computer software; environmental systems; construction and urban development. Opportunities for mechanical engineers continue to develop with the rapid expansion of our knowledge base and population growth.

Academic Advising

Students should contact a mechanical engineering academic adviser as early as possible. Advisers are available to assist in individual program planning, to recommend electives appropriate to a student's educational objectives, to discuss employment opportunities, and to help solve academic problems. Substitutions and transfer credit must be approved by a departmental adviser, the curriculum committee, and the department chair. The academic advisers are located in Room 2038, Kohman Hall, (616) 387-4033.

Scholarships and Awards

Several scholarships are available through the College of Engineering and Applied Sciences. These include, but are not limited to, scholarships through the Giffels Associates, Lakehead-Pipeline, Duerramatic Corporation, Society of Manufacturing Engineers, H. H. Harris Foundation, and the College itself. Program announcements are distributed during the application period.

The Department of Mechanical Engineering also annually presents several awards, which include:

- Dean E. Bluman Memorial Award—presented to an outstanding student of mechanical engineering who has demonstrated interest and ability in liberal studies. This is in honor and recognition of the late Dr. Bluman who, during his tenure as Professor and Chairman of Mechanical Engineering, was an active supporter of liberal education for engineering students.

- Outstanding Mechanical Engineering Scholar Award—presented to a mechanical engineering student who is outstanding scholastically, involved in extra-curricular activities, and demonstrates leadership ability and the professionalism associated with mechanical engineering.

- Mechanical Engineering Presidential Scholar Award—presented to an outstanding mechanical engineering student who is selected using University-wide criteria which includes senior standing, superior scholastic ability, extra-curricular involvement, and professional promise.

Cooperative Education

Students may elect the cooperative plan of education. In this plan, the student alternates a semester of study on campus with a semester of compensated industrial experience. Students may work in any area in which mechanical engineers may be found.

Additional Information

General information regarding advising, scholarships, and special programs of interest to students in this department may be found under the beginning of the Engineering and Applied Sciences section of this catalog. Enrollment will not be honored in any course, when other students are requesting that course, if the student does not attend the first class meeting (lecture or lab) unless prior arrangements have been made with the instructor. Students not attending courses for whatever reasons are responsible for processing drop slips with the Registration Office if fees are to be refunded.

Mechanical Engineering

Bachelor of Science in Engineering (Mechanical) Degree

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Admission

1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences section. The Pre-engineering course requirements for this curriculum are in darker print in the schedule below.

2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Mechanical Engineering Degree Requirements

Candidates for the Bachelor of Science in Engineering (Mechanical) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the
### Mechanical Engineering Courses (ME)

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ME 220</td>
<td>Manufacturing Productivity</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 232</td>
<td>Thermodynamics I</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 250</td>
<td>Material Science I</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 256</td>
<td>Statics</td>
<td>3-3</td>
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<tr>
<td>ME 335</td>
<td>Mechanical Engineering Laboratory</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 360</td>
<td>Control Systems</td>
<td>3-3</td>
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<tr>
<td>ME 365</td>
<td>Machine Design</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 375</td>
<td>Energy Systems Design</td>
<td>3-3</td>
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<td>ME 380</td>
<td>Design Elective</td>
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<tr>
<td>ME 390</td>
<td>Mechanical Engineering Project Plan</td>
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<td>ME 395</td>
<td>Mechanical Systems Laboratory</td>
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<tr>
<td>ME 430</td>
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<td>ME 431</td>
<td>Heat Transfer</td>
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<td>ME 433</td>
<td>Manufacturing Productivity</td>
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<td>ME 435</td>
<td>Machine Design</td>
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<td>ME 436</td>
<td>Energy Systems Design</td>
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<td>ME 450</td>
<td>Mechanical Engineering Project Plan</td>
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<td>ME 451</td>
<td>Mechanical Engineering Project Plan</td>
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<td>ME 500</td>
<td>Mechanical Engineering Project Plan</td>
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<td>ME 510</td>
<td>Manufacturing Productivity</td>
<td>3-3</td>
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<td>ME 520</td>
<td>Control Systems</td>
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<tr>
<td>ME 525</td>
<td>Statics</td>
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<tr>
<td>ME 530</td>
<td>Machine Design</td>
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<td>ME 535</td>
<td>Mechanical Engineering Project Plan</td>
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<tr>
<td>ME 540</td>
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<td>ME 545</td>
<td>Mechanical Systems Lab</td>
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<td>ME 550</td>
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<td>ME 560</td>
<td>Control Systems</td>
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<td>ME 575</td>
<td>Mechanics of Materials</td>
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<tr>
<td>ME 580</td>
<td>Dynamics</td>
<td>3-3</td>
</tr>
<tr>
<td>ME 585</td>
<td>Mechanics of Materials</td>
<td>3-3</td>
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</table>

**Notes:**
- At least two of these courses must be at the 300-400 level.
- IE 102 or ENGL 105.
- Design elective options include ME 359, ME 435, ME 451, or ME 553.

### Course Descriptions

**ME 220 Manufacturing Productivity**
- 4 hrs. Fall, Winter, Spring
- Design, fabrication, and analysis of production tools. Computer applications to cost estimation, manufacturing, and the fundamentals of robotics. Prerequisites: CS 106, ET 142.

**ME 232 Thermodynamics I**
- 3 hrs. Fall, Winter, Spring
- Fundamental laws of classic thermodynamics including ideal and non-ideal processes. Applications are studied in relationship to the traditional thermodynamic cycles and to alternate energy systems such as solar and wind energy. Prerequisites: MATH 123, PHYS 210.

**ME 250 Material Science I**
- 3 hrs. Fall, Winter
- First course in the science of engineering materials. Relationships between microscopic structure and the mechanical properties of metals, polymers, and ceramics are developed. Emphasis is on the mechanical properties and effects of alloying and heat treatment on metals. Prerequisites: CHEM 101 or 102, MATH 122.

**ME 256 Statics**
- 3 hrs. Fall, Winter
- Forces and moments acting upon structural bodies under static loads. Concepts of vectors, free-body diagrams, shear and moment diagrams, centroids, moment of inertia and friction. Compression, tension, shear, torsion, and bending in structural members, including stress distribution, deflection, and buckling. (Not for students required to take ME 257).
- Prerequisites: MATH 123, CS 106.

**ME 258 Dynamics**
- 3 hrs. Fall, Winter
- Mechanics of Materials

**ME 335 Mechanical Engineering Laboratory**
- 3 hrs. Fall, Winter, 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 MATH 101.

**ME 339 Solar Energy Systems**
- 3 hrs. Fall
- 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.

**ME 350 Material Science II**
- 3 hrs. Fall, Winter
- Second course in the science of engineering materials. Provides a basic understanding of the properties of non-metallic materials including polymers, ceramics and composite materials, and related mechanical properties to structure and fabrication process. Includes treatment of environmental effects on all materials and treatment of non-destructive testing. Prerequisite: ME 250.

**ME 356 Fluid Mechanics**
- 3 hrs. Fall, Winter, Spring
- Analysis of fluid systems and problems including compressible and incompressible fluids, turbulent and laminar flows, subsonic and supersonic flows are covered. Pipe systems, flow orifices, and open channels. (Credit may not be earned in both ME 356 and ET 381.) Prerequisites: ME 258, MATH 374.

**ME 358 Mechanics of Materials**
- 3 hrs. Fall, Winter, Summer
- Mechanics of Materials

**ME 359 Dynamics of Machinery**
- 3 hrs. Fall
- Analysis of static, dynamic, and combined forces in the design of machines. Balancing of machines including multicylinder engines. Gyroscopic forces. Computer applications. Prerequisite: ME 358.

**ME 360 Control Systems**
- 3 hrs. Fall, Winter, Spring
Nyquist and Bode diagrams are covered. Prerequisites: ME 258, MATH 374, EE 211.

ME 382 Theory of Engineering Experimentation (3-0)
3 hrs. Fall, Winter, Spring
Principles of experimental design using a statistical approach. Statistical analysis of experimental data with computer applications. Prerequisites: MATH 123, CS 106.

ME 355 Machine Design I (2-3)
3 hrs. Fall, Winter, Spring
The application of engineering principles to the fundamental design of machine mechanisms and basic systems. Prerequisites: ME 220, ME 250, ME 257, ME 358. (ME 355 may be taken concurrently.)

ME 375 Experimental Stress Analysis (2-3)
3 hrs. Winter
Principles and methods of non-destructive testing including internal and surface industrial methods of strain-gage techniques, planning of test procedures, interpretation of test results, and technical report preparation. NOT FOR ENGINEERING CREDIT. Prerequisites: ET 281, ET 286.

ME 431 Val Transfer (3-0)
3 hrs. Fall, Winter, Summer
Steady state and transient conduction, radiation functions, radiation networks, natural and forced convection, design of heat exchangers, and computer applications. Prerequisites: ME 356, ME 432.

ME 432 Thermodynamics II (3-0)
3 hrs. Fall, Winter
Advanced topics including gas-vapor mixtures, combustion, and compressible flow. Prerequisites: ME 232, ME 356. (ME 356 may be taken concurrently.)

ME 433 Environmental Systems Design in Buildings (2-3)
3 hrs. Fall
Theory of the conditioning of air, applications to the design of systems to control temperature, humidity, distribution, and ventilation. Computer simulation of buildings and systems. Prerequisites: ME 431, ME 432.

ME 438 Energy Systems Laboratory (1-3)
2 hrs. Fall, Winter, Spring
Experimentation and theory verification in thermodynamics, fluids, and heat transfer including planning, testing, and computer analysis of data with report preparation. ME 436 and ME 437 are to be taken as prerequisite and corequisite to ME 460 in either combination. Prerequisites: ME 335, ME 431.

ME 437 Mechanical Systems Laboratory (1-3)
2 hrs. Fall, Winter, Spring
Experimentation and theory verification in solid mechanics and system dynamics including planning, testing, and computer analysis of data with report preparation. ME 436 and ME 437 are to be taken as prerequisite and corequisite to ME 460 in either combination. Prerequisites: ME 335, ME 365.

ME 438 Energy Systems Design (3 hrs.)
2 hrs. Fall, Winter, Spring
Application of energy concepts to thermal-fluids design problems. Open ended projects in incompressible and compressible flows, thermodynamics, heat transfer power generation, alternate energy systems, including computer simulations. Prerequisites: ME 356, ME 431, ME 432.

ME 440 Computer Applications in Engineering (3-0)
3 hrs. Fall
Application of computer methods in the solution of engineering problems. Methods covered include finite difference, finite element, and polynomial curve fitting. Prerequisite: Engineering student with senior class standing and knowledge of FORTRAN computer programming or consent of department.

ME 451 Design of Solar Systems (3-0)
3 hrs. Winter
Analysis of alternate energy options. Design of complete solar system including collector, storage, and controls. Economics and long-term performance of solar systems using computer-aided design programs. Prerequisites: ME 335.

ME 453 Machine Design II (2-3)
3 hrs. Fall, Winter, Spring
The application of mechanical engineering concepts to the mechanical synthesis process. Computer aided design, computer modeling, and optimization applied to the synthesis of a system. Prerequisites: ME 362, ME 365.

ME 454 Air Pollution Control Systems (3-0)
3 hrs. Winter—Odd Years
The nature of air pollution and the methods of monitoring and controlling emissions, sampling and analysis techniques and devices are studied. Prerequisite: PAPR 261 or equivalent.

ME 459 Mechanical Engineering Project Planning
1 hr. Fall, Winter, Spring
Selection of a design project to meet the Mechanical Engineering Departmental requirements in either the energy or the mechanical systems stem. Includes a formal project proposal, development of a bibliography and a time, material and equipment resource analysis. Prerequisites: ME 453 or ME 438. Concurrent enrollment in ME 453 or ME 438 will be allowed.

ME 460 Mechanical Engineering Project (1-6)
3 hrs. Fall, Winter. Course may be taken in the Spring with approval of Department Chair. To provide an engineering experience emphasizing an open-ended project design in either the energy or mechanical systems stem. Both formal written report and a public oral paper presentation are required. Concurrent enrollment in either ME 436 or ME 437 will be allowed. Prerequisites: ME 459, ME 438, ME 437, admission to the Mechanical Engineering program.

ME 490 Independent Research and Development
1-4 hrs. Fall, Winter, Spring
Individual research or special project. Available only by special arrangement with an instructor and approval by the department chair. Prerequisite: Consent of department.

ME 495 Topics in Mechanical Engineering: Variable Topics
1-4 hrs. Fall, Winter, Spring, Summer
A specialized course dealing with some particular area of mechanical engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of department.

ME 498 Independent Readings
1-6 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.

ME 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.

ME 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.

ME 553 Advanced Product Engineering (3-0)
3 hrs. Fall
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisites: ME 360, ME 453.

ME 558 Mechanical Vibrations (3-0)
3 hrs. Winter
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisites: ME 258, MATH 374.

ME 559 Machine Dynamics
3 hrs.
Static and dynamic force analysis of mechanisms such as linkage, cams, and shafts; dynamics of reciprocating engines, balancing, and spatial mechanisms. Prerequisite: ME 358.

ME 560 Engineering Analysis (3-0)
3 hrs. Fall
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: ME 360 or equivalent.

ME 561 Finite Element Method
3 hrs.
Weighted residual methods, finite element techniques in one-, two-, and three-dimensional problems of heat transfer, fluid flow, structures and elasticity, time dependent problems, higher order elements, and non-linear problems. Prerequisite: MATH 506 or equivalent.

ME 562 Application of Numerical Methods in Engineering
3 hrs.
Finite difference methods for initial value and boundary value problems 2D finite differencing, boundary element methods applications to differential equations of heat transfer, fluid flow, and solid mechanics. Prerequisite: MATH 506 or equivalent.

ME 571 Gas Dynamics
3 hrs.
Basic equations of compressible flow, isentropic relationships, and normal and oblique shock. Prandtl-Meyer expansion, Fanno line, and Rayleigh flow. Applications to nozzles, diffusers, and supersonic wind tunnels. Linearized flows, method of characteristics. Prerequisite: ME 431 and ME 432.

ME 572 Advanced Thermodynamics
3 hrs.
Topics including the conditions of equilibrium, process and thermodynamic engines, the extremum principle, Maxwell relations, stability of thermodynamic systems, phase transitions, chemical thermodynamics, irreversible thermodynamics, and an introduction to the statistical thermodynamics. Prerequisite: ME 431 and ME 432.

ME 573 Engineering Materials (3-0)
3 hrs. Spring—Even Years
Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures, and mechanical behavior of engineering alloys at high and low temperatures. Prerequisite: ET 257.
Paper Science
Bachelor of Science Degree

Requirements
Candidates for the Bachelor of Science degree must satisfy the following requirements in addition to University requirements listed elsewhere in this bulletin:

1. Students must earn a "C" or better grade in PAPR 203, 204, 261 and 306.
2. No more than two grades of "D" or "DC" in courses presented for graduation may be counted for graduation.
3. Complete the following program of 136 semester credit hours. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

First Semester—16 hours
MATH 122 Calculus I .................................. 4
CHEM 101 General Chemistry I ................... 4
CHEM 102 General Chemistry I ................... 4
PAPR 101 Lab Problems in Pulp and Paper Manufacturing ..... 4
PAPR 100 Introduction to Pulp and Paper Manufacturing ..... 4
COM 102 Technical Communication .............. 3
AREA I General Education* ......................... 3
PEGN Physical Education ........................ 1

Second Semester—16 hours
MATH 123 Calculus II ................................ 4
CHEM 120 General Chemistry II .................. 4
PAPR 105 Mechanics and Optics of Fiber Engineering 3
PAPR 104 Chemical Engineering 3
PAPR 365 Organic Chemistry I .................. 4
PAPR 366 Organic Chemistry II ................. 4
PAPR 367 Organic Chemistry III ................. 4
AREA II General Education* ....................... 3

Third Semester—18 hours
MATH 272 Vector and Multivariate Calculus ....... 4
PHYS 211 Electricity and Light ................... 4
PAPR 203 Pulp Manufacture ...................... 4
CHEM 222 Quantitative Analysis .................. 4
PHYS 210 Mechanics and Heat .................... 4
AREA I General Education* ....................... 3

Fourth Semester—18 hours
PAPR 305 Mechanics and Optics of Fiber Systems 4
PAPR 306 Process Engineering I .................. 4
PAPR 333 Chemistry of Wood and Pulp .......... 3
CHEM 360 Organic Chemistry I .................. 4
PAPR 440 Current Topics in Paper and Pulp ........ 1

Sixth Semester—17 hours
PAPR 307 Process Engineering II ................. 4
PAPR 342 Coating Processes ....................... 4
CHEM 361 Organic Chemistry II .................. 4
CHEM 362 Organic Chemistry III ................. 4
CHEM 363 Organic Chemistry IV .................. 4
CHEM 364 Organic Chemistry V .................. 4
PAPR 371 Introduction to Independent Research 1
AREA II General Education ....................... 3

Seventh Semester—17 hours
MATH 374 Introduction to Linear Algebra and Differential Equations 4
PAPR 310 Science/Engineering Experience ........ 1
PAPR 340 Converting Processes .................. 3
PAPR 470 Senior Thesis I ......................... 2
CHEM 343 Physical Chemistry I .................. 3
AREA IV General Education* ..................... 4

Eighth Semester—18 hours
PAPR 360 Printing Processes ..................... 2
PAPR 430 Polymer and Surface Chemistry .......... 3
PAPR 471 Senior Thesis II ......................... 3
CHEM 431 Physical Chemistry II .................. 3
CHEM 436 Physical Chemistry Lab ................ 2
Technical Elective** ................................ 5

* At least two of these courses must be at the 300-400 level.
** Technical-Professional Electives—5 hours

Paper Engineering
Bachelor of Science in Engineering (Paper) Degree
Admission
1. To be admitted to this Engineering curriculum, a student must complete all Pre-engineering requirements with grades of "C" or better. These requirements may be found in the beginning of the College of Engineering and Applied Sciences catalog. The Pre-engineering course requirements for this curriculum are in darker print in the schedule below.
2. Students seeking admission to this curriculum must submit an application following procedures established by the College of Engineering and Applied Sciences. Upper level transfer students may complete an application prior to their first semester of enrollment. Only students in good academic standing as defined by the University will be admitted to this curriculum.

Paper Engineering Program Requirements
Candidates for the Bachelor of Science in Engineering (paper) degree must satisfy the following requirements in addition to those required by Western Michigan University:

1. To satisfy professional engineering accreditation requirements, all students must complete a sequence of two courses (minimum of six credit hours in the humanities, fine arts, social sciences, and/or behavioral sciences. The sequence must conclude with a course at the 300-400 level. Both courses must have the same course prefix, must provide depth, and must not be a selection of unrelated introductory courses. The sequence may be selected from General Education Areas A, B, and/or IV as part of the University General Education requirements. If the University General Education requirements have been otherwise satisfied, the sequence may be selected from any of the humanities, fine arts, social sciences, and/or behavioral sciences.

2. Students must earn a "C" or better grade in PAPR 203, 204, 261 and 306. 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 selected and taken in entirety. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall. Pre-engineering requirements are in darker italic print.
First Semester—16 hours
MATH 122 Calculus I 4
CHEM 101 or 102 General Chemistry I 4
PAPR 100 Introduction to Pulp and Paper Manufacturing 3
CS 106 BASIC for Engineers 1
AREA I General Education* 3
PAPR 100 Introduction to Pulp and Paper "
CHEM 120 General Chemistry II 4
Second Semester—16 hours
MATH 122 Calculus I 4
CHEM 120 General Chemistry II 4
PAPR 101 Lab Problems in Pulp and Paper Manufacture 1
ECON 202 Principles of Economics 4
AREA I General Education* 3
ME 253 Statics and Mechanics of Materials 4
AREA II General Education* 3

Fourth Semester—18 hours
MATH 123 Calculus II 4
CS 105 Introduction to Computers 3
CHEM 120 General Chemistry II 4
PAPR 250 Lithographic Presswork 3
AREA I General Education* 3

Fifth Semester—17 hours
PAPR 253 Imaging 3
CHEM 365 Introduction to Organic Chemistry 4
Biological Science Elective 3
AREA I General Education* 3

Sixth Semester—16 hours
PAPR 254 Introduction to Flexography 3
CHEM 365 Introduction to Organic Chemistry 4
PAPR 353 Waste Water Treatment Systems 4
AREA I General Education* 3

Seventh Semester—17 hours
PAPR 354 Paper Industry Processes 3
MATH 374 Introduction to Linear Algebra and Differential Equations 4
CHEM 430 Physical Chemistry I 3
ME 253 Statics and Mechanics of Materials 4
AREA I General Education* 3

Eighth Semester—16 hours
PAPR 355 Computer Estimating 3
CHEM 430 Physical Chemistry I 3
PAPR 437 Technical Elective 3
AREA I General Education* 3

Printing Bachelor of Science Degree
Candidates for the Bachelor of Science Degree in Printing must satisfy all of the requirements of 127 hours of either the Marketing or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

MARKETING OPTION
First Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
AREA I General Education* 3

Second Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
Area I General Education* 3

Printing Bachelor of Science Degree
Candidates for the Bachelor of Science Degree in Printing must satisfy all of the requirements of 127 hours of either the Marketing or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

MARKETING OPTION
First Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
AREA I General Education* 3

Second Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
Area I General Education* 3

Printing Bachelor of Science Degree
Candidates for the Bachelor of Science Degree in Printing must satisfy all of the requirements of 127 hours of either the Marketing or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

MARKETING OPTION
First Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
AREA I General Education* 3

Second Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
Area I General Education* 3

Printing Bachelor of Science Degree
Candidates for the Bachelor of Science Degree in Printing must satisfy all of the requirements of 127 hours of either the Marketing or the Management Option. The schedule below is an example of one leading to graduation in eight semesters, beginning in fall.

MARKETING OPTION
First Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
AREA I General Education* 3

Second Semester—17 hours
MATH 116 Finite Mathematics 3
PAPR 150 Introduction to Graphic Arts 3
PAPR 154 Type and Layout 3
Area I General Education* 3

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.
Paper and Printing Science and Engineering Courses (PAPR)

Courses described in italics are approved for General Education. Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-lab hours).

**Second Semester—16 hours**

PAPR 253 Imaging **4**

CHEM 103 General Chemistry I **4**

PAPR 254 Introduction to Information Processing **3**

CS 105 Introduction to Computers **3**

**Third Semester—18 hours**

PAPR 150 Introduction to Industrial Environmental Control **3**

PAPR 340 Converting Processes **3**

PAPR 346 Prepress and Production Management **3**

AREA I General Education **3**

PAPR 258 Introduction to Flexography (2-3)

**Fourth Semester—16 hours**

PAPR 357 Color Separation Processes **3**

PAPR 358 Introduction to Fleyography **3**

ACTY 201 Accounting Concepts and Applications **3**

IE 305 Work Analysis **3**

ECON 202 Principles of Economics **3**

**Fifth Semester—15 hours**

PAPR 100 Introduction to Industrial Control **3**

PAPR 150 Introduction to Graphic Arts (2-3)

PAPR 204 Paper Manufacture (3-3, Alternate Weeks)

**Sixth Semester—15 hours**

PAPR 354 Paper Industry Processes **3**

PAPR 402 Supervision of Industrial Operations **3**

AREA II General Education **3**

AREA IV General Education **4**

**Seventh Semester—17 hours**

PAPR 359 Gravure Presswork **3**

PAPR 456 Prepress and Production Management **3**

IE 403 Industrial Labor Relations **3**

General Education Electives **8**

**Eighth Semester—14 hours**

PAPR 358 Flexographic Presswork **3**

PAPR 454 Advanced Lithographic Technology **3**

IE 322 Safety in Industry **3**

Approved Elective **2**

General Education Elective **3**

**Where judged appropriate by the department, an approved replacement course for PAPR 150 will be used.**

**At least two of these courses must be at the 300-400 level.**

**At least one course must be in the area of engineering principles.**

### PAPR 100 Introduction to Pulp and Paper Manufacture (2-3)

3 hrs. Fall

A lecture-laboratory consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student should acquire a basic understanding of the science and scope of the paper industry. Prerequisite: High school chemistry, CHEM 101 or CHEM 102 concurrent.

### PAPR 101 Laboratory Problems in Pulp and Paper Manufacture (Arr.)

1 hr. Winter

A continuation of the laboratory studies of PAPR 100. The student should acquire an understanding of the basic techniques and test procedures used in the pulp and paper industry and their significance. Prerequisite: PAPR 100.

### PAPR 102 Introduction to Pulp and Paper Manufacture (2-0)

2 hrs. Fall

A lecture consideration of the fundamentals of paper manufacturing processes and equipment. Some time will also be spent on coating, printing and other uses of paper. The student should acquire a basic understanding of the nature and scope of the paper industry. (Credit may not be earned in PAPR 102 by paper science and engineering department majors.) Prerequisite: High school chemistry, CHEM 101 or CHEM 102 concurrent.

### PAPR 150 Introduction to Graphic Arts (2-3)

3 hrs. Fall, Winter, Spring

An introductory course describing the printing industry. Work is undertaken in copy preparation, composition, photocopy, presswork, and bindery. A comparison of all printing methods will be included. Lithography and screen process printing will be stressed.

### PAPR 151 Typographic Layout and Design (2-3)

3 hrs. Fall

The principles of design and typography are studied and applied to the completion of a printed job. Practical experience in the elements of design, tools, and methods used by the graphic artist are included. Prerequisite: PAPR 150 concurrent.

### PAPR 157 Line and Halftone Photography (2-3)

3 hrs. Fall

The fundamentals of black and white reproduction photography will be stressed. Line and halftone information and laboratory experience will include photosensitive materials, lenses and light, copy selection and preparation, camera and processing techniques, densitometry and exposure calculation devices. Prerequisite: PAPR 150.

### PAPR 160 Introduction to Industrial Environmental Control (3-0)

3 hrs. Winter

Designed for non-science majors to present the major concepts and tools of environmental control as they relate to industrial and municipal air, water, and solid waste problems. Topics covered include the nature and effects of pollution, reduction of effluents, processes of treatment, measuring of characteristics, governmental regulations, and economics.

### PAPR 203 Pulp Manufacture (3-3, Alternate Weeks)

4 hrs. Fall

An advanced study of the processes involved in the production of papermaking fibers. Areas covered include wood yard operations, pulping, bleaching, stock preparation, chemical recovery, and alternate fiber sources. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises and field trips. Prerequisites: PAPR 100 or PAPR 354, CHEM 101 or CHEM 102.

### PAPR 204 Paper Manufacture (3-3, Alternate Weeks)

4 hrs. Winter

An advanced study of the processes involved in the formation, consolidation, and drying of a web of paper. Areas covered include refining, fourdriner and multi-ply operation, pressing and drying, internal and surface treatment of the paper is discussed along with the effects of additives and fiber types. Analysis is made using chemical, physical, and engineering principles. Lectures are augmented by laboratory exercises, pilot plant operation, and field trips. Prerequisite: PAPR 100.

### PAPR 250 Lithographic Presswork (2-3)

3 hrs. Fall, Winter

Experience will be given on basic offset equipment regarding lithographic principles, press operations, mechanical adjustments, simple chemical reactions, as well as the advantages and disadvantages of lithography. Other areas to be studied are multi-color processes, inks, and papers. Prerequisite: PAPR 150.

### PAPR 251 Computer Typesetting (2-3)

3 hrs. Fall, Winter

A study of computerized typesetting. Advantages, limitations, and operations of photo composition methods and equipment will be stressed. Economic and planning implications of the composition area will also be explored. Prerequisites: PAPR 150, BS 102, or CS 105.

### PAPR 253 Imaging (2-3)

3 hrs. Winter

Emphasis will be placed on determining correct page impositions. Register requirements, step and repeat procedures, color stripping, proofing and other related skills will be covered. Lithographic platemaking and processes will be emphasized. Prerequisite: PAPR 157.

### PAPR 255 Introduction to Flexography (3-0)

3 hrs. Winter

A study of the flexographic printing process focusing on the process, application, technology, and hardware. Prerequisite: PAPR 150.

### PAPR 259 Introduction to Gravure Printing (3-0)

3 hrs. Fall

A study of gravure printing focusing on the process, application, technology, and hardware. Prerequisite: PAPR 150.

### PAPR 261 Industrial Environmental Engineering (3-0)

3 hrs. Winter

The effects, regulations, and control processes for gas, liquid, and solid by-products of industries and municipalities are discussed. Legal and economic implications will be included in evaluation of applicable emission reduction and control techniques or processes. Prerequisites: CHEM 101 or CHEM 102, PHYS 210.

### PAPR 306 Paper Physics (3-3)

4 hrs. Fall

Lecture and laboratory study of the fundamental properties of fibers and fiber systems. Theories and techniques for evaluating paper properties are discussed. Subjects include mechanical strength testing, stress-strain behavior of fiber systems, basics of color measurement and light scattering, and the use of the Kubelka-Munk Theory. Prerequisite: PAPR 204, IE 261, or MATH 384.
4 hrs. Fall
Fundamentals of chemical engineering dealing with behavior of gases, thermophysical properties of gases, liquids and solids, thermochemistry, and associated problem solving. Emphasis is on mass and energy balances. The laboratory period is utilized as a problem solving workshop. Prerequisites: CHEM 101 or CHEM 102, MATH 123, PHYS 210.

PAPR 307 Process Engineering II (3-3)
4 hrs. Winter
A continuation of 306 dealing with the unit operations of chemical engineering in the areas of fluid mechanics and heat transfer. Emphasis is on principles and equipment design and application. 3 hrs. of laboratory time are devoted to problem solving and equipment design. Prerequisite: PAPR 306.

PAPR 310 Science/Engineering Experience (1 hr.)
1 hr. Fall
Full-time employment in a pulp, paper, printing, or related industry that provides first-hand experience in a job capacity directly related to the student’s major. A written report is required. Departmental consent is required. Open only to department majors. Prerequisite: Junior standing.

PAPR 333 Chemistry of Wood and Pulp (3-0)
3 hrs. Fall
Consideration of the chemistry of wood, pulp, and pulping by-products. Included topics are cellulose, lignin, accessory carbohydrates, extractives, and spent liquor utilization. Prerequisite: PAPR 203.

PAPR 340 Converting Processes (2-3)
3 hrs. Fall
Covers the machinery and processes involved in the converting of paper and board. Also covered will be the application of the principles of materials handling and process flow to design and operation of the converting plant. Laboratory time will be devoted to converting plant visits and evaluation techniques. Prerequisite: PAPR 204.

PAPR 342 Coating Processes (3-3)
4 hrs. Winter
A lecture/lab course dealing with the fundamentals of pigmented and functional coating of paper and board. Coating rheology, evaluation of coated paper, and the performance of paper in the graphic arts will also be covered. Prerequisite: PAPR 305.

PAPR 350 Water Quality and Microbiology (2-3)
3 hrs. Fall
A study of the physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. Prerequisite: CHEM 101 or CHEM 102.

PAPR 351 Water Quality and Microbiology (2-0)
2 hrs. Fall
A discussion of the physical, chemical, and biological characteristics of water. Topics stressed include hydrology, treatment of water, water quality, governmental regulations, evaluation, and the microbiology of water. (This is a non-laboratory course offered for adult education. Credit may not be earned in PAPR 351 by paper science or paper engineering majors.)

PAPR 352 Fiber Resource Conservation and Recycling (2-3)
3 hrs. Winter
Consideration of the recovery of waste paper and other fiber sources for use in the manufacture of fiber products. Topics include waste fiber collection, contaminant removal, in-plant reuse, effect on the processes and the products, and the economics involved. Prerequisite: PAPR 203.

PAPR 353 Wastewater Treatment Systems (3-3)
4 hrs. Winter
A study of the fundamental principles, design considerations, and use of the unit processes and operations employed in waste water treatment. Physical, physiochemical, and biological treatments are considered. Prerequisite: PAPR 350.

PAPR 354 Paper Industry Processes (2-3)
3 hrs. Winter
Offered primarily for students in graphic arts and printing management/marketing programs in order to provide a basic understanding of the major aspects of the science and technology of pulping, paper making, coating, and evaluation of materials, especially as they relate to printing. Prerequisites: CHEM 103, and junior standing.

PAPR 357 Color Separation Processes (2-3)
3 hrs. Winter
An analysis of various production color separation techniques, color correction, under color removal, and color proofing system. Color theory, masking systems, direct and indirect separations, and electronic scanner techniques will be investigated. Prerequisite: PAPR 157.

PAPR 358 Flexographic Presswork (2-3)
3 hrs. Winter
A lecture/lab course which will emphasize rubber and photopolymer plate manufacture, mounting and proofing, water and solvent inks, substrates, and flexographic press operation. Prerequisite: PAPR 258.

PAPR 359 Gravure Presswork (2-3)
3 hrs. Fall
This lecture/lab course will emphasize traditional cylinder manufacturing, proofing and gravure press operation. Press components, register controls, ink variables, doctor blades, and electrocast will be stressed. Prerequisite: PAPR 259.

PAPR 360 Printing Processes (1-3)
2 hrs. Winter
A course designed to provide Paper Science and Engineering students with a working knowledge of the various printing processes and their relationship to performance factors of paper. Prerequisite: PAPR 325 or PAPR 335 majors only.

PAPR 362 Estimating (3-0)
3 hrs. Fall
Study of methods used in estimating the price of printed matter before manufacture and in the final pricing of that printed matter. Prerequisite: Junior standing.

PAPR 371 Introduction to Independent Research (1-0)
1 hr. Fall, Winter
Methods of approaching and planning independent research will be discussed. Familiarity with problems which may be encountered will be gained by attendance at the senior seminars. At the end of the course, the student will have selected a senior thesis or problem topic and an adviser. Prerequisite: Junior standing.

PAPR 430 Polymer and Surface Chemistry (3-0)
3 hrs. Winter
Molecular, bulk, and solution properties of high molecular weight compounds and their characterization. Structure and properties of colloids and other surfaces are related to absorption, wetting, detergent, and adhesion behavior. Prerequisite: CHEM 361 or CHEM 365.

PAPR 440 Current Topics in Pulp and Paper (1.5-0)
1 hr. Fall, Winter
This course will be based 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 standing. Concurrent registration with PAPR 470, PAPR 471, PAPR 472, or PAPR 473 will not be allowed. Prerequisite: Junior standing.

PAPR 450 Solid Waste Treatment (2-3)
3 hrs. Fall
Offered primarily for students in graphic arts and printing management/marketing programs in order to provide a basic understanding of the major aspects of the science and technology of pulping, paper making, coating, and evaluation of materials, especially as they relate to printing. Prerequisites: CHEM 103, and junior standing.

PAPR 451 Air Pollution Control (2-3)
3 hrs. Fall
The origins, effects, measurement and control of air pollution are examined. Credit may not be earned in PAPR 250, CHEM 103.

PAPR 452 Computer Estimating (2-0)
2 hrs. Winter
A study of methods used in estimating the price of printed materials before manufacture and in the final pricing of that printed matter. Marketing estimating systems and techniques will be used in a lab setting. Prerequisite: PAPR 362.

PAPR 454 Advanced Lithographic Technology (2-3)
3 hrs. Fall
Provides the student with practical problems in press setup. Emphasizes plate imaging, register controls, inks, substrates, and litho press systems. Folding operations are also included. Prerequisites: PAPR 250, CHEM 103.

PAPR 460 Pulp and Paper Process Design (3-3)
4 hrs. Winter
The design and operational factors of the unit processes and operations used in the pulping and paper industry and its subsystems stressing operating efficiencies from the engineering viewpoint are considered. Includes material and energy balances, power distribution, evaluation of equipment performance, and environmental concern. Prerequisites: PAPR 203, PAPR 204, PAPR 261, PAPR 307.

PAPR 462 Computer Estimating (2-0)
2 hrs. Winter
A study of methods used in estimating the price of printed materials before manufacture and in the final pricing of that printed matter. Marketing estimating systems and techniques will be used in a lab setting. Prerequisite: PAPR 362.

PAPR 464 Modern Printing Practices (2-0)
2 hrs. Winter
Study, development, application of printing management/marketing production practices. Technical short courses offered by production and service industries may be utilized. May be elected in two hour blocks to a maximum of six hours. Prerequisite: Junior standing.

PAPR 466 Printing Production Management (3-0)
3 hrs. Fall
Managerial procedures used in printing industry to forecast, plan, schedule, and record production to control production costs. Hourly costs of printing machines will be developed by students. Prerequisite: Junior standing.

PAPR 470 Senior Thesis (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 project. Weekly participation at student-staff
seminars and participation at PAPP 440, current topics, is required. Prerequisites: PAPP 371, paper science major.

PAPP 471 Senior Thesis (I-0-6 Min.)
3 hrs. Fall, Winter
A continuation of PAPP 470, including completion of laboratory work and preparation of a final formal report. An oral presentation will be given. Weekly participation at student-staff seminars and participation at PAPP 440, current topics, is required. Prerequisites: PAPP 470.

PAPP 472 Senior Engineering Problem I (0-4 Min.)
2 hrs. Fall, Winter
This course is intended to increase the ability of an engineering student to analyze and solve a design problem. An individual adviser will be assigned. The student will analyze a problem, design an experimental investigation as needed, and present a completed program in both written and oral form. Weekly participation at student-staff seminars and participation at PAPP 440, current topics, are required. Prerequisites: PAPP 371, paper engineering major.

PAPP 473 Senior Engineering Problem II (0-6 Min.)
3 hrs. Fall, Winter
A continuation of PAPP 472, including completion of laboratory or design work and preparation of a final report. A formal oral presentation will be given. Weekly participation at student-staff seminars and participation at PAPP 440, current topics, are required. Prerequisites: PAPP 472.

PAPP 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, controllers, and control valves. Prerequisites: CHEM 101 or 102 or CHEM 103, MATH 123, PHYS 211.

PAPP 482 Application of Control Systems (3-0)
3 hrs. Winter
The use of instrument systems and digital computers to control pulping and papermaking processes. Deals with the design of combination control systems, digital computer components, and computer control strategies in the paper industry. Prerequisite: PAPP 481.

PAPP 495 Topics in Paper and Printing 1-4 hrs.
A special course dealing in some particular subject of interest in pulp and paper and/or printing. May be repeated for credit with different topics. Prerequisite: Permission of instructor.

PAPP 499 Independent Studies 1-4 hrs. Fall, Winter, Spring, Summer
Offers paper science and engineering majors with good scholastic records a program of independent study in an area arranged in consultation with the instructor. One to three hours credit per semester, cumulative to six hours.

VOCATIONAL EDUCATION

Jack T. Humbert, Coordinator

Bachelor of Science Degree

The vocational education teaching curriculum (VET) prepares students to qualify as vocational education teachers in Michigan area skill Centers and secondary institutions in selected subject areas of vocational education under the provisions of the Michigan State Plan for Vocational Education. Areas of vocational education that may be selected by a student are business education, distributive education, home economics, vocational technical education, and health occupations.

Industrial Education Teaching Curriculum (ET) differs slightly in professional education course requirements as noted in the Industrial Education Teaching Curriculum requirements located earlier in the Department of Consumer Resources and Technology section.

Vocational Advising

An adviser is available to assist in individual program planning, recommend electives appropriate to the career objective of a vocational teacher, discuss employment opportunities, and help find teaching positions. Substitutions and transfer credit must be approved by departmental vocational advisers. Vocational advisers by area are:

MAJORS
Secondary Education in Marketing
Home Economics
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

MINORS
Distributive Education
Occupational Foods
Vocational Technical Areas (Drafting, Graphic Arts, Metalworking, Power/Auto, and Woodworking)

VOCATIONAL CERTIFICATION IN BUSINESS
Information about vocational certification to teach business or business education courses may be obtained by contacting a Haworth College of Business adviser at 383-3982.

Vocational Educational Teaching Curriculum

Requirements
Candidates for the Bachelor of Science degree in 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
D. Choose one of the following three major sequences:

1. Secondary Education in Marketing—33 hours
(4,000 work hours required; may necessitate internship or work experience)
CRT 100 Food Distribution Industry 
CRT 105 Intro. to Petroleum Industry
ECON 201 Principles of Economics (Micro)
ACTY 210 Principles of Accounting

2. Home Economics Education—36 hours
CRT 205 Consumer Education
CRT 214 Human Growth and Development
CRT 260 Nutrition
CRT 415 Effective Parenting
VE 542 Occupational Education

3. Vocational Technical—30 hours
Technical course sequence is planned in consultation with an adviser in one of the following areas: drafting, graphic arts, metalworking, power/auto, woodworking. (4,000 work hours required; may necessitate internship or work experience.)

D. TEACHABLE MINOR—20 hours

E. PROFESSIONAL VOCATIONAL EDUCATION—12 hours
VE 342 Course Planning and Construction
VE 344 Teaching Practical Arts and Vocational Education
VE 512 Principles of Vocational Education
VE 543 Coordination Techniques in Cooperative Education

F. PROFESSIONAL TEACHER EDUCATION—20 hours
CRT 214 Human Growth and Development
ED 301 Teaching and Learning (Secondary)
ED 322 The Teaching of Reading (Secondary)
ED 410 Seminar in Education
ED 475 Directed Teaching (Secondary)

G. ELECTIVES—Based on MAJOR SEQUENCE requirements

H. PHYSICAL EDUCATION—2 hours

Vocational Minors

SECONDARY EDUCATION IN MARKETING—24 hours
(4,000 work hours required; may necessitate an internship or work experience.)
CRT 130 Food Distribution Industry
CRT 135 Introduction to Petroleum Industry
CRT 320 Visual Merchandising
MKTG 370 Marketing
MKTG 374 Advertising
VE 342 Course Planning and Construction OR
VE 344 Teaching Practical Arts and Vocational Education
VE 512 Principles of Vocational Education
VE 543 Coordination Techniques in Cooperative Education

FOOD OCCUPATIONS—24 hours
See Food Occupations Minor adviser in the Department of Consumer Resources and Technology in the College of Engineering and Applied Sciences for course requirements and work hours required.
VOCATIONAL TECHNICAL — 20 hours
See the appropriate adviser for planning courses in the areas of drafting, graphic arts, metalworking, power/automotives, and woodworking.

Majors in non-vocational teacher preparation programs may earn vocational certification by completing one of the foregoing vocational minor sequences in consultation with the appropriate adviser.

**Vocational Education Courses (VE)**

Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours-laboratory hours).

**VE 342 Course Planning and Construction (3-0)**
3 hrs. Fall, Winter
Principles of analyzing, selecting, and arranging instructional materials for instruction purposes. Lesson plans, unit plans, and complete courses of study are included.

**VE 344 Teaching Practical Arts and Vocational Education (3-0)**
3 hrs. Fall, Winter
Covers all aspects of teaching unique to practical subject laboratory instruction. Included are the teacher’s role, laboratory instruction material, laboratory teaching methods, evaluation techniques, and laboratory administration and management.

**VE 512 Principles of Vocational Education (3-0)**
3 hrs. Fall
The place and function of the practical arts and vocational education in the modern school and the fundamental principles upon which this work is based. For teachers of business, distributive education, home economics, industrial subjects, office subjects, and for administrators. For upperclass and graduate students.

**VE 513 Technical Education Methods (3-0)**
3 hrs.

**VE 514 Workshop in Vocational-Technical Education**
1-3 hrs.
Designed to assist vocational education personnel meet vocational education program standards of quality mandated by the vocational-technical education service. Workshop topics will vary to meet vocational education personnel needs. Students may enroll for more than one topic, but in each topic only once, to a maximum of three hours credit. Prerequisite: Vocational certification or consent.

**VE 542 Occupational Education (2-0)**
2 hrs. Summer
Planning for wage earning programs at the secondary and adult levels.

**VE 543 Coordination Techniques in Cooperative Education (3-0)**
3 hrs. Winter
This is a study of duties and responsibilities of the teacher-coordinator. The organization and establishment of training programs, supervision of trainees on the job, development of individual training programs, establishing working relationships between school, business, and home, and participation in activities in the community, especially adapted to prospective coordinators.
The College of Fine Arts offers a variety of curricula and subjects in the principal interest areas of the visual and performing arts. Three undergraduate degrees in art are offered: Bachelor of Science and Bachelor of Arts majoring in Art, and a Bachelor of Fine Arts in one of the following areas of emphasis: sculpture, ceramics, graphic design, printmaking, photography, jewelry and metalsmithing, painting, and 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 Fine Arts in Dance, Bachelor of Science in Dance, and Bachelor of Arts in Dance. The Department of Dance participates with the School of Music and Department of Theatre in offering the music theatre performer program.

Three undergraduate degree programs in music are available: Bachelor of Music with majors in music performance, composition, jazz studies, music education, music history, music theory, and music therapy; Bachelor of Science with a major in music and a minor in elementary education, and Bachelor of Arts with a major in music and a minor in one of the departments in the College of Arts and Sciences. Teacher certification is earned in the music education and elementary education programs. The School of Music participates with other University departments in offering a music theatre performer degree. Theatre programs lead to the Bachelor of Arts and Bachelor of Science degrees, both of which provide the option to earn certification to teach theatre at the secondary level. The department also participates with other University departments in offering a music theatre performer program, and a theatre-as-an-elective option.

Students are encouraged to inquire about curricular combinations not listed specifically in the catalog.

In the belief that arts understanding, involvement, and appreciation are an important part of liberal education, the College of Fine Arts offers many opportunities for the non-arts major to participate in applied, theoretical, and appreciational curricular and co-curricular activities, such as general art and art history courses, dance, musical ensembles, and theatre productions.

The following list of designated courses may be used to fulfill the 70 hour requirement for the Bachelor of Arts degree:

**ART**
103 Theory of Art
120 Introduction to Art
220 History of Art
221 History of Art
520 Independent Study in Art History
521 Topics in Art History
581 History of Ancient Art
583 History of Medieval Art
585 History of Renaissance Art

586 History of Baroque Art
588 History of 19th Century Art
589 History of 20th Century Art 1900-1945
590 History of 20th Century Art 1945 to Present
591 History of Prints
593 History of American Art
597 History of Modern Architecture

**DANCE**
140 Dance History I
240 Dance History II

**MUSIC**
160 Basic Music
161 Basic Music
260 Basic Music
261 Basic Music: 20th Century Techniques
270 Music History and Literature
271 Music History and Literature
360 Style Analysis
572 Baroque Music (1600-1750)
573 Classical Music (1750-1800)
574 Romantic Music (1800-1910)
577 Symphonic Literature
578 Chamber Music Literature
579 Operatic Literature
581 Choral Music Literature
583 Jazz History and Literature

**THEATRE**
100 Introduction to Theatre
170 Script Analysis
370 Theatre History I
371 Theatre History II
470 Development of Theatre Art

**Interdisciplinary Program**

**Music Theatre Performer**

Bachelor of Fine Arts Degree
81 credit hours

**REQUIRED COURSES IN MUSIC**

**THEATRE—17 hrs.**

THEA 272 Music Theatre Script Analysis and Critique (Prereq: Adviser consent) (3)
MUS 395 Performance Development and Technique (Prereq: Adviser consent) (3)
DANC 495 Performance Workshop (Prereq: MUS 395, 4 semesters, 2 hrs. ea.) (8)

**REQUIRED COURSES IN DANCE—10 hrs.**

DANC 101 Beginning Ballet I (1)
DANC 102 Beginning Jazz (1)
DANC 103 Beginning Modern I (must take fall semester of freshman year) (1)
DANC 104 Beginning Tap I (1)
DANC 106 Recreational Dance (1)
DANC 111 Beginning Ballet II (Prereq: DANC 101) (1)
DANC 112 Beginning Jazz II (Prereq: DANC 102) (1)
DANC 113 Beginning Modern II (Prereq: DANC 103) (1)
DANC 120 Jazz Technique I (Prereq: Adviser consent) (2)

REQUIRED COURSES IN MUSIC—20 hrs.
MUS 115 Voice Technique I (2)
MUS 116 Voice Technique II (2)
MUS 120 Keyboard Fundamentals (1)
MUS 121 Keyboard Fundamentals (Prereq: MUS 120) (1)
MUS 160 Basic Music (Prereq: MUS 159) (3)
MUS 162 Aural Comprehension (Prereq: MUS 159) (1)
MUS 163 Aural Comprehension (Prereq: MUS 162, "C" or better) (1)
MUS 199 Applied Voice (Prereq: Audition—4 semesters 2 hrs. ea.) (8)
MUS 220 Keyboard Musicianship (Prereq: MUS 121; "C" or better) (1)

REQUIRED COURSES IN THEATRE—24 hrs.
THEA 125 Stagecraft I (Prereq: THEA 120) (3)
THEA 141 Improvisation (Prereq: Sophomore standing) (3)
THEA 142 Acting I (3)
THEA 230 Stage Make-up (3)
THEA 341 Acting II (3)
THEA 351 Directing I (Prereq: THEA 120, 140, Junior standing) (3)
Six (6) hours of Theatre credit are required with consent of adviser.

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. All music theatre majors must audition for at least one staff-directed musical comedy, opera, or operaetta each year.

ART
Phillip Vander Weg Chair
Jerry Abramson
T.D. Argyropoulos
John M Carney
Joseph V. DeLuca
Kathryn Field
Gordon J. Grinwis
Edward Harkness
Tricia Hennessy
Richard J. Keaveny
Donald E. King
John Link
Paul S. Mergen
John M. Mathaney
Bruce Naffel
Mary Eleanor Neu
Barbara Rensenhouse
Curtis A. Rhodes
John Reiben
Louis B. M. Rizzolo
Paul A. Robbert

The Department of Art offers many programs with various purposes and objectives. These are described under the heading of each program.

The department is accredited by the National Association of Schools of Art and Design and subscribes to the recommendations of this organization.

The various programs are designed to promote the education of good artists and artists-teachers and to increase artistic awareness among students in other areas. Extracurricular activities include many exhibitions, lectures by visiting artists, a student-operated gallery, and studios for advanced BFA candidates. There are approximately 420 undergraduate and 25 graduate art majors active during the academic year. Approximately 90 art degrees are awarded annually.

Programs
The Department of Art offers programs leading to the following three degrees: Bachelor of Fine Arts with a emphasis in one of the areas of the department; Bachelor of Arts or Bachelor of Science with a major in art; Bachelor of Science with a major in art teaching. All three programs are within the art curriculum, which is composed of the General Education requirements of the University and the art major requirements of the B.A., B.S., or B.F.A. degrees.

The Department of Art also offers courses for students in other areas including non-art major courses in Drawing, Acrylic Painting, Printmaking, Sculpture, Ceramics, Jewelry, and Watercolor. Two programs satisfying the minor requirements of other curricula are also offered. For specific information see the description of each program.

Transfer Credit
Transfer credit may be used to fulfill no more than half the number of credit hours required for the students Art major or minor. Art credits earned at a college accredited by the National Association of Schools of Art and Design, or a regionally recognized accrediting agency, in which a grade of "C" or better is earned, will transfer in most cases. Many beginning level art courses will transfer with direct WMU course equivalents. Some beginning and most intermediate level courses will receive general "art credit".

If you receive general art credit for any course you feel would fulfill a required art course, or for any course needed to fulfill a prerequisite for a course you wish to take, you must present a portfolio for consideration. Based on the results of this portfolio review, the course in question will either receive a direct course equivalent number or remain general art credit. General art credits can be used to fulfill the art elective category or be used as electives you may need to complete the minimum number of hours needed for graduation (122).

If you do not wish to show a portfolio for any courses in which you have received general "art credit", you do not have to do so. These credits will automatically be used as electives wherever needed.

For portfolio guidelines please write to: Screening Committee, Department of Art, Western Michigan University, Kalamazoo, MI 49008, or call (616) 387-2440.

Advising
All art majors and minors are required to see an art adviser as soon as they are on campus and at least once each Fall and Winter semester thereafter. To make an appointment please call (616) 387-2440.

Miscellaneous
Grading
Art majors and minors receiving a grade below a "C" in a required course must repeat the course.

Exhibition Requirement
Each Bachelor of Fine Arts major must present a graduating exhibition as stated in Art 490-497 in the B.F.A. degree requirements. The B.F.A. candidate is to arrange such an exhibition in consultation with their major adviser. The Department of Art may retain one work of art from each student for the departmental collection. B.F.A. candidates must submit to the department a minimum of two sets of 18 slides of their art work before receiving a grade for their graduation presentation.

Studios
Advanced undergraduates are occasionally given studios. All other students may work in the regular classroom studios at night and on Saturdays. The department and its instructors cannot be responsible for student work left in studios after the end of each semester or term. Studio classes are usually limited to 15 to 20 students.

Programs
Bachelor of Fine Arts Degree
85 credit hours

This degree is designed for qualified students who intend to become professional artists or pursue graduate study in art. Art majors must make specific application to the departmental committee for admission to B.F.A. candidacy in a specific area of emphasis after completing 30 hours in art, one semester residency in the department, and at or above the 300 level in the area they are applying to.

Areas of emphasis: ceramics, graphic design, jewelry and metalsmithing, painting/watercolor, photography, printmaking, and sculpture. Art teaching students must complete the requirements of one of the studio areas of emphasis in addition to the certification
The requirements of the College of Education and the art education sequence in the Art Department: ART 252, 352, 452, and 552. The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Eighty-five hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Major and minor requirements of this curriculum</td>
<td>64 credit hours</td>
</tr>
<tr>
<td>This program is designed for the liberal arts-oriented students who want to major in the visual arts. It provides maximum flexibility in terms of electives in art and non-art courses. Professionally oriented art students may start in this program and apply for admission to the B.F.A. program when eligible. Areas of studio emphasis for this program include: ceramics, graphic design, jewelry and metalsmithing, painting/watercolor, photography, printmaking, and sculpture. The requirements of the art curriculum of the College of Fine Arts have to be satisfied. Sixty-four hours in art satisfy both the major and the minor requirements of this curriculum and are distributed as follows:</td>
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<td>9 hours in the basic program (101, 102, 103)</td>
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<td>6 hours in Fine Arts (231, 240)</td>
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<tr>
<td>18 hours in Art History, including 220 and 221</td>
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<tr>
<td>6 hours in Advanced Drawing (210, 310)</td>
<td>6 credit hours</td>
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<tr>
<td>12 hours in one area of emphasis</td>
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<tr>
<td>21 hours in the studio area of emphasis</td>
<td>21 credit hours</td>
</tr>
<tr>
<td>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 slides is necessary for the granting of the B.F.A. degree.</td>
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<td>Art Major</td>
<td>64 credit hours</td>
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<tr>
<td>Bachelor of Arts or Bachelor of Science</td>
<td>64 credit hours</td>
</tr>
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<td>Art Minor</td>
<td>24 credit hours</td>
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<td>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 pre-plan 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.</td>
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<td>Art History Minor</td>
<td>18 credit hours</td>
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<td>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.</td>
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<td>Art Courses for Non-Art Majors or Minors</td>
<td>24 credit hours</td>
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<td>Elementary education majors are advised to take ART 130, 140, or 150, except for those students in the integrated creative arts minor, who are required to take ART 200. Any course with no prerequisites may be taken by non-art students. Those seeking a broadly inclusive studio experience in art are advised to take ART 130 and/or 140. Further recommended courses in specific media for non-art majors include Drawing, Acrylic Painting, Printmaking, Sculpture, Ceramics, Jewelry, and Watercolor. The Art Survey 210, ART 130, 140, and Art History 220 and 221 are open with no prerequisites to non-art majors and can satisfy the humanities requirements of General Education.</td>
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<tr>
<td>Basic Program</td>
<td>3 credit hours</td>
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<td>Courses required of all majors and minors in art as prerequisites to other advanced courses.</td>
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<tr>
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<td>3 credit hours</td>
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<td>102 Foundation 2D Design</td>
<td>3 credit hours</td>
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<td>103 Theory of Art</td>
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<td>Major</td>
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<td>Art Teaching Major</td>
<td>61 credit hours</td>
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<tr>
<td>Bachelor of Science</td>
<td>61 credit hours</td>
</tr>
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<td>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 metalsmithing, painting/watercolor, photography, printmaking, and sculpture. The requirements of the secondary curriculum of the College of Education must be satisfied. Sixty-one credit hours in art satisfy the major and minor requirements of this curriculum and are distributed as follows: 10 hours in the basic program (101, 102, 103) 6 hours in Fine Arts (231, 240) 3 hours in Advanced Drawing (210) 9 hours in Art History (220, 221, elective) 12 hours in Art Education (252, 352, 452, 552) 12 hours in one area of concentration 10 hours in elective art courses, determined in consultation with the art adviser. Art teaching courses (252, 352, 452, 552) must be taken in sequence and may not be taken concurrently. Therefore, Art Teaching majors must enroll in Art 252 in the fall semester of the sophomore year and continue taking one art education course, in sequence, in each subsequent semester. This is necessary in order to complete the directed teaching in the senior year and complete the degree in a four-year span. One semester of directed teaching in art, preferably in both elementary and secondary situations, is required.</td>
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<td>(Course descriptions in italics are approved for General Education purposes.)</td>
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</tbody>
</table>
ART 201 Non Art Major: Drawing 3 hrs.
The course is a non-professional enrichment experience in basic drawing. The course objectives are to 1) 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 expressive use of the medium. Not applicable to art majors or minors.

ART 202 Non-Art Major: Acrylic Painting 3 hrs.
The course is a non-professional enrichment experience in basic acrylic painting. The course objectives are 1) to develop a basic understanding of color and composition, 2) to learn the fundamental techniques of application for acrylic paint, and 3) to develop a personal expressive use of the medium. Not applicable to art majors or minors.

ART 203 Non Art Major: Printmaking 3 hrs.
The course is a non-professional enrichment experience in basic Printmaking. The course objective is to learn the fundamental techniques of etching, lithography, and block printing. Studio time will be provided for students to work on a project in each of these media. A class fee will be charged to cover the cost of materials and supplies. Not applicable to art majors or minors.

ART 205 Non Art Major: Sculpture 3 hrs.
The course is a non-professional enrichment experience in Basic Sculpture. The course objectives are 1) to learn basic techniques of clay modeling and plaster casting, and 2) to develop personal expression in these media. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 206 Non Art Major: Ceramics 3 hrs.
The course is a non-professional enrichment experience in basic Ceramics. The course objectives are 1) to learn the fundamentals of Ceramics construction, including coil building, and limits of clay as a material. A class fee will be charged for clay and glaze supplies. Not applicable to art majors or minors.

ART 207 Non Art Major: Jewelry 3 hrs.
The course is a non-professional enrichment experience in basic Jewelry. The course objectives are 1) to learn the proper use of metal-making tools and equipment, 2) to learn the basic techniques of making hand-wrought jewelry, and 3) to develop an awareness of the technical and creative range of metal as a medium for body decoration. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 208 Non Art Major: Watercolor 3 hrs.
The course is a non-professional enrichment experience in basic Watercolor. The course objectives are 1) to learn the proper use of watercolor brushes and tools, 2) to learn basic techniques for manipulating watercolor, and 3) to understand presentation models for finished watercolor paintings. A class fee will be charged for materials and information handouts. Not applicable to art majors or minors.

ART 209 Non Art Major: Textile Arts 3 hrs.
The course is a non-professional enrichment experience in basic Textiles. The course objectives are 1) to learn fundamental on and off loom textile construction techniques, and 2) to explore other related techniques such as macrame, hooking, quilting, felting, and dyeing. A class fee will be charged for materials and supplies. Not applicable to art majors or minors.

ART 210 Life Drawing 3 hrs.
The study of the essential aspects of life drawing (such as gesture, contour, proportions, anatomy, structure, and articulation) and their synthesis into a coherent drawing attitude. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 220 History of Art 3 hrs.
An historical survey of art from prehistoric ages to the Renaissance. Prerequisite: ART 101, ART 102, ART 103 and ART 231, or ART 231 concurrently.

ART 230 Ceramics 3 hrs.
A course devoted to a survey of pottery processes, including hand-building, technical information and a limited experience with the potter's wheel. Prerequisite: ART 101, ART 102, ART 103 and ART 231, or ART 231 concurrently.

ART 231 Sculpture 3 hrs.
A fundamental course in sculpture exploring the theories and concepts of three-dimensional art forms in space. Mechanical, structural, and compositional principles will be studied. An overview of historical sculpture forms will be presented. Prerequisites: ART 101, ART 102, and ART 103.

ART 234 Textile Design 3 hrs.
An introductory survey of textiles to include weaving, spinning, stitching, hooking, macrame, silk screen printing, tie-dye and batik. Prerequisite: ART 101, ART 102, ART 103 and ART 231, or ART 231 concurrently.

ART 238 Jewelry and Metal Smithing 3 hrs.
A survey of jewelry projects with instruction in design and metal craft. Copper, brass, and sterling are the principal materials. Basic stone setting and casting procedures are usually included. Students generally fashion several jewelry pieces in this class. Prerequisite: ART 101, ART 102, ART 103, and ART 231 or ART 231 concurrently.

ART 240 Painting I 3 hrs.
A fundamental course in painting to assist the student in realizing visual observations, compositional sensitivities, and personal expression through basic painting techniques. Seeing color, mixing color, and making specific color decisions are the vehicles for studying basic painting methods and space. An overview of historical painting styles will be presented. Prerequisites: ART 101, ART 102, and ART 103.

ART 241 Intaglio and Relief 3 hrs.
A fundamental exposure to the techniques of Intaglio and Relief painting and an introduction to Print aesthetics. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 242 Watercolor Painting 3 hrs.
A survey of the application, techniques, and limitations of the watercolor painting medium. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 243 Lithography 3 hrs.
A basic, confidence-building, introduction to Lithography through Aluminum Plate techniques. Fundamental discussion of Stone lithography and aesthetic possibilities of the medium. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 244 Hand Papermaking 3 hrs.
An introduction to the basic techniques of hand papermaking as an art form. Prerequisites: ART 101, ART 102, and ART 103.

ART 245 Graphic Design 3 hrs.
An introduction to problem-solving for visual communication through typographic images. The fundamentals of calligraphy, typography, and typographic design are investigated in experimental and practical projects. Incorporates research in the communicative potential of color and structure. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 246 Screenprint 3 hrs.
Introduction to screenprint fundamentals, techniques and procedures, exploring at length the expressive potentials of the medium—to include basic color printing procedures. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 248 Photography 3 hrs.
Introductory course covering the function of the camera, exposure meter, lenses, b/w films, processing and printing. Emphasis is placed upon perceptive imagery and development of a technical proficiency. Prerequisite: ART 101, ART 102, ART 103 and ART 240, or ART 240 concurrently.

ART 252 Art Education Workshop (Majors) 3 hrs.
A studio course involving Projects, media and materials, handled on an aesthetic level but appropriate for the creative and materialistic ability of the K-12 art student. Prerequisite: ART 101, ART 102, and ART 103. ART 231 and ART 240, or ART 231 and ART 240 concurrently.

ART 305 Inter-Related Arts Process: Art, Dance, and Music 3 hrs.
Art, dance, and music will be dealt with as the expressive means at the core of the creative and educative process. The student will be exposed to the craftsmanship of each art form, the experiences of synthesizing art forms so that each form contributes to the aesthetic value of the final product.

ART 310 Intermediate Drawing 3 hrs.
Drawing as the study of form and as a conclusive aesthetic statement. Model available during approximately ⅔ of the class meetings. Prerequisite: ART 210.

ART 330 Ceramics 3 hrs.
Continuation of ART 230 with opportunity for concentration in the medium. Some experiment in glazing. Prerequisite: ART 230.

ART 331 Sculpture 3 hrs.
Development of individual sculptural direction: all media. Advanced welding, molding and casting techniques are among the media explored. Prerequisite: ART 231 or consent of department.
ART 334 Textiles
3 hrs. Advanced work in textile design allowing for specialization with a material or technique surveyed in ART 234. Prerequisite: ART 234.

ART 338 Jewelry and Metalsmithing
3 hrs. Intermediate level metalsmithing work. Continued skill development in jewelry design, stone setting, and solder fabrication. Basic lapidary work usually included. Prerequisite: ART 238.

ART 340 Painting II
3 hrs. Continuation of ART 240. Prerequisite: ART 240.

ART 341 Intaglio and Relief
3 hrs. An intermediate course continuing the investigation of basic and advanced Intaglio and Relief techniques with the introduction of color printing. The artist-student should begin to discover and adapt media and/or techniques (or synthesis of media and/or techniques) appropriate to individual aesthetic intentions. Prerequisite: ART 241.

ART 342 Watercolor
3 hrs. Advanced problems in watercolor techniques to include composition. Prerequisite: ART 242.

ART 343 Lithography
3 hrs. An intermediate investigation of Lithography based on basic skills with the introduction of color printing and other advanced techniques. The artist-student should begin to discover methods and techniques adaptable and appropriate to his aesthetic intent. Prerequisite: ART 243.

ART 344 Hand Papermaking
3 hrs. The techniques of producing paper to be used as support for various media. Prerequisite: ART 244.

ART 345 Graphic Design
3 hrs. The study and practice of graphic design for two-dimensional media. Emphasis is placed on the conceptual development of geometric, figurative, and decorative imagery for posters, covers, promotional materials, magazine and newspaper advertisements. Includes thematic development, graphic planning, comprehensive and finished art production. Prerequisite: ART 245.

ART 346 Screenprint II
3 hrs. An intermediate course continuing the investigation of basic and advanced screenprint stencil techniques with the introduction of photo-stencil methods. The artist-students should begin to discover and apply method of technique appropriate to their aesthetic intent. Prerequisite: ART 246.

ART 348 Photography
3 hrs. Introduction to the view camera, color processing/printing, and various studio lighting techniques involved in product photography. Emphasis is placed upon exploring the potential of color photography and the development of individual imagery. Prerequisite: ART 248 and ownership of a 35mm or 2 1/4 X 2 1/4 camera.

ART 352 Preparation for Art Teaching (Elementary)
3 hrs. A teaching laboratory course designed to familiarize the elementary art teacher with teaching philosophies, methods and creative teaching procedures using varied media, and materials. Emphasis is placed upon qualitative art programming in the elementary school. Prerequisite: ART 252.

ART 425 BFA Seminar in Art 2 hrs. The seminar investigates and evaluates contemporary topics and trends in art. Students will be exposed to how artists express their ideas through current and ongoing visiting artist programs, exhibitions and workshops. Students will be encouraged to select and develop their own research topic. Graded credit/no credit only. Prerequisite: BFA candidacy.

ART 445 Graphic Design
3 hrs. The fundamentals and procedures of graphic design for sequential, three-dimensional and serial forms. Problems in design continuity and coordination are explored through editorial, corporate identity, campaign, product, and packaging design. Incorporates investigation of graphic design processes and papers. Prerequisite: ART 345.

ART 452 Preparation for Art Teaching (Secondary) 3 hrs. A teaching laboratory course specifically designed to familiarize the middle and high school art teacher with philosophies, methods and creative teaching procedures using varied media and materials. Emphasis is placed upon qualitative art programming in the secondary school. Prerequisite: ART 352 and art major status.

ART 490 Graduation Presentation—Painting/Watercolor 1 hr. Preparation and presentation of graduating exhibition in painting/watercolor, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 491 Graduation Presentation—Sculpture 1 hr. Preparation and presentation of graduating exhibition in sculpture, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 492 Graduation Presentation—Graphic Design 1 hr. Preparation and presentation of graduating exhibition in graphic design, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 493 Graduation Presentation—Photography 1 hr. Preparation and presentation of graduating exhibition in photography, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 494 Graduation Presentation—Printmaking 1 hr. Preparation and presentation of graduating exhibition in printmaking, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing Committee. Prerequisite: Senior standing and BFA candidacy.

ART 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.

ART 496 Graduation Presentation—Ceramics 1 hr. Preparation and presentation of graduating exhibition in ceramics, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 497 Graduation Presentation—Textiles 1 hr. Preparation and presentation of graduating exhibition in textiles, portfolio, slides and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluation by a departmental reviewing committee. Prerequisite: Senior standing and BFA candidacy.

ART 500 Independent Studies 1-6 hrs. An opportunity for qualified undergraduates to elect an area of special interest and pursue it in depth. Prerequisite: Permission of department. Repeatable for credit.

ART 510 Drawing Workshop 1-6 hrs. Continuation of ART 310. Prerequisite: ART 310. Repeatable for credit.

ART 520 Independent Study in Art History 2-3 hrs. Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, ART 221, and an ART 500-level course in the area of interest; permission of department. Repeatable for credit.

ART 521 Topics in Art History: Variable Topics 3 hrs. Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220, ART 221 for majors. None for other students. Repeatable for credit under a different title.

ART 530 Ceramics Workshop 1-6 hrs. Advanced work in ceramics on an independent basis. Prerequisite: ART 330. Repeatable for credit.

ART 531 Sculpture Workshop 1-6 hrs. Continuation of ART 331. The advanced student explores the expressive possibilities of his or her own individual sculptural direction, with bronze and aluminum casting related techniques. Prerequisite: ART 331. Repeatable for credit.

ART 534 Textiles Workshop 1-6 hrs. Continuation of ART 334 with advanced work in textiles design. Prerequisite: ART 334. Repeatable for credit.
ART 535 Multi-Media Workshop
1-6 hrs.
Various forms of art that deviate from conventional media, such as light, kinetic, and performance art. The student is expected to have a solid background in one of the traditional art forms, such as ceramics, painting, sculpture, printmaking, drawing, graphic design, metals, or textiles. Permission of instructor is required. Repeatable for credit.

ART 538 Jewelry and Metalsmithing Workshop
1-6 hrs.
Advanced work in jewelry design and metalsmithing. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 338. Repeatable for credit.

ART 540 Painting Workshop
1-6 hrs.
Continuation of ART 340. Prerequisites: ART 340. Repeatable for credit.

ART 541 Printmaking Workshop
1-6 hrs.
An advanced workshop for experienced graphic students; all printmaking media available; emphasis on development of personal concepts and refinement of methods appropriate to individual needs through research. Prerequisite: Any ART 300 level printmaking course. Repeatable for credit.

ART 542 Watercolor Workshop
1-6 hrs.
Continuation of advanced watercolor techniques with emphasis on experimentation. Prerequisite: ART 342. Repeatable for credit.

ART 544 Hand Papermaking
1-6 hrs.
A continuation of ART 244 and ART 344. Prerequisite: ART 344.

ART 545 Graphic Design
3 hrs.
Continuation of ART 445. Prerequisite: ART 445. Repeatable for credit.

ART 548 Photography
1-6 hrs.
Professional development through research in advanced projects. Prerequisite: ART 348. Repeatable for credit.

ART 552 Preparation for Art Teaching
3 hrs.
A course dealing with: the current problems in issues on the social scene which affect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Prerequisites: ART 452 and art major status.

ART 553 Independent Studies in Art Education
1-6 hrs.
An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) Prerequisites: ART 252, ART 352, ART 452, ART 552 and permission of the art education chairman. This course is open to graduate and non-degree level students.

ART 560 Arts Education for the Elementary Teacher
3 hrs.
A studio course for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit.

ART 581 History of Ancient Art
3 hrs.
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria, and Rome to the Early Christian period. Prerequisite: ART 220.

ART 583 History of Medieval Art
3 hrs.
Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (3rd-13th Centuries). Prerequisite: ART 220.

ART 585 History of Renaissance Art
3 hrs.
The development of art through the early Renaissance to the Late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, Da Vinci, Michelangelo, Titian, Van Eyck, Brueghel and Durer. Prerequisite: ART 221.

ART 586 History of Baroque Art
3 hrs.
The art of the late 17th, 18th, and early 18th centuries. Major artists and architects discussed are: Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini, and Neumann. Prerequisite: ART 221.

ART 587 History of American Art Colonial to 1900
3 hrs.
Art in the United States from the Colonial Period to 1900. Emphasized are Federal and Georgian 18th Century styles; 19th Century Realism, Romanticism and Nativism; and development of distinctly "American" consciousness and styles. Prerequisite: ART 221.

ART 588 History of 19th Century European Art
3 hrs.
Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisite: ART 221.

ART 589 History of European Art 1900-1945
3 hrs.
Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Major developments including Fauvism, Cubism, Expressionism, and Surrealism are discussed. Prerequisite: ART 221.

ART 590 History of 20th Century Art 1945 to Present
3 hrs.
Major trends in art since World War II are discussed. Included are: Abstract Expressionism, Pop and Op Art, the New Realists, and Conceptual Art. Prerequisite: ART 221.

ART 591 History of Prints
3 hrs.
Major developments in printmaking, including origins of woodcut and engraving, Renaissance and Baroque master etchers and engravers (Durer, Rembrandt), Lithography in the 19th century (Delacroix, Daumier, Toulouse-Lautrec). 20th century printmaking.

ART 593 History of American Art: 1900-1945
3 hrs.
Art of the United States and Canada from 1900 to present; Realism, introduction of European Modernism; Nativist and American Modernist traditions of the '20's, '30's, and '40's. Prerequisite: ART 221.
DANCE
Nina Nelson, Chair
Jane Blais
Wendi Cordan
Clara Gamble
Eugene Mills
Lindsey Thomas

The Department of Dance seeks to fulfill its responsibility to further the development of the art in Michigan through: creating and publicly producing dance which reflects the highest aesthetic standards; sponsoring events which enrich the dance life of the community; and providing an outreach of dance experiences which have artistic and educational value. The department faculty is committed to the ongoing renewal of teaching resources and skills while contributing to the field through the practice of the art and service to professional organizations. For the general student, the department provides the opportunity to experience the joy of participation and the value of viewing dance as an art form. Of utmost importance, through teaching and curricular activities, the faculty endeavors to produce versatile graduates who delight in the practice of dance, who can integrate theory and practice with discerning sensibilities, who have a firm foundation upon which to carve their own careers, who have the conviction to hold firm in their aesthetic goals and who have the skills necessary for survival in an ever-changing field. Western Michigan University is an accredited institutional member of the National Association of Schools of Dance.

Programs
The Department of Dance offers three programs in dance: Bachelor of Fine Arts in Dance, Bachelor of Science or Bachelor of Arts in Dance, and a Dance Minor. The Bachelor of Fine Arts degree program emphasizes the aesthetic, choreographic and performance training of the student. Graduates of this pre-professional program will have a foundation in dance skills and knowledge required for employment at a professional level. The Bachelor of Science or Bachelor of Arts degree program offers the student the opportunity to explore the diversity of the dance profession and requires the election of a minor or second major outside the dance area. The University allows the student the option to elect either the BA or BS degree, dependent upon both the depth and breadth of liberal education coursework (refer to Degrees and Curricula at the beginning of this bulletin). Graduates of this program will be equipped to contribute to the growth of the art of dance. The Dance Minor is designed for students who wish to continue their dance exposures as an avocation or as an enhancement of other studies. For additional information, please refer to specific Program Requirements.

Courses for General Students in Partial Fulfillment of the University Physical Education Requirement
Introductory dance courses are offered for general students. One of the following dance courses may be used for one of the hours in the physical education requirement for graduation: DANC 101, 102, 103, 104, 106, 111, 112, 114 and 181. A $9 fee is required for each student enrolled in DANC 101 and 111 in order to provide a musical accompanist. A $2 fee is required for each student enrolled in DANC 102.

Admission
Admission to Western Michigan University is granted only by the Office of Admissions and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admissions and Orientation. Enrollment in the Bachelor of Fine Arts degree program is contingent upon admission to the University and approval of the Department of Dance. Department approval is obtained through technique audition classes in ballet, jazz, and modern. No audition is required for enrollment in the Bachelor of Science or Bachelor of Arts degree program or the Dance Minor, however students enrolling in these programs are required to audition for advanced placement in ballet, jazz, and/or modern. Audition schedules and detailed information are available from the Department of Dance upon request. The Department welcomes the opportunity to confer with prospective students, parents and counselors regarding educational goals and plans.

Transfer Credit
Dance credit from other institutions transfers as a direct equivalent to a WMU course, as an unspecified dance credit, or as credit by department recommendation only. Transfer students should schedule an appointment with the dance academic adviser immediately after admission to the University to evaluate dance credits taken at other institutions.

Advising
Dorothy U. Dalton Center, Room 3117, (616) 387-5840

Upon admission to the University, each major and minor student should complete a Declaration Form with the dance academic adviser. It is the responsibility of the student to make an appointment with the adviser each semester in order to prepare for the next semester’s registration. Each student should meet with the adviser during his/her junior year to secure a Graduation Audit Statement before registration for the final semester. The dance academic adviser is also available to counsel students on selection of appropriate majors/minors, selection of General Education courses, and other University requirements. Matters which are beyond his/her qualifications will be referred to on- and off-campus offices qualified to assist.

Graduation requirements must be completed as stipulated in the Catalog in effect at the time the student is admitted. Requirements cannot be added during the student’s enrollment, but the student may take advantage of course and curriculum alterations if these changes enhance the student’s education. Each student is responsible for knowing the requirements of the degree and for taking the steps necessary for completion of these requirements. All dance students are urged to take advantage of advising services in the Department of Dance for assistance in making educational choices and for interpretation of requirements stated in the Catalog.

Miscellaneous
FOCUS OF MAJOR STUDIO COURSES
Ballet courses are taught according to the Russian method and piano accompaniment is provided. Modern courses are taught according to the principles of the Normative technique associated with Erick Hawkins. These are not regularly accompanied by a musician in order to allow for kinetic, rhythmic and ensemble training consistent with the Normative approach. Jazz courses utilize technique principles of both ballet and modern through a stylistic blend of lyrical and percussive movement. Recorded accompaniment is used in jazz courses.

MAJOR STUDIO COURSE PROGRESSION
It is expected that the dance major/minor will spend at least two semesters in each level of technique. This is consistent with level advancement in professional schools. A passion for dance in a technique class does not imply automatic progression to the next level.

SCHOLARSHIPS
Scholarships, awards and assistantships are available for new and current students. Awardees are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Applicants for New Dance Major Scholarships must audition and interview with the faculty. For specific information, contact the Department of Dance.

ANNUAL MEETING
A department meeting is held during the second week of each fall semester to prepare the student for the academic year. At this meeting, students will receive a calendar of events and information regarding Department policies and procedures. Attendance is mandatory for all dance majors and minors.

ADDITIONAL STUDY OPTIONS
Students are encouraged to study with dance professionals whenever possible and to afford themselves the opportunity for study with artists-in-residence on Western’s campus. Limited scholarships may be available for this purpose. Information will be posted and announced in appropriate classes.

PERFORMANCE AND CHOREOGRAPHIC OPPORTUNITIES
Students have a variety of opportunities to perform in department concerts, studio evenings, graduating presentations, special class-related performances, University musicals and operas, and the department performing ensemble, 565 University Dance Theatre. Students must be enrolled in at least one studio technique course and one class-related performance course for credit. Awardees are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Awardees are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence. Awardees are selected by the faculty on the basis of outstanding achievement in the field and overall academic excellence.

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have completed and/or be currently enrolled in at least one Studio course in ballet, jazz, and modern; have at least B-level skills in technique and performance; and have demonstrated professional commitment in dance coursework and dance-related activities. Any student discontinued from the program may reapply for the BFA after a minimum of one additional semester at WMU.

By the end of the student’s junior year, the BFA student must create and perform a solo dance in a public showing which exhibits his/her choreographic, technical, and performance skills. At this time, the student must also submit an essay addressing his/her strengths and weaknesses in the three forms of training. Students will learn and perform in one of the three forms: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330). At least six hours must be elected from Performance (560, 565). The student must complete at least one semester of two of the following courses: DANC 310, 320, 330.

REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—31 total hours
31 hours from dance major technique courses and performance courses, including at least two courses from each area: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330). At least six hours must be elected from Performance (560, 565). The student must complete at least one semester of two of the following courses: DANC 310, 320, 330.

REQUIRED COURSES IN CHOREOGRAPHY—10 total hours
DANC 180 Choreography I (Prereq: consent of adviser) 2
DANC 181 Dance Improvisation 1
DANC 280 Choreography II (Prereq: 180, 181) .2
DANC 380 Choreography III (Prereq: 280) .2
DANC 480 Graduating Presentation (Prereq: 380) .2

REQUIRED COURSES IN THEORY—21 total hours
DANC 140 Dance History I .3
DANC 240 Dance History II (Prereq: 140) .3
DANC 340 Kinesiology for the Dancer (Prereq: MUS 185) .3
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) .2
DANC 588 Dance Production 2
DANC 589 Dance Management 2
MUS 185 Music Fundamentals for Dancers (Prereq: MUS 185) .1
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) .3

RELATED STUDIES—18 total hours
The Department of Dance believes that the professional committed student must augment his/her education via study in the related arts and sciences which complement specific career goals. The student will consult with the dance academic adviser in selecting 18 hours from the courses listed below, some of which may also meet General Education requirements:
- ANTH 220 Cultural Anthropology .3
- ANTH 370 Culture and Communication .3
- ART 140 Studio Experience (2-3) .3
- ART 220 History of Art .3
- ART 391 History of Art .3
- BIOS 112 Introduction to Biomedical Sciences .3
- BIOS 211 Human Anatomy (Prereq: BIOS 112) .4
- ENGL 105 Thought and Writing: Variable topics .4

Bachelor of Science or Bachelor of Arts in Dance
42 hours
During the second year of enrollment in the program, the student will be evaluated by the dance faculty regarding his/her progress in the program. The student is required to schedule an appointment with the dance academic adviser to receive the faculty feedback and discuss future curricular planning.

A grade of “C” or better is mandatory in all required courses.

REQUIRED COURSES IN TECHNIQUE AND PERFORMANCE—18 total hours
Eighteen hours from dance major technique courses and performance courses, including at least one course from each area: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330); Performance (560, 565). The student must complete at least one semester of one of the following courses: DANC 310, 320, 330.

REQUIRED COURSES IN CHOREOGRAPHY/THEORY—6 total hours

ENGL 110 Literary Interpretation .4
ENGL 150 Literature and Other Arts .4
ENGL 305 Practical Writing .4
FREN 100 Basic French 1
FREN 101 Basic French (Prereq: 101 or equivalent) .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 352 Non-Western Music .4
MUS 450 Music Appreciation: The Symphony .3
PHIL 200 Introduction to Philosophy .4
PHIL 312 Philosophy of Art .4
REL 311 Myth and Ritual .3
THEA 100 Introduction to Theatre .3

REQUIRED COURSES IN THEORETICAL—17 total hours

DANC 181 Dance Improvisation 1
DANC 180 Choreography I (Prereq: consent of adviser) Variable
DANC 280 Choreography II (Prereq: 180, 181) 2
DANC 380 Choreography III (Prereq: 280) 2
DANC 385 Introduction to Dance Notation (Prereq: 110, 130 and MUS 185) 2
DANC 560 Performance (Prereq: Adviser consent) Variable
DANC 565 University Dance Theatre (Prereq: by audition) 3
DANC 586 Dance Production 2
DANC 589 Dance Management 2
MUS 185 Music Fundamentals for Dancers (Prereq: MUS 185) 1
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) .3

REQUIRED COURSES IN TECHNIQUE—12 total hours
Twelve hours from dance major technique courses including at least one course in each of the three forms: Ballet Technique (110, 210, 310); Jazz Technique (120, 220, 320); Modern Technique (130, 230, 330).

Dance Minor
24 hours

REQUIRED COURSES IN TECHNIQUE—12 total hours

DANC 140 Dance History I .3
DANC 240 Dance History II (Prereq: 140) .3
DANC 295 Kinesiology for the Dancer .3
DANC 385 Introduction to Dance Notation (Prereq: 110, 130, and MUS 185) 2
DANC 588 Dance Production 2
MUS 185 Music Fundamentals for Dancers .1
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) .3

REQUIRED COURSES IN CHOREOGRAPHY/THEORY—6 total hours

DANC 140 Dance History I .3
DANC 180 Choreography I (Prereq: consent of adviser) .2
DANC 181 Dance Improvisation 1

ELECTIVES—6 total hours
Six hours to be elected from the following courses, in consultation with the dance academic adviser:
DANC 240 Dance History II (Prereq: 140) .3
DANC 280 Choreography II (Prereq: 180, 181) .3
DANC 290 Teaching of Dance in the Elementary School .3
DANC 295 Kinesiology for the Dancer .3
DANC 340 Special Studies in Dance History (Prereq: 240) .2
DANC 380 Choreography III (Prereq: 280) .2
DANC 385 Introduction to Dance Notation (Prereq: 110, 130 and MUS 185) .2
DANC 560 Performance (Prereq: Adviser consent) Variable
DANC 565 University Dance Theatre (Prereq: by audition) .3
DANC 586 Dance Production. 2
DANC 589 Dance Management 2
MUS 185 Music Fundamentals for Dancers (Prereq: MUS 185) 1
MUS 285 Musical Style and Form for Dancers (Prereq: MUS 185) .3

Dance Courses (DANC)

DANC 101 Beginning Ballet I (39) 1 hr.
An introduction to ballet technique for the beginning general student.
DANC 102 Beginning Jazz I (22) 1 hr.
An introduction to jazz technique for the beginning general student.
DANC 103 Beginning Modern I 1 hr.
An introduction to modern technique for the beginning general student.
DANC 104 Beginning Tap I 1 hr.
An introduction to tap technique for the beginning general student.
DANC 106 Recreational Dance 1 hr.
Investigation of folk, square and social forms of dance, with a concentration on overlapping dance skills.
DANC 110 Ballet Technique I 2 hrs.
An introduction to the art of ballet, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on developing control, balance, musicality and strength of movement through the Russian method of training. Students will continue in DANC 110 until advanced to DANC 210 by the instructor. Repeatable for credit. Prerequisite: Adviser consent.
DANC 111 Beginning Ballet II 1 hr.
Continued development of elementary ballet technique for the general student. The emphasis is placed on control, balance and musicality through the Russian method of training. Students will learn simple jump, turn and adagio combinations. Previous ballet training is required. Prerequisite: DANC 101.
DANC 112 Beginning Jazz II
1 hr.
Continued development of jazz technique beyond the introductory level for the general student. Lyrical integration of isolated movements with emphasis on dynamics, style and performance is stressed. Prerequisite: DANC 102.

DANC 114 Beginning Tap II
1 hr.
Continued development of tap technique beyond the introductory level, with application to rhythmic combinations involving the use of stylized movements. Prerequisite: DANC 104.

DANC 120 Jazz Technique I
2 hrs.
An introduction to the art of jazz dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, movement isolation, rhythmic awareness, basic vocabulary and both percussive and free-flow combinations. Students will continue in DANC 120 until advanced to DANC 220 by the instructor. Repeatable for credit. Prerequisite: Adviser consent.

DANC 130 Modern Technique I
2 hrs.
An introduction to the art of modern dance, designed for dance majors and minors, primarily concerned with development of technique. The emphasis is placed on alignment, basic vocabulary and integrated movement combinations. Students will continue in DANC 130 until advanced to DANC 230 by the instructor. Repeatable for credit. Prerequisite: Adviser consent.

DANC 140 Dance History I
3 hrs.
A survey of the purposes, functions, and manifestations of dance from primitive cultures through the 19th century. Distinctions are made between ritual, ceremony, and entertainment in the study of primitive, pre-Christian, medieval, Renaissance, and Romantic periods. Relationships are made between dance and general cultural developments of each period.

DANC 180 Choreography I
2 hrs.
A practical experience in dealing with the basic elements of dance composition. Emphasis will be placed on solo choreographic studies. Prerequisite: Adviser consent.

DANC 181 Dance Improvisation
1 hr.
Exploration of movement through spontaneous problem-solving. The course is designed to evoke the student's creative individuality and sense of ensemble.

DANC 210 Ballet Technique II
2 hrs.
A development of ballet technique at the intermediate level. Emphasis is on increased strength and flexibility, jumps, turns, and an introduction for women to pointe technique. Students will continue in DANC 210 until advanced to DANC 310 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique I instructor.

DANC 220 Jazz Technique II
2 hrs.
A development of jazz technique at the intermediate level. Emphasis is on lyrical integration of isolated movements, sequential combinations involving multiple turns, and skills in performance and quick study. Students will continue in DANC 220 until advanced to DANC 320 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique I instructor.

DANC 230 Modern Technique II
2 hrs.
A development of modern technique at the intermediate level. Emphasis is on normative theory, performance and ensemble awareness. Students will continue in DANC 230 until advanced to DANC 330 by the instructor. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique I instructor.

DANC 240 Dance History II
3 hrs.
A survey of the purposes, functions, and manifestations of dance from the beginning of the 20th century to the present. Relationships are made between dance and general cultural developments of the times. Prerequisite: DANC 140.

DANC 280 Choreography II
2 hrs.
Further exploration of the compositional elements as used in group choreography. Prerequisite: DANC 180 and DANC 181.

DANC 290 Teaching of Dance in the Elementary School
3 hrs.
This course covers the principles, materials, and techniques of teaching creative movement and dance activities. The emphasis is placed on the ability to quickly analyze and give problems of dance technique.

DANC 310 Ballet Technique III
2 hrs.
Ballet technique for the advanced/pre-professional student in the classical idiom. Emphasis is placed on complex movement sequences, ensemble awareness, pointe technique and men's combinations. Repeatable for credit. Prerequisite: Placement audition or approval of Ballet Technique II instructor.

DANC 320 Jazz Technique III
2 hrs.
Jazz technique at the advanced/pre-professional level with work on quick-study and theatrical skill. Combinations will address a variety of jazz styles and develop the student's own dynamic style. Repeatable for credit. Prerequisite: Placement audition or approval of Jazz Technique II instructor.

DANC 330 Modern Technique III
2 hrs.
Technique for the advanced/pre-professional student in the modern idiom. Emphasis is placed on the ability to quickly analyze and skillfully reproduce complex movement combinations within the technique. Repeatable for credit. Prerequisite: Placement audition or approval of Modern Technique II instructor.

DANC 340 Special Studies in Dance History 2 hrs.
An approved concentrated study of available literature in an area of dance selected by the student. Prior to registration, the Department Chair will review the topic and assign a faculty advisor under whose supervision the student will complete the course requirements. Course guidelines are available from the Department and should be reviewed by students at least one semester prior to enrollment. Prerequisite: DANC 240.

DANC 380 Choreography III
2 hrs.
Concert and musical theatre choreography in the student's area of concentration. Prerequisite: DANC 280.

DANC 385 Introduction to Dance Notation
2 hrs.
A study of dance notation systems which provide practical methods of recording human movement for purposes of analysis and reading. The course includes reading (interpretation), theory, and practice at the introductory level. Prerequisites: DANC 110, 130, and MUS 185.

DANC 390 Teaching Dance in the Secondary School
3 hrs.
An investigation into procedures for presenting courses, techniques and methods of teaching dance to elementary school children as they can be applied in various learning environments. Lecture, observation, and laboratory experiences are provided.

DANC 400 Practicum
1-4 hrs.
An individual approach to a practical field experience in dance. The student must file an approved application for his/her project with the dance advisory committee, and secure the approval of the dance academic advisor. Course requirements are available from the Department and should be reviewed by the student at least one semester prior to enrollment. Prerequisite: DANC 380 and approved application.

DANC 480 Graduating Presentation
3 hrs.
The preparation and presentation of an advanced choreographic project accompanied by a portfolio and an oral examination. Prior to registration the student must complete an application, select a faculty advisory committee, and secure the approval of the dance academic advisor. Course guidelines are available from the Department and should be reviewed by the student at least one semester prior to enrollment. Prerequisite: DANC 380 and approved application.

DANC 495 Performance Workshop
2 hrs.
Students will perform a variety of roles and styles from a broad spectrum of music theatre repertoire; Scenic will be performed before a public or invited audience. Performers will be directed and evaluated by a faculty team from Dance, Music and Theatre. Prerequisite: MUS 395.

DANC 525 Special Studies in Dance
1-5 hrs.
A study of areas in dance not included in existing courses. Examples of possible topics include: pedagogy, repertory, Afro-American dance, pre-classic dance forms, and dance for the exceptional student. May be offered with a visiting instructor or artist-in-residence. Repeatable for credit up to 5 hours. Prerequisite: Adviser consent.

DANC 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 advisor one month prior to performance. Registration occurs after performance has been completed. Prerequisite: Adviser consent.

DANC 585 University Dance Theatre (UDT)
3 hrs.
UDT is a performing ensemble which provides master classes, residencies, lecture-demonstrations, and concerts in various dance styles in the region. Members must show proficiency in performance, improvisation, teaching, and public speaking. Members must
MUSIC

Don Gibson, Director
William Appel
John Campos
Curtis Curtis-Smith
Lisa Derry
Patrick Dunnnigan
Delores Gauthier
Marilyn Y. Heim
Robert Humiston
Milvern K. Ivey
Stephen Jones
Renata Artman Knifick
Thomas Knifick
Trent P. Kynaston
David Little
Kathryn Loew
James McCarthy
Judy Moonen
Richard O'Hearn
Charles E. Osborne
Johnny Pherigo
David Pocock
Marion Pratnicki
Phylis Rapport
Robert J. Ricci
Mary Scovel
David A. Sheldon
Richard Suckendorf
Bruce Uchimura
Robert L. Whaley
Brian Wilson
Steve M. Wolfinbarger
Bradley Wong
Joseph T. Work
Joyce Zastrow
Stephen Ziegrie
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 to teach students to share the excitement of music as a living art, who possess the wisdom to appreciate and the courage to defend the highest artistic ideals, who will bring the finest in music to all with skill and dedication.

The School of Music is a member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published regulations of NAAMS and the National Council for Accreditation of Teacher Education. The School's program in music therapy is certified by the National Association of Music Therapists.

Programs

The School of Music offers courses of study that lead to the Bachelor of Music, the Bachelor of Science, and the Bachelor of Arts degrees. The Bachelor of Music degree is highly professional, offering the student an opportunity to elect a major in performance, composition, jazz studies, music education, music history, music theory, and music therapy. The Bachelor of Arts and Bachelor of Science degrees afford the student the opportunity to major in music and minor in some non-music area of study. All requirements for these degrees in music may be completed within the 125-124 semester-hour credit minimum that is required for a degree at Western.

Three majors carry certification upon completion of degree requirements: the Bachelor of Music with a major in music therapy carries certification as a Registered Music Therapist upon completion of a six-month internship; the Bachelor of Music with a major in music education carries certification to teach music in the public schools, grades K-12; the Bachelor of Science with a major in music and a minor in elementary education carries certification to teach in the elementary classroom and/or to teach as a music specialist in the classroom, grades K-8.

A music minor program is offered through the School of Music for students who have a background in music and who wish to extend their formal education in that field of study. Those students seeking a music minor must secure a minor slip from the 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.

Admission

Admission to Western Michigan University is granted only by the Office of Admission and Orientation for undergraduate students. Application forms may be obtained by writing to the Office of Admission and Orientation. Enrollment in a music curriculum is contingent upon admission to the University and approval of the School of Music. School approval is obtained through the music audition program. The student may proceed by making application to the University at which time notification will be sent about the audition program in the School of Music, or a request may be made for an opportunity to audition prior to making application to the University by obtaining an Audition Confirmation Form from the School of Music. The student is urged to commence application procedures early in the senior year, or in the final year at a community college.

Approval to become a music major is based upon the student's background in music, as demonstrated on the major instrument or voice, the student's musical aptitude, and upon academic abilities reflected in grade point average and various scholastic test scores as they are available. Efforts are made to evaluate the student on the basis of musical potential and not upon desire to enter a specific professional area of music. All students commence a major in music with common "core" requirements and are, therefore, considered for entry into the major with this common basis in mind.

Students who are considering becoming a music major should have a good background in applied music (instrumental or vocal study or performance). Preparation in piano, as a secondary instrument, is also helpful to the student, but not a requisite. Prior to entry into Basic Music 160, which is required of all music majors in their first year of study, the student must demonstrate knowledge of fundamentals. A fundamentals examination will be administered at the time the student is initially advised about classes.

The School of Music has been gratified with its audition and testing program. The program has helped many students make a more intelligent choice regarding their educational career. Many have been helped toward avoiding entering a field in which they do not have the necessary foundation or talent to be successful, while others have been encouraged to pursue an education in music in order to develop fully talents that they have discovered through the audition. Further information regarding admission to a music curriculum may be obtained by writing the Music Student Adviser in the School of Music. The School
welcomes the opportunity to confer with prospective students, parents, and counselors regarding educational goals and plans.

Transfer Credit

Music credit from another institution is normally acceptable providing course substance is equivalent to a similar course required in the student's curriculum at Western and the student has earned a grade of "C" or better in that course. No credit hours exceeding the number granted for parallel work at Western will be accepted for transfer from another institution. In order to earn a Bachelor of Music degree from Western Michigan University, a student must not transfer more than thirty-seven (37) semester credit hours in music courses taken at a non-four-year institution toward music curriculum requirements. If the "Performance Electives" requirement has not been completed at the time of the transfer, at least two of the remaining hours must be completed in major ensembles. Advisers will assist transfer students in finding ways of applying credit hours, not applicable to music curriculum requirements, toward General Education electives or free electives.

All music credit to be transferred is tentative and is contingent upon the successful completion of one semester's work at Western. Three areas—applied music, music theory, and piano proficiency for non-pianists—are, by nature, skills courses which require competency at one level before the student is ready for the next level of course in a sequence. This competency can only be determined by demonstration and/or examination, which precludes the automatic transfer of credit in these areas. Presumably, the transfer student will have completed many of the core requirements (see below) before enrolling at Western. In that case, the student must elect a major area of concentration within the music curriculum prior to enrollment. Acceptance in the major will be automatic but certain requirements must be met in order to remain in that major. In order to maintain good standing as a major in music performance, composition, jazz studies, music history, or music theory, the student must earn a minimum grade point average of 3.25 in the first two years. For students who are interested in a major other than music performance, composition, jazz studies, music history or music theory, the student must earn a minimum grade point average of 3.0 in all courses in the major area of concentration in order to be recommended for directed teaching (music education) or music therapy internship. All transfer students must take a Piano Placement Examination before admission in order to project the feasibility of completion of piano proficiency requirements. For further information regarding the transfer of music credits, contact the Music Adviser in the School of Music.

Advising

Adviser: Margaret J. Hamilton
Appointments: 2146 Dalton Center (616-387-4872)

The School of Music provides counseling for all music students through a full-time student advising service. The Music Student Advising Office provides one-stop advising for all students in a music curriculum. Advice on general education and major/minor requirements can be provided by consulting with a single music student adviser. Only when a student pursues a minor outside of the School of Music is an appointment required with another adviser.

The office of the music student adviser is primarily maintained for the purpose of providing academic counseling. Personal guidance is often provided by the adviser, and matters which are beyond his/her qualifications will be referred to persons and offices on- and off-campus which are capable and qualified to assist.

Graduation requirements must be completed as stipulated in the Undergraduate Catalog, which is in effect at the time the student is admitted. Requirements may not be added in the midst of the student's enrollment, but the student may take advantage of course and curriculum alterations that may occur while on the degree in progress if these changes enhance the student's education.

Each student is responsible for knowing the requirements that must be completed for the degree and for taking the steps necessary for completion of requirements. All music students are urged to take advantage of the advising services in the School of Music for assistance in making educational choices and for interpretation of requirements as they are stated in the Undergraduate Catalog.

Miscellaneous

Special (non-academic) requirements for graduation fall in the area of recital performance and recital attendance. Since these are non-academic areas, completion of these requirements is not reflected on the student's transcript and therefore, requires graduation clearance from the music adviser.

The requirement for recital attendance: All music majors are required to attend music convocations each semester they are in residence. Each student is allowed to be absent from one convocation per semester. Without exception, only one absence per semester will be excused. Any absences beyond "one" will be recorded in the student's file. Absences must be made up by attending other pre-approved School of Music concerts and recitals in which the student is not a participant. Absences in the student's record that have not been made up will prevent graduation. Music majors are required to enroll in MUS 101 Music Convocation as specified in the curriculum. The requirement(s) for recital performance are as follows:

1. Bachelor of Music candidates with a major in music performance must present a Senior Recital which is approved by and acceptable to the faculty of the respective performance area.
2. Bachelor of Music candidates with a major in areas other than music performance must present at least one successful recital performance on a student recital (scheduled public recitals, convocations, or area recitals) prior to graduation. Individual students may be required to give additional performances on student recitals at the discretion of their private teachers.

Prerequisite to performance on any student recital shall be a recommendation by the student's teacher. Prerequisite to the presentation of the Senior Recital is an approved credit for recital by the student's area faculty. Recitals should be scheduled in the Concert Office in the School of Music as far in advance as possible.

Competency Examinations are available to students who qualify for advanced placement or a waiver of requirements in music courses even if no formal education at the college level may have been completed.

Common areas of competency are applied music, secondary instruments, and music theory. Regular examinations are scheduled in these areas to allow qualified students to demonstrate competency.

In the event that a student demonstrates competency in an area of study that is required in the curriculum, the student may elect two alternatives for fulfilling degree requirements: (1) request a waiver of the requirement and elect an equivalent number of hours in music courses of the student's choice or (2) receive credit for the course(s) in which competency is demonstrated by paying an examination fee according to the schedule approved by the Board of Trustees.

Scholarships and Grants in Music are awarded by the School of Music. Awards are made on the basis of musical talent and/or scholastic achievement. New students are eligible for consideration for these stipends at the time of their audition for admission to the music curriculum.

For a listing of music grants and scholarships and application forms, contact the undergraduate 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.
hours of Music History and Literature (270-271).

**Composition majors complete only eight hours of Applied Music 200 (including successful completion of a Sophomore Hearing) and four hours of Applied Music 300; and only four hours of Performance Electives.**

**Music Education: Choral/General Music majors complete only 7 semesters of Performance Electives.** It is recommended that all Music Education majors have at least one jazz experience/ensemble.

**Music Education: Instrumental** majors complete only 6 semesters of Performance Electives plus 2 semesters of Marching Band (for Physical Education credit). Instrumental Education majors must also sing in Grand Chorus (or other choral ensemble) for two semesters. It is recommended that all Music Education majors have at least one jazz experience/ensemble.

All students wishing to earn a teaching certificate should have minimal keyboard skills upon entry to the major. Therefore, Keyboard Fundamentals (120-121) may not be applied towards any major that leads to a teaching certificate.

**ELECTIVES**

**Performance electives** may be selected from the following list of courses:

1. All students are required to elect four semesters of a major ensemble. The major ensembles are: 107, 108, 110, 111, 112, 113 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 ensemble MUST be taken in an ensemble in the student's applied area.
   - (Keyboard majors may elect any large ensemble, except that Keyboard/Music Education—Choral/General majors must elect a vocal ensemble and Keyboard/ Music Education—Instrumental majors must elect an instrumental ensemble).

2. The remaining four semester hours of performance electives may be selected from the following: MUS 107, 108, 109, 110, 111, 112, 113, 114, 115, 119, 190, 210, 211, 212, 218, 317, 517.

   Please note: All keyboard majors are required to elect one semester of MUS 190 Accompanying (therapy majors excepted).

   The student is expected to complete one performance elective during each term of enrollment.

**Theory electives** may be selected from the following: MUS 262, 360, 366, 518, 555, 559, 560, 565, 566, 567.

**Music History/Literature electives** may be selected from the following list of courses: MUS 375, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 583, 585, 586.

**Applied Music Option:** Six hours of applied music may be used in the junior and senior years to support the student's professional major, providing 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 application 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 at the Sophomore Hearing. The student will be accepted in the area of choice if he/she qualifies under the following guidelines:

1. Providing the student has a minimum grade point average of 3.0 in "Core" music courses—required in the first two years.

2. Providing the student has a minimum grade point average of 3.25 in "Core" music courses—required in the first two years.

3. Music therapy and music education students must earn a minimum grade point average of 3.0 in course work in the area of the major in order to be recommended for an internship (music therapy) or for a directed teaching assignment (music education). If the student does not qualify according to the guidelines outlined above, the application will be submitted to the faculty committee in the area of the major for approval. In the event that approval is denied and the student does not qualify for any other major area of concentration, the music adviser will outline the course work in music which may be applied toward the Bachelor of Arts or Bachelor of Science degrees with a major in music.

**Music Education: Choral/General Major**

Grants certification to teach music at any grade level (K-12)............18 hrs.

- General Music Methods 336..............2
- Choral Techniques 339..............2
- Methods Elective I..............2
- Select one from the following: Choral Methods (340), Instrumental Methods I (344), String Methods (345)
- Teaching and Learning in Music 348..............2
- Conducting 330..............2
- Instrument elective..............1
- Select one from the following: Fundamentals of Guitar (128); Instruments of the Band and Orchestra (279); Instruments of the Classroom (280).
- Methods Elective II..............2
- Select from the following: Music for the Special Student (385); Technology in Music Education (386)

**Second Instrument**

- Piano, Keyboard Musicianship 220, 221, 320, 321 and/or pass the exam administered by the Keyboard and Professional Education areas. Students who do not qualify for entry at 200 entry level must complete Keyboard Fundamentals (120 and 121) as a deficiency. No class is to be counted twice. Those students who test out of a course or courses in the Keyboard Musicianship sequence will select courses from the instrument or methods elective areas to complete course requirements.

- Voice Pass exam for Keyboard Musicianship 321, given by the Keyboard and Professional Education areas. The student should take Vocal Techniques for Music Educators 117 as part of four semesters of voice study. Four semesters of study are required, with one semester at 200 level voice.

**College of Education Courses**

- Human Development 250..............3
- Teaching/Learning in Jr. and Sr. High Schools 391..............3
- School and Society 395..............3
- Seminar in Student Teaching 410..............2
- Directed Teaching..............9

**Physical Education**..............2

Students can complete this requirement by completing two semesters of Marching Band 109

Note: State law requires that students who graduate with a degree carrying elementary or secondary teaching certification must take a Teaching of Reading course (ED 312 Teaching of Reading (Elementary) satisfies this requirement for elementary certification. ED 322 Teaching of Reading (Secondary) satisfies this requirement for secondary certification.

Before the student will be recommended for directed teaching, she/he must have completed all courses in the major with a minimum grade-point average of 3.0. The application for directed teaching assignment must be made in the Office of Professional Field Experiences prior to one full semester before the assignment is to begin.

**Music Education: Instrumental Emphasis**

Grants certification to teach music at any grade level (K-12)..............18 hrs.

- Instrumental Methods (344)..............2
- Methods Elective I..............2
- Select from the following: String Methods (345), Instrumental Methods II (347), Choral Methods (340), or General Music Methods (336)
- Teaching and Learning in Music (348)..............2
- Conducting (331)..............2
- Class Instruments..............6
- Band—Complete these courses: Flute/Saxophone (145); Oboe/Bassoon (142); Trumpet/French Horn (143); Trombone/Tuba (144); Percussion (130); Clarinet (133)
- String—Complete three courses from those listed above for band emphasis and complete three semesters of study on a minimum of two string instruments other than own major string instrument, or complete MUS 228 and 129 plus four courses from those listed above for band emphasis.

Note: Those who test out of any of the above must fulfill their class instrument requirements by completing one or more of the following: String Class—Cello, Double Bass (128); String Class—Violin, Viola (129); Vocal Techniques for Music Educators (117); Music 130, 133, 142, 143, 144, 145.

- Methods Elective II..............2
- Select from the following: Music for the Special Student (385), Technology in Music Education (386)
- Keyboard Musicianship 220-221..............2
- Those who "comp out" of require will complete this requirement by selecting courses from the class instrument or methods elective areas. Students who do not qualify for entry at 220 must complete
**Music Therapy Major**

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hrs.</th>
</tr>
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<tbody>
<tr>
<td>Core (minus Music History/Literature elective)</td>
<td>20</td>
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<tr>
<td>Courses in Music Therapy</td>
<td>281, 289, 290, 380, 381, 383, 386, 472, 473, 479, 480, 481</td>
</tr>
<tr>
<td>* Keyboard Requirements</td>
<td>320, 322</td>
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<tr>
<td>Fundamentals of Guitar</td>
<td>126</td>
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<tr>
<td>Voice Class</td>
<td>122</td>
</tr>
<tr>
<td>Instruments of the Band and Orchestra 279 and 280</td>
<td>2</td>
</tr>
<tr>
<td>Professional electives: select from 123, 128, 129, 130, 133, 142, 143, 144, 145, 336, 366, 355, 358, Applied Music 300, Performance Electives (selected from electives listed under Core Requirements)</td>
<td>5</td>
</tr>
<tr>
<td>Psychology 100 and 250</td>
<td>6</td>
</tr>
<tr>
<td>Special Education 330</td>
<td>3</td>
</tr>
</tbody>
</table>

*All music therapy majors who have passed a piano competency exam may be excused from any Keyboard Musicianship requirements except MUS 322.*

The student must achieve a 3.0 grade point average in the major in order to be recommended for MUS 481. In completing the General Education requirements the therapy major must complete BIOS 112 and SPPA 200.

In completing Physical Education requirements the therapy major must complete at least one course in dance which qualifies as a physical education “activity” course.

**Music Performance: Instrumental Major**

In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 200 and pass a performance qualifying examination (see “E lecting a Major Area of Study”).

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>Applied Music in addition to Core requirements</td>
<td>200</td>
</tr>
<tr>
<td>Applied Music in addition to Core requirements</td>
<td>300</td>
</tr>
<tr>
<td>Performance Electives (in addition to Core Requirements; see Electives above)</td>
<td>2</td>
</tr>
<tr>
<td>Chamber Music 218</td>
<td>2</td>
</tr>
<tr>
<td>Composition 262</td>
<td>2</td>
</tr>
<tr>
<td>Advanced History/Literature (in addition to Core Requirements)</td>
<td>2</td>
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<tr>
<td>Counterpoint 560</td>
<td>2</td>
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<tr>
<td>Music Electives</td>
<td>2</td>
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<tr>
<td>Senior Recital (required for Music Clearance)</td>
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</table>

**Music Performance: Vocal Major**

In order to be permitted to major in music performance the student must achieve a minimum grade point average of 3.25 in MUS 200 and pass a performance qualifying examination (see “E lecting a Major Area of Study”).

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music in addition to Core Requirements</td>
<td>200</td>
</tr>
<tr>
<td>Applied Music in addition to Core Requirements</td>
<td>300</td>
</tr>
<tr>
<td>Performance Electives (in addition to Core Requirements; see Electives above)</td>
<td>2</td>
</tr>
<tr>
<td>Opera Workshop</td>
<td>2</td>
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<tr>
<td>Keyboard Musicianship 220, 221, 320, 322</td>
<td>4</td>
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<tr>
<td>Foreign Languages</td>
<td>8</td>
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<tr>
<td>Vocal Pedagogy 590</td>
<td>2</td>
</tr>
<tr>
<td>Diction (Choose from 230, 231, 232)</td>
<td>2</td>
</tr>
<tr>
<td>Music Electives</td>
<td>2</td>
</tr>
<tr>
<td>Senior Recital (required for Music Clearance)</td>
<td>0</td>
</tr>
</tbody>
</table>

In addition to the 8 hrs. of foreign languages above, the music performance/vocal major must include two semesters of one foreign language in completing General Education requirements. The language must be selected from the list of approved General Education Distribution courses.

**Music Theory**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition 262</td>
<td>2</td>
</tr>
<tr>
<td>Introduction to Musicology 570-571</td>
<td>6</td>
</tr>
<tr>
<td>Seminar in Music Theory 565 (2 semesters)</td>
<td>4</td>
</tr>
<tr>
<td>Music History/Literature Elective (see Electives above)</td>
<td>4</td>
</tr>
<tr>
<td>Counterpoint 550-561</td>
<td>4</td>
</tr>
<tr>
<td>Orchestration 567-568</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Piano 100, Conducting 330/331, Composition 262/263, Seminar in Composition 564, Orchestration 567/568, Musical Acoustics 556)</td>
<td>5</td>
</tr>
</tbody>
</table>

The composition student must have previous composition experience before being admitted to a composition major. This experience may be acquired by transferring approved credit in composition from another institution or by successful completion of Composition 262-263. All Bachelor of Music: Composition candidates are required to present a Senior Recital consisting of thirty minutes of original compositions which are an outgrowth of the candidate’s coursework and which have been approved by the composition faculty.

All Bachelor of Music: Composition candidates must pass a piano proficiency examination as outlined below.

**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 550-561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Composition 262, Seminar in Music Theory 565, Orchestration 567/568, Improvisation 518, Medieval Music 565, Renaissance Music 566)</td>
<td>4</td>
</tr>
</tbody>
</table>

All Bachelor of Music: Music history candidates must pass a piano proficiency examination as outlined below.

**Jazz Studies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Music in addition to Core Requirements</td>
<td>300</td>
</tr>
<tr>
<td>Jazz Ensembles 118, 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 583</td>
<td>4</td>
</tr>
<tr>
<td>Keyboard Musicianship 220, 221, 320, 322</td>
<td>2</td>
</tr>
<tr>
<td>Counterpoint 550, 561</td>
<td>4</td>
</tr>
<tr>
<td>Professional Electives (choose from Piano 100, Conducting 330/331, Composition 262/263, Seminar in Composition 564, Orchestration 567/568, Musical Acoustics 556, Electronic Media 594)</td>
<td>5</td>
</tr>
</tbody>
</table>

**Keyboard Requirements for Composition, Theory, and Music History Majors**

All composition, theory, and music history majors must demonstrate keyboard competency as a graduation requirement or for admission to candidacy for a graduate degree. Competency examinations will be from the keyboard area and from the area of the student's major.

The student should be prepared to present "readings" of a wide range of literature with reasonable accuracy and musical integrity rather than attempt to achieve a performance level with a few compositions. Sight-reading ability is also expected.

Functional skills related to the student’s major shall be examined as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition 262-263</td>
<td>4</td>
</tr>
<tr>
<td>Musical Acoustics 556</td>
<td>3</td>
</tr>
<tr>
<td>Seminar in Music Composition 362</td>
<td>8</td>
</tr>
<tr>
<td>Seminar in Electronic Music Composition 564</td>
<td>8</td>
</tr>
<tr>
<td>Counterpoint 550-561</td>
<td>4</td>
</tr>
<tr>
<td>Applied Music 100 (piano, string instrument, voice) — selection based on individual student's needs and instructor availability</td>
<td>6</td>
</tr>
<tr>
<td>Orchestration 567, 568</td>
<td>4</td>
</tr>
</tbody>
</table>
Theory/Composition

1. Ability to harmonize at sight.
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 History

1. Two compositions of contrasting style at the level of Bartok Mikrokosmos, Vol. III or IV. One composition must be selected from the Baroque or Classical repertoire; the other from the Romantic or Contemporary period.
2. Score-reading. Emphasis shall be placed on reading from string quartet scores.
3. Sight-reading of piano music which is easier than the level of literature which the student is performing.

Bachelor of Science Degree or Bachelor of Arts Degree Music Curriculum

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Education Electives.</td>
<td>35</td>
</tr>
<tr>
<td>2. Physical Education (Marching Band 109 substitutes).</td>
<td>2</td>
</tr>
<tr>
<td>3. A major in music:</td>
<td></td>
</tr>
<tr>
<td>Music Convocation 101 (6 semesters)</td>
<td>0</td>
</tr>
<tr>
<td>Applied Music 200 (must pass sophomore hearing)</td>
<td>8</td>
</tr>
<tr>
<td>Basic Music 160-161, 260-261</td>
<td>11</td>
</tr>
<tr>
<td>Aural Comprehension 162, 163, 264</td>
<td>9</td>
</tr>
<tr>
<td>Keyboards 120-121</td>
<td>2</td>
</tr>
<tr>
<td>Music History/Literature 270-271</td>
<td>8</td>
</tr>
<tr>
<td>Performance Electives (major ensemble)</td>
<td>4</td>
</tr>
<tr>
<td>Music Electives</td>
<td>14</td>
</tr>
<tr>
<td>4. A minor in another department (minimum) 15</td>
<td></td>
</tr>
<tr>
<td>Note: In the event that the credit hours for the minor requirements established by the department which offers that minor are greater than 15, the students may make an appropriate adjustment in the hours allowed for free electives.</td>
<td></td>
</tr>
</tbody>
</table>

Music Theatre Performer

See “Interdisciplinary Program” in College of Fine Arts.

Bachelor of Science Degree

Elementary Education—Music

See description under the College of Education section of this Undergraduate Catalog.

Elementary Education Minor (See College of Education)

Grants certification to teach in elementary grade room (K-5) and music (K-9)

Minimum hours required for this curriculum: 122

Course Requirements

General Education Requirement: 35

<table>
<thead>
<tr>
<th>Movie</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music Major</td>
<td></td>
</tr>
<tr>
<td>Music Convocation 101 (4 semesters)</td>
<td>0</td>
</tr>
<tr>
<td>Basic Music 160-161</td>
<td>6</td>
</tr>
<tr>
<td>Aural Comprehension 162-163-259</td>
<td>3</td>
</tr>
<tr>
<td>Basic Music 261 (20th Cent. Techn.)</td>
<td>2</td>
</tr>
<tr>
<td>Music History and Literature 270-271</td>
<td>8</td>
</tr>
<tr>
<td>Conducting 215</td>
<td>1</td>
</tr>
<tr>
<td>Keyboard Musicianship 220-221-320-321</td>
<td>4</td>
</tr>
<tr>
<td>Note: All students in this curriculum will complete four semesters of keyboard, and/or pass an examination given by the Keyboard and Professional Education areas. No class piano course is to be counted twice. Students who do not qualify for entry in 220 must complete 120 and/or 121 as a deficiency. Students who test out of Advanced Keyboard Musicianship (321) are urged to consider taking Basic Music (260); American Music (350); Non-Western Music (352); Voice (200), or courses not taken in the Choral or Instrumental elective areas. Voice Class</td>
<td></td>
</tr>
</tbody>
</table>

Music Courses (MUS)

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

Ensembles

MUS 105 Campus Choir

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.

MUS *107 Treble Choir

1 hr.

An ensemble of female vocalists which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.

MUS *108 Collegiate Singers

1 hr.

A choral ensemble which develops general musicianship and provides training in choral singing. Performances are presented on campus and in the community. Membership by audition.
MUS 109 Marching Band
1 hr.
The University Marching Band is the major performing ensemble for Fall football activities. Positions are open to all students who play wind or percussion instruments. Music Education: Instrumental majors who play a wind or percussion instrument are required to take this course during two Fall semesters. (Credit in Marching Band may be substituted for P.E. credit) Membership is by audition.

MUS 110 Symphonic Band
(Director: R. Suddendorf)
1 hr.
The University Symphonic Band is dedicated to the performance of outstanding literature, including original works for band, compositions for wind ensemble and orchestral transcriptions. An emphasis is placed on understanding the pieces performed from an aesthetic and stylistic basis as well as from a technical point of view. This ensemble maintains an active performance schedule on campus and in the community, as well as throughout Michigan and the surrounding states. Membership by audition.

MUS 111 University Orchestra
(Director: R. Suddendorf)
1 hr.
The orchestra is open to all students who have had a reasonable amount of orchestral experience. Many fine compositions are studied and played during the year, and the orchestra joins with other campus organizations in joint programs. Instruments are available for the use of students. Membership is by audition.

MUS *112 University Chorale
(Director: M. Ivey)
1 hr.
An advanced choral ensemble which maintains a very active performance schedule on campus and in the community as well as throughout Michigan and surrounding states. Membership by audition.

*Grand Chorus is a large ensemble which performs choral/orchestral compositions. Participation is required of members of the University Choral, Collegiate Singers, and Treble Choir, but membership is open to other singers with the consent of the conductor.

MUS 113 Concert Band
(Director: P. Dunnigan)
1 hr.
The University Concert Band is an all-campus organization dedicated to the performance of fine literature, including original works for band as well as outstanding orchestral transcriptions. The aesthetic aspect of the music is stressed and special emphasis is placed on musical style. This ensemble presents concerts on campus and in the surrounding community. Membership is by audition.

MUS 114 Wind Ensemble
(Director: P. Dunnigan)
1 hr.
An organization which performs a wide range of literature for the modern wind ensemble. This group performs both on and off campus. Membership by audition.

MUS 118 Gold Company II
1 hr.
A vocal jazz and show entertainment ensemble which gives students the opportunity to develop their vocal skills while performing challenging contemporary choral literature. A small instrumental combo accompanies the ensemble, and choreography and specialty acts are included. The ensemble maintains an active performance schedule on campus and throughout the surrounding west Michigan area. Membership is open to all students by audition.

MUS 119 Gold Company
(Director: S. Zegree)
1 hr.
A select ensemble which specializes in Jazz Show Vocal Entertainment. Specialty acts and choreography are included. A small instrumental ensemble accompanies the group. A very active performance schedule is maintained throughout the year, in the community, in Michigan and out-of-state. Membership is open to all University students by audition.

MUS 210 Jazz Lab Band
(Director: T. Kniffe)
1 hr.
The Jazz Lab Band affords students the opportunity to develop performance skills in contemporary and traditional big band jazz. Student compositions and arrangements are encouraged and are a regular part of Lab Band Concerts. The Ensemble performs regularly on campus and in the surrounding community. Membership is by audition.

MUS 211 Studio Accompanying
(Coach: P. Rappeport)
1 hr.
A laboratory experience in accompanying solo music. Students will be assigned three to four hours of varied studio accompanying per week. This course may be repeated for credit not to exceed a total of two semester hours.

MUS 212 Jazz Orchestra
(Director: T. Kynaston)
1 hr.
The University Jazz Orchestra is a select ensemble which affords students the opportunity to perform outstanding literature in contemporary and traditional big band jazz. Special consideration is given to the rehearsal and performance of student compositions and arrangements. The ensemble performs regularly on and off campus. Membership is by audition.

MUS 218 Instrumental Chamber Music
1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be granted only if a sufficient rehearsal/performance schedule warrants.

MUS 317 Opera Workshop
(Director: W. Appell)
1 hr.
A production experience in the acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

MUS 517 Collegium Musicum
1 hr.
Performance of early Western music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required of Music History majors. Graduate students may count more than two hours of this course for graduation. Membership by audition.

MUS 519 Vocal Chamber Ensemble
1 hr.
Small vocal ensemble(s) which emphasize research and limited performance of specialized repertoire of one or various periods of music. Admission by permission of instructor.

Applied Music
Private lessons (applied music) in organ, piano, voice, and all orchestral and band instruments are offered to all University students to the extent that instructor time and practice facilities are available. Priority in applied music study is given first to music majors, second to music minors, and third to students wishing to take the study on an elective basis. All students who take private lessons must register for applied music by reporting to the Music Office to be placed on the reserve list, after which the course must be requested by the students through the standard preregistration or final registration procedures. Only students enrolled in other classes at Western are eligible to receive applied music instruction. Generally, an audition or interview is necessary in order to be approved for study.

Students are required to make arrangements for a lesson time with the private teacher in the first three weeks of classes each term. Each 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 held and graded by a panel of members of the music faculty.

Students who register for one hour of credit per semester receive one 25-minute lesson per week; two credit hours, one 60-minute lesson; four credit hours, one 60-minute lesson. The more credit a student receives in applied music, the more is expected in practice time and materials.

A $7 fee is required for those enrolled in applied music at the 200, 300, 500, and 600 level in order to bring guest artists/performers to campus for additional musical instruction and enrichment.

MUS 088 Music Education Practicum Liability Insurance
0 hr.
Course to provide liability insurance coverage for students participating in music education practicum courses. A fee is assessed at current rates to provide this coverage for September through August.

MUS 089 Music Therapy Practicum Liability Insurance
0 hr.
Course to provide liability insurance coverage for students participating in music therapy practicum courses. A fee is assessed at current rates to provide this coverage for September through August.

MUS 099 Applied Music
0 credit ($75 fee)
Private lessons for any student who wishes to register. No tuition is paid, but a special fee is charged. No audition or final examination is required. Beginning students will be accepted, instructors will be School of Music professors or qualified students.
MUS 100 Applied Music
1-2 hrs. This level of applied music indicates private music study at a fundamental level. Credit earned may be applied to a Bachelor of Music degree only by special arrangement through the School of Music.

MUS 199 Applied Music-Music Theatre
1-4 hrs. This level of Applied Music indicates "lower division" standing for music theatre students who have been approved for this level. Prerequisite: MUS 116.

MUS 200 Applied Music
1-4 hrs ($7.) This level of applied music indicates "lower division" standing for music students who have been approved for this level through auditions or jury examinations.

MUS 201 Sophomore Hearing
1 hr. An examination in applied music. All vocal majors must pass this to qualify for upper level applied study.

MUS 300 Applied Music
1-4 hrs ($7.) This level of applied music indicates "upper division" standing in applied music and is used to designate junior and senior level applied music. A maximum of four credits per semester may be earned at this level.

MUS 301 Senior Hearing
1 hr. An examination in upper level applied music. All Wind-Percussion majors must pass this examination to be cleared for graduation.

MUS 501 Master Class
2 hrs. The study of literature, performance practices, and techniques for a specific musical medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to meetings of the entire class for the purpose of dealing with materials and techniques common to all performers. The class may be repeated for credit. Music majors only.

Music Classes
MUS 101 Music Convocation
No Credit ($45 fee) A series of special musical events required of music majors. Programs include lectures and recitals by faculty, selected students, and guest artists. ($45 fee is assessed to all music majors in order to provide funds for travel and instruments used by students throughout the music program.)

MUS 102 Piano Class I
2 hrs. ($5 fee) This is a beginning course for the development of piano playing skills for non-music majors/minors. The course will cover fundamentals of music reading, keyboard techniques, sight-reading, and harmonization.

MUS 103 Piano Class II
2 hrs. ($5 fee) A continuation of MUS 102 Piano Class I. Because course goals do not align with other keyboard classes in the School of Music, the student will not be prepared to progress into other piano courses offered for music majors/minors. Prerequisite: MUS 102 or instructor consent.

MUS 115 Voice Technique I
2 hrs. The students who have been approved for this course by audition will explore and develop the voice as a healthy instrument for musical theatre performance. Vocal technique will be emphasized with some singing and coaching of easy lyric songs and arias from musical comedy and opera. Application of healthy vocal technique to dialogue will be included. Prerequisite: Audition only.

MUS 116 Voice Technique II
2 hrs. A continuation of MUS 115, Voice Technique I. Prerequisite: MUS 115.

MUS 117 Vocal Techniques for Music Educator
1 hr. A course that develops the understanding of vocal hygiene and vocal production, as well as develop the ability to perform simple phrases with direct application of production principles. Application of vocal production principles will be made using the speaking voice in the classroom. Prerequisite: Music Education major.

MUS 120 Keyboard Fundamentals
1 hr. The course covers basic fundamentals of piano technique, sight-reading, transposition and simple harmonization of melodies using primary harmonies. This course must be taken concurrent with or following MUS 160. Prerequisite: MUS 159 or music reading ability.

MUS 121 Keyboard Fundamentals
1 hr. A continuation of 120. The course of study includes major scales and arpeggios using standard fingering, sight-reading of easy pieces with two independent parts or melody with block chord accompaniment, transposition of a single melody line, and harmonization of melodies using secondary and secondary dominant harmonies. Prerequisite: MUS 120 or instructor consent.

MUS 122 Voice Class
1 hr. A study of the fundamental processes of breath control and tone production, providing some individual instruction in preparing and singing standard song literature. The course is designed to benefit students interested in solo and choral singing.

MUS 123 Voice Class
1 hr. A continuation of MUS 122. Repertoire will include early English songs and 17th and 18th century Italian songs as well as other standard literature, with a minimum of five songs to be memorized during the semester. Prerequisite: MUS 122.

MUS 124 Guitar Class I
2 hrs. This class will enable the student to acquire necessary experience to use the guitar as an accompanying instrument. The course will provide basic instruction in the fundamentals of music reading as well as the fundamentals of guitar. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: MUS 124 or instructor consent.

MUS 125 Guitar Class II
2 hrs. This class is intended for the student who has completed Guitar Class I or the student with some guitar ability who wishes to further develop his/her skills. The course will enable the student to use the guitar as a solo or melody-playing instrument. Instructions will be provided on tablature and transposition as it applies to the guitar and on various techniques as used in both the Classical and Folk idioms for melody or single-note playing. The student will be required to own or have access to a Folk or Classical type guitar. Prerequisite: Completion of MUS 124 or instructor consent.

MUS 126 Fundamentals of Guitar
1 hr. This class is for the music major or minor who has an ability to read music and a basic knowledge of harmony but who cannot already play the guitar. The class will focus on the use of guitar in the music education and music therapy professions and will cover the different styles of beginning guitar playing, including an overview of basic chords, barre chords, and the various strumming and picking patterns. The student must own or have access to Folk or Classical type guitar. Prerequisite: MUS 160.

MUS 128 String Class—Cello, Double Bass
1 hr. A course in the fundamentals of pedagogy and performance for the cello and double bass presented through materials commonly used in classes in the public schools.

MUS 129 String Class—Violin, Viola
1 hr. A course in the fundamentals of pedagogy and performance for the violin and viola presented through materials commonly used in classes in the public schools.

MUS 130 Percussion Class
1 hr. Fundamentals of percussion instrument pedagogy and performance. The student is required to perform on the snare drum in an acceptable manner and to demonstrate a working knowledge of percussion instruments, including methods and materials, care and maintenance, and the function of the percussion section in a band or orchestra. For music majors only.

MUS 131 Flute Class
1 hr. Fundamentals of flute pedagogy and performance. For music majors only.

MUS 132 Oboe Class
1 hr. Fundamentals of oboe pedagogy, performance, and reed-making. For music majors only.

MUS 133 Clarinet Class
1 hr. Fundamentals of clarinet pedagogy and performance. For music majors only.

MUS 134 Bassoon Class
1 hr. Fundamentals of bassoon pedagogy, performance, reed-making, and instrument maintenance. For music majors only.

MUS 135 Saxophone Class
1 hr. Fundamentals of saxophone pedagogy and performance. For music majors only.

MUS 136 Trumpet Class
1 hr. Fundamentals of trumpet pedagogy and performance. For music majors only.

MUS 137 French Horn Class
1 hr. Fundamentals of French horn pedagogy and performance. For music majors only.

MUS 138 Trombone Class
1 hr. Fundamentals of trombone pedagogy and performance. For music majors only.

MUS 139 Tuba Class
1 hr. Fundamentals of tuba pedagogy and performance. For music majors only.
MUS 140 Music for the Classroom Teacher
3 hrs. ($10 fee)
Designed for elementary education students
without regard to previous musical training.
Students are prepared to use music functionally
and developmentally in the elementary
classroom through singing, through playing
the piano and informal instruments, and through
responding to music rhythmically. Creative
aspects and values of music are emphasized,
and materials are studied in relation to their
future uses in the classroom.

MUS 141 Music in Special Education
3 hrs. ($10 fee)
Designed for teachers of exceptional children.
Study of methods and materials for singing,
rhythmic, and creative activities in classes for
emotionally, mentally and physically
handicapped. The student learns functional use
of piano and informal instruments. Values of
musical activities for all exceptionalities are
emphasized. Substitutes for MUS 140 for
Special Education majors.

MUS 142 Oboe/Bassoon Class
1 hr.
Fundamentals of oboe and bassoon pedagogy
and performance. Prerequisite: Music majors
only.

MUS 143 Trumpet/Horn Class
1 hr.
Fundamentals of trumpet and horn pedagogy
and performance. Prerequisite: Music majors
only.

MUS 144 Trombone/Tuba Class
1 hr.
Fundamentals of trombone and tuba pedagogy
and performance. Prerequisite: Music majors
only.

MUS 145 Flute/Saxophone Class
1 hr.
Fundamentals of flute and saxophone
pedagogy and performance. Prerequisite: Music majors
only.

MUS 150 Music Appreciation: Live Music
4 hrs.
An introduction to music and music literature in
concert 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
as a visual as well as aural level. This approach
will also insure a wide sampling of musical
styles and media while encouraging the student
to become more aware of his/her musical
surroundings. A schedule of the musical events
required for the semester will be issued during the
first week of the semester.

MUS 151 Music Appreciation: Jazz/Pop
4 hrs.
A study of the development of jazz and its
importance as an American art form. The
course includes a survey of the beginnings of
jazz as a blending of the musical cultures of
Africa and Europe. The development of jazz
from the late 19th century to the present will be
traced. Current trends in jazz and rock, as well
as electronic influences in contemporary pop
music will be emphasized. Studies will include
sociological and cultural trends and their
influence on the evolution of the various styles
and forms of jazz and pop. Implications for the
future will be considered.

MUS 159 Fundamentals of Music
2 hrs.
A study of fundamentals, including notation,
scales, intervals, basic chord construction, and
the rhythmic/metric aspect of music. This
course is open to all students as an introductory
study in music theory.
attributes required to perform successfully on certain instruments. All will learn the proper techniques for playing various percussion instruments commonly used in the classroom and will be given the opportunity to explore one or more of the brasses and woodwinds. Prerequisite: Instructor consent.

MUS 280 Instruments of the Music Classroom 1 hr.

Students will survey the instruments commonly used in the music classroom. All will learn the proper techniques for playing and teaching autoharp, ukulele, recorder, dulcimer, and others. Emphasis is placed on inclusion of these instruments in the music classroom. Prerequisite: Acceptance into Music Education curriculum.

MUS 281 Introduction to Music Therapy 1 hr.

An orientation to the discipline of music therapy via classroom lectures, video tape presentations, and clinical observations. This course should be taken following or concurrent with PSY 194.

MUS 285 Musical Style and Form for Dancers 3 hrs.

The course surveys composers and musical styles from the Renaissance through the Twentieth Century. There will be an emphasis on the chief stylistic characteristics of the major composers of each period, and discussion of the particular compositions in relation to their suitability for choreographic treatment. Score-reading is an important aspect of the course. Prerequisite: MUS 185.

MUS 289 Music Therapy Activities for Children 2 hrs.

This will examine labels and categorizations involved in children populations, offer instruction in social-recreational instruments, allow for a more indepth study of appropriate music materials and activities, and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Class time will be primarily used for instruction with some selected help times to allow for more individualized instruction. Exams will be written, playing, and/or presentation format. Prerequisite: MUS 126 and MUS 281, or both may be taken concurrently.

MUS 290 Music Therapy Activities for Adults 2 hrs.

This will examine labels and categorizations involved in adult populations, offer instruction in social-recreational instruments (e.g., guitar, ukulele, etc.), allow for a more indepth study of appropriate music materials and activities and allow for experience in designing and implementing music therapy treatment procedures for individuals and groups. Exams will be written, playing and/or presentation format. Prerequisite: MUS 126 and MUS 281, or both may be taken concurrently.

MUS 320 Advanced Keyboard Musicanship 1 hr.

Course emphasis is on the development of accompanying and harmonization skills and an introduction to four-part, open-score reading. Prerequisite: MUS 221 with a grade of "C" or better, or instructor consent.

MUS 321 Keyboard Skills for Vocalists 1 hr.

A course designed to concentrate on piano skills necessary for vocal majors. The course will include accompanying techniques, sightreading, transposition and open score reading, as well as general piano techniques and some functional piano skills. Prerequisite: "C" or better in 320 or instructor consent. Note: Required for Music Education: Choral/General and Applied Voice majors.

MUS 322 Keyboard Harmonization Skills 1 hr.

A course devoted to developing harmonization/improvisation skills necessary for music therapy and elementary education majors. Emphasis will be on the playing of folk and popular music. The coursework will include the use of guitar symbols, playing by ear, some functional keyboard harmony and figured base, as well as sight-reading and keyboard technique. The course will also be open to piano majors wishing to increase their functional skills on the piano. Prerequisite: "C" or better in MUS 320 or instructor consent. Note: Required for Jazz Studies, Elementary Music, and Music Therapy majors.

MUS 330 Choral Conducting and Literature 2 hrs.

The fundamentals of choral conducting are presented, including patterns and rehearsal techniques. The study and selection of literature appropriate to various levels of junior and senior high school choirs is included. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 331 Instrumental Conducting and Literature 2 hrs.

Beginning methods for homogeneous and heterogeneous groups will be used with students acting as conductor-teachers and playing secondary instruments. Literature appropriate to various levels of junior and senior high school bands and orchestras will serve as materials for conducting with students performing on major instruments. Prerequisite: MUS 215 with a grade of "C" or better.

MUS 334 Jazz and Popular Solo Voice 1 hr.

The course will focus on the study of performance of songs in the popular and jazz idioms. Musical phrasing, emotional expression, vocal style, and scat-singing, stage presence and use of microphones will be discussed. Prerequisites: MUS 160 or equivalent and consent of instructor. Voice majors must have a high more standing.

MUS 336 General Music Methods 2 hrs.

A study and survey of sequential musical experiences in general music classes in grades K-8. The course will include education objectives, philosophical concepts, instructional methods and materials and various innovative approaches used in the general music class. Administration and implementation of the class will be examined. The course is especially designed to acquaint the student with various teaching techniques. Each student will have an opportunity to participate in general music classes in area schools one-half day a week. Prerequisite: Acceptance into Music Education curriculum. MUS 088 concurrent or proof of liability insurance.

MUS 339 Choral Techniques 2 hrs.

A course which develops the principles of vocal pedagogy, diction, and improvisation as they apply to choral settings. Study will include the development of the child's and adolescent's voice, selecting and arranging appropriate music for those voices, the problem of vocal abuse, and the rationale behind group vocal warm-up practices. Prerequisite: MUS 330 or concurrent.

MUS 340 Choral Methods 2 hrs.

Extensive involvement with actual teaching of choral music in public schools is a central part of this course. Various philosophies of music education, music reading programs, and choral music education will be discussed. Students will focus on the development of aesthetic behaviors and performance objectives for choral ensembles. Administrative duties needed to implement and maintain a choral program will be identified. Advanced techniques for production of musicals and madrigal dinners, and the principles involved with developing show jazz ensembles will be examined. Job seeking and professional growth will be discussed. Prerequisite: MUS 339 or MUS 344; MUS 088 concurrent or proof of liability insurance.

MUS 344 Instrumental Methods I 2 hrs.

Students will apply various learning theories, behaviorist techniques, and cognitive learning skills to the instrumental music lesson. Students will participate in designing a beginning instrumental music program and a system for initiating goals for program development. Administrative skills needed to implement and maintain an instrumental program will be developed. Various philosophies of music education and curriculum development will be discussed. Field experiences in the schools will constitute some of the assignments in this course. Prerequisite: Acceptance into Music Education curriculum. MUS 088 concurrent or proof of liability insurance.

MUS 345 String Methods 2 hrs.

Extensive involvement with actual teaching of strings in public schools is a central part of this course. The course presents the theoretical, pedagogical, and practical aspects of string instruction in the elementary, middle, and senior high schools. Administrative duties needed to maintain string programs will be examined. Job seeking and professional growth will also be discussed. Prerequisite: MUS 344; MUS 088 concurrent or proof of liability insurance.

MUS 346 Marching Band Techniques 2 hrs.

The student will be required to learn the process of administering a complete marching band program. Course content will include philosophies of marching band programs, techniques of marching band organization and marching band show construction.

MUS 347 Instrumental Methods II 2 hrs.

Advanced study of the materials and methods needed for successful teaching of instrumental music in the schools. Extensive involvement with actual teaching of bands in public schools is a central part of this course. Students will focus on the development of aesthetic behaviors and performance objectives for junior and senior high instrumental ensembles. Highly specialized ensemble techniques such as marching band, arranging, jazz ensemble, solo and ensemble contest and festival preparation, etc., will be discussed. Job seeking and professional growth will be discussed. Prerequisite: MUS 344; MUS 088 concurrent or proof of liability insurance.

MUS 348 Teaching and Learning in Music 2 hrs.

This course is designed to teach students to write outcome statements, to plan and prepare learning activities to reach those outcomes, and to evaluate and assess the process used and outcomes. Classroom management, questioning techniques, conceptual hierarchies, sequencing techniques, program
goals, short and long term goals related to program goals, and lesson planning will be discussed. Application will be in the junior high/ middle school music classroom. Practicum experiences in junior high/middle school general music classroom which provide the student with opportunities to apply principles developed in the class are a part of course requirements. Prerequisites: MUS 336 or MUS 344, MUS 088 concurrent or proof of liability insurance.

MUS 350 American Music 4 hrs.
A survey of the diverse styles of the music of the United States from the Pilgrims to the present. The development of popular music and jazz will be explored as well as that of church, band, and concert music. Folk song and regional styles will be observed as social/musical statements. Cultural change in this country’s history will be viewed from the perspective of its musical heritage. Ability to read music is not required.

MUS 352 Non-Western Music 4 hrs.
A study of the traditional music of China, Japan, Southeast Asia, India and the Arabic countries, as well as non-literate cultures around the world, such as American Indian, Australian Aborigine, African, and Micronesian. One or several cultures will be selected for close study and a particular attempt will be made to understand the customs and attitudes of a people through their music.

MUS 360 Style Analysis 2 hrs.
An analytic study of the larger forms from the instrumental and vocal repertoire. Prerequisite: MUS 260 with a grade of “C” or better.

MUS 362 Seminar in Music Composition 2 hrs.
Original work in composition accompanied by study and analyses of advanced 20th century compositions and creative concepts. May be repeated for credit. Prerequisite: MUS 263.

MUS 366 Instrumental Arranging 2 hrs.
A course designed to give the student experience in arranging music for instrumental groups with emphasis placed on making effective use of the resources available in the average junior high and high school music situation. Prerequisite: MUS 161.

MUS 375 Twentieth Century Music Literature 2 hrs.
A chronological survey of 20th Century music literature through listening and analysis.

MUS 380 Psychology of Music 2 hrs.
Physical, psychological and physiological aspects of sound and systems of tonal relationships. The effects of music on the individual and the consideration of music as a form of communication, the nature and measurement of musicality, the nature of musical memory; the underlying bases for musical taste and for aesthetic experience in music with emphasis on cultural influences. Prerequisite: PSY 194.

MUS 381 Research in the Psychology of Music 2 hrs.
Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music and/or musical behavior. Prerequisite: MUS 380 with a grade of “C” or better.

MUS 383 Observation and Measurement in Music Therapy 1 hr.
Overview of techniques of behavior measurement and accountability paired with actual clinical observations. Prerequisite: MUS 281 or concurrent. Reserve time for observation.

MUS 385 Music for the Special Student 2 hrs.
This course will provide an overview of disabilities, federal and state requirements, and problems of the gifted, talented, and culturally differentiated student. Methods for providing successful music experiences will be discussed. The course will provide opportunities to plan sample strategies (including individualized) for the special student found in the music classroom. Prerequisite: MUS 348 or concurrent.

MUS 386 Technology in Music Education 2 hrs.
This course will prepare the students to utilize educational technology in the music classroom. The course will develop a background in using video tapes/ recorders, stereo equipment, recording techniques, synthesizers, and drum machines. Included in the course will be ways to manage music classrooms utilizing technology, as well as planning ways to utilize technology to enrich musical learning. Evaluation of software and current hardware available to the music teacher will be included. Prerequisite: Music Education major.

MUS 395 Performance Development and Technique 3 hrs.
A workshop format utilizing exercises, scene rehearsals and performances in order to develop student’s performing ability in musical theatre. Content includes sound and motion exercises, routines of a song or ari,a, and projection and auditioning techniques. Prerequisite: Consent of adviser.

MUS 450 Music Appreciation: The Symphony 3 hrs.
The course in THE SYMPHONY is a general music course which presents music for symphony orchestra from the listener’s point of view. It deals with the materials, structure, texture, sonority, and style of orchestral music since the mid 18th century as well as the cultural milieu which gave rise to and brought about changes in musical style. Music reading ability not required. Not open to graduate music majors.

MUS 472 Clinical Practicum in Music Therapy I 2 hrs.
A lecture/laboratory course to provide an opportunity for the music therapy student to apply music therapy principles with assigned individual or group clients in the Music Therapy Clinic and/or affiliated community agencies. Prerequisites: MUS 281, MUS 289, MUS 290, or MUS 383. Reserve time for clinical participation. MUS 088 concurrent or proof of liability insurance.

MUS 473 Clinical Practicum in Music Therapy II 2 hrs.
A continuation of MUS 472. Prerequisite: MUS 472. Reserve time for clinical participation. MUS 088 concurrent or proof of liability insurance.

MUS 479 Influence of Music on Behavior 3 hrs.
A study of the relationship between music and personality and the function of music in personality adjustment and development. The study of research methods shall be pursued through analysis and evaluation of published studies, and skills essential to research shall be developed. Prerequisite: MUS 472. Reserve time for clinical participation. MUS 088 concurrent or proof of liability insurance.

MUS 480 Music Therapy Methods and Materials 3 hrs.
Survey of materials available for use in music therapy programs and methods of adapting such materials to institutional use. Study of publications and techniques developed specifically for use in music therapy programs. Prerequisite: MUS 472. Reserve time for clinical participation. MUS 088 concurrent or proof of liability insurance.

MUS 481 Music Therapy Internship 2 hrs.
A six-month internship at an approved facility. Prerequisite: Consent of department. MUS 089 concurrent or proof of liability insurance.

MUS 490 Undergraduate Workshop in Special Problems 1-3 hrs.
Designed for students interested in some special field of music not formally listed for instruction. All special problems must be approved by the Director of the School of Music, but may be under the direct guidance of any member of the Music faculty. This course may be elected as many as three times.

Open to Undergraduate and Graduate Students

MUS 518 Improvisation 2 hrs.
A course in the fundamentals of instrumental improvisation. Assignments will be made in such areas as improvisation in the early music tradition, improvisation on given melodic, harmonic, and/or rhythmic materials, as well as “free” improvisations. Prerequisite: MUS 161.

MUS 530 Advanced Choral Conducting 2 hrs.
Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 330.

MUS 531 Advanced Instrumental Conducting 2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 331.

MUS 540 Elementary School Music 2 hrs.
Emphasizes the place of music in the curriculum and the use of music in the day-to-day activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

MUS 542 Studies in Music Education: (topic) 2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than 4 credits.

MUS 544 Music Education Materials: (topic) 2 hrs.
A study of the theoretical basis for and practice in analyzing and evaluating music for use in music education programs. This course may be repeated for a maximum of 4 credits.

MUS 546 Computer Assisted Instruction in Music 3 hrs.
The primary goal of the course is to teach students who already program some of the specific techniques used in developing original
software for CAI in music. The main activity in the course will be programming, and one of the products of the course should be, for example, a program of sufficient sophistication so as to at least potentially qualify it for publication. Prerequisite: CS 105 or CS 502 or consent of instructor.

MUS 555 Jazz Arranging
2 hrs.
Jazz Arranging is a study of the art of arranging for the jazz ensemble—both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions and sound potential, and will cover voicings, scoring practices, calligraphy and contemporary trends within the medium. Prerequisite: MUS 161, "C" or better.

MUS 556 Advanced Jazz Arranging
2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, and percussion in relation to traditional and contemporary trends within the medium. Prerequisite: MUS 555 and MUS 264 or concurrently.

MUS 558 Jazz Improvisation I
2 hrs.
A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 161, "C" or better.

MUS 559 Jazz Improvisation II
2 hrs.
A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: MUS 558 and MUS 218 Jazz Ensemble or concurrently.

MUS 560 Counterpoint
2 hrs.
A study of the contrapuntal techniques of the 13th, 16th and 17th Centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: MUS 161 with grade of "C" or better.

MUS 561 Counterpoint
2 hrs.
A continuation of MUS 560. Prerequisite: MUS 560.

MUS 562 Advanced Composition
2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 362.

MUS 563 Advanced Composition
2 hrs.
A continuation of MUS 562. Prerequisite: MUS 562.

MUS 564 Seminar in Electronic Music Composition
2 hrs. ($30 fee)
Overview of electronic composition with digital and analogue synthesizers and computers. Creation of sound scores for concert performance, film, video, dance, theatre or art installations. Includes the investigation of various types of sound synthesis, as well as the operation of studio sound mixers and multi-track tape recorders. In addition to the weekly seminar, the student will be assigned a number of hours weekly for independent work in the studio for the realization of the project, which will receive periodic guidance and criticism from the instructor. May be repeated for credit. Lab fee required. Prerequisite: MUS 263 or permission of instructor.

MUS 565 Seminar in Music Theory
2 hrs.
Research projects in music theory. Research methods and analytic discipline are stressed. Study will be focused in an area of the student's need or interest. Prerequisite: MUS 261.

MUS 566 Musical Acoustics
3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstration of such concepts as: simple vibrating systems; waves and wave propagation; complex vibrations; resonance; intensity and loudness levels; tone quality; frequency and pitch; intervals and scales; tuning and temperament; auditorium and room acoustics; psychoacoustics. In addition, the instruments of the orchestra, the human voice, and recent developments in sound system components will be investigated. Prerequisite: MUS 161.

MUS 567 Orchestration
2 hrs.
A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Prerequisite: MUS 261.

MUS 568 Orchestration
2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.

MUS 570 Introduction to 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. Prerequisites: MUS 261 and MUS 271.

MUS 571 Introduction to Musicology
3 hrs.
A continuation of MUS 570.

MUS 572 Baroque Music (1600-1750)
3 hrs.
A survey of the choral and instrumental music of the Baroque masters such as J.S. Bach and G.F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisite: MUS 270 and MUS 271.

MUS 573 Classical Music (1750-1800)
2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Prerequisites: MUS 270 and MUS 271.

MUS 574 Romantic Music (1800-1910)
3 hrs.
Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Prerequisite: MUS 270 and MUS 271.

MUS 575 Musicology and Research
2 hrs.
Presentation of musicalological material in formal writing as well as informal classroom lecture; specific research projects with emphasis on selection and qualitative judgment of materials used. Prerequisites: MUS 270 and MUS 271.

MUS 576 Musicology and Research
2 hrs.
A continuation of MUS 575. Prerequisite: MUS 575.

MUS 577 Symphonic Literature
2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.

MUS 578 Chamber Music Literature
2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

MUS 579 Operatic Literature
2 hrs.
A survey of opera from 1600 to the present.

MUS 580 Solo Literature (Topics)
2 hrs.
Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisite: MUS 270 and MUS 271.

MUS 581 Choral Music Literature
3 hrs.
A study of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

MUS 583 Jazz History and Literature
4 hrs.
A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style. Prerequisite: MUS 558 or department's consent.

MUS 585 Medieval Music
2 hrs.
A survey of music in Western Europe from the end of Antiquity to the early 15th century. The major developments in style, theory, and notation will be explored within the context of the general cultural and political environment of the era. Problems of performance practice will receive special attention with emphasis on primary manuscript sources and scholarly performing editions. Prerequisites: MUS 270 and MUS 271.

MUS 586 Renaissance Music
2 hrs.
A survey of music in Western Europe from the early 15th century to the early 17th century. Developments in the major musical genre of the era will be examined with emphasis on a comparison of the Franco-Flemish tradition with the emerging national styles. Performance practice options will be explored. Prerequisites: MUS 270 and MUS 271.

MUS 590 Studies in Pedagogy
1-4 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit. Prerequisite: MUS 300 level applied voice or permission of instructor.

MUS 594 Electronic Media
2 hrs. ($30)
The purpose of this course is to expose the student to the equipment used in various recording situations and its operation, as well as discussing the artistic use of this equipment. Although predominately a techniques course, areas which affect the creative aspects of the final recording will be discussed (such as microphone placement, tasteful vs. inappropriate editing, etc.). In addition to the recording aspects, other electronic instruments
used in performances will be surveyed, including synthesizers of various types (both keyboard and non-keyboard) and traditional electronic instruments (guitars, electronic organs, electronic pianos, and various sound modification devices).

MUS 595 Workshops in Music Education
1-4 hrs.
Intensive, short term courses that address the instructional and pedagogical issues found in today's schools, as well as issues of specific concern for current teachers in the field of music. Topics will be from all areas of music education. Prerequisite: adviser's consent.

MUS 597 Projects in Music
1-4 hrs.
A program of independent study to provide the unusually qualified music student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the School of Music. The initiative for planning the project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by music adviser.

MUS 598 Readings in Music
1-4 hrs.
Intensive, short term courses that address the music. Topics will be from all areas of music including two majors, and two minors.

THEATRE
D. Terry Williams, Chair
Helen L. Bray
James Daniels
Dennis Faustino
C. J. Gianakaris
Russell J. Grandstaff
S. Mark Hoffman
David Karsten
Greg D. Roehnck
Lydia Stilwell
Vern Stilwell
Von H. Washington
Judith K. Masse, Administrative Assistant

The Department of Theatre offers programs leading to Bachelor of Arts and Bachelor of Science degrees. Students should refer to degree and General Education requirements within this catalog for specifics. The Department of Theatre concentrates on undergraduate programs that stress the interdependency of academic and production experiences, the importance of a broad theatre background, and the mastery of theatre fundamentals in preparation for the more advanced theatre training offered in graduate schools or professional theatre internships.

Admission as a major
Enrollment in the theatre curriculum is contingent upon admission to the University and the approval of the Department of Theatre. Information regarding application is available on request through the department office. Information regarding admission and transfer credit may be obtained by contacting the theatre academic adviser at the Department of Theatre office in Shaw Theatre.

Advising
Adviser: Dr. Vern Stilwell
Shaw Theatre: (616)387-3220

The theatre academic 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 adviser, who will help them plan their program and complete the required major or minor slip as soon as they begin their course work in theatre.

Transfer Credit
It is department policy to accept no more than 18 hours of transferred credit toward a non-teaching major, 12 hours toward a teaching major, and 9 hours toward a minor.

Programs
The Department of Theatre offers curricula including two majors, and two minors.

Theatre Major
Bachelor of Arts or Bachelor of Science
57 Credit Hours
This program is designed for the students who want to prepare for graduate study in theatre or advanced, specialized professional training. It offers a program combining a broad background in theatre with concentration in performance or design and technical production.

Required Courses
Hrs.
THEA 120 Stagecraft I .............. 3
THEA 141 Improvisation ............ 3
THEA 142 Acting I ................. 3
THEA 170 Script Analysis .......... 3
THEA 232 Scenic Design .......... 3
THEA 290 Theatre Practicum ...... 6
THEA 331 Costume Design ........ 3
THEA 332 Lighting and Sound Design .... 3
THEA 351 Directing I .............. 3
THEA 370 Theatre History I ....... 3
THEA 371 Theatre History II ....... 3
THEA 470 Development of Theatre Art .... 3

Required Course of Study in Performance
THEA 241 Voice and Movement I .... 3
THEA 242 Voice and Movement II .... 3
THEA 341 Acting II ................. 3
THEA 342 Acting III ................ 3
THEA 441 Acting Studio .......... 3
THEA 442 Period Styles of Acting .... 3

Required Course of Study in Design and Technical Production
THEA 220 Stagecraft II ............ 3
THEA 231 Drafting and Color Media .... 3
THEA 420 Advanced Technical Problems ... 3
THEA 431 Advanced Design ......... 3
Electives (Art, Engineering, Consumer Resources, English, Theatre) .............. 6

A grade of "C" or better is required in all courses.

SUGGESTED COURSE OF STUDY FOR PERFORMANCE MAJORS
First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290
First Year—Winter (These courses may be taken either semester)
THEA 141, 142, 290
Second Year—Fall
THEA 241, 331, 290
Second Year—Winter
THEA 242, 232, ENG 252 (General Education; prerequisite to THEA 370), THEA 290
All Performance students following this course of study are reviewed by the Performance faculty at the end of the second year.

Satisfactory review is necessary for the student to elect upper-level courses.
Third Year—Fall
THEA 341, 351, 370, 290
Third Year—Winter
THEA 332, 342, 352, 371
Fourth Year—Fall
THEA 441, Direct Lab Show (Elective), THEA 290
Fourth Year—Winter
THEA 470, 442

SUGGESTED COURSE OF STUDY FOR DESIGN AND TECHNICAL PRODUCTION MAJORS
First Year—Fall (These courses may be taken either semester)
THEA 120, 170, 290
First Year—Winter (These courses may be taken either semester)
THEA 141, 142, ENG 252 (General Education; prerequisite THEA 370), THEA 290
Second Year—Fall
THEA 220, 231, 370, 290
## Theatre Education Major

**Bachelor of Arts or Bachelor of Science**

39 credit hours

This program is designed for students planning to teach theatre programs in secondary schools.

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>THEA 120 Stagecraft I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 141 Acting I</td>
<td>3</td>
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<tr>
<td>THEA 170 Script Analysis</td>
<td>3</td>
</tr>
<tr>
<td>THEA 232 Scenic Design</td>
<td>3</td>
</tr>
<tr>
<td>THEA 290 Theatre Practicum</td>
<td>3</td>
</tr>
<tr>
<td>THEA 331 Costume Design</td>
<td>3</td>
</tr>
<tr>
<td>THEA 332 Lighting and Sound Design</td>
<td>3</td>
</tr>
<tr>
<td>THEA 351 Directing I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 370 Theatre History I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 371 Theatre History II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 470 Development of Theatre Art</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

**College of Education, and the State Board of Education**
**Secondary Certification does not apply to this program.**

Students selecting this major are strongly urged to select an area of specialization. The remainder of these courses are strongly recommended as elective to complement your major:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 140</td>
<td>Studio Experience (20)</td>
<td>3</td>
</tr>
<tr>
<td>ART 201</td>
<td>Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ART 202</td>
<td>Acrylic Painting</td>
<td>3</td>
</tr>
<tr>
<td>ART 208</td>
<td>Watercolor</td>
<td>3</td>
</tr>
<tr>
<td>ART 220</td>
<td>History of Art</td>
<td>3</td>
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<tr>
<td>ART 221</td>
<td>History of Art II</td>
<td>3</td>
</tr>
<tr>
<td>CRT 124</td>
<td>Clothing Construction</td>
<td>3</td>
</tr>
<tr>
<td>CRT 326</td>
<td>History of Costuming</td>
<td>3</td>
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<tr>
<td>CRT 327</td>
<td>History of Costuming II</td>
<td>3</td>
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<tr>
<td>ENG 105</td>
<td>Thought and Writing</td>
<td>3</td>
</tr>
<tr>
<td>ET 141</td>
<td>Introduction to Technical Drawing</td>
<td>3</td>
</tr>
<tr>
<td>ET 142</td>
<td>Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>ET 190</td>
<td>Crafts and Adapted Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ET 246</td>
<td>Introduction to Computer Design</td>
<td>3</td>
</tr>
<tr>
<td>THEA 356</td>
<td>Directing II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 390</td>
<td>Professional Theatre Internship</td>
<td>3</td>
</tr>
<tr>
<td>THEA 400</td>
<td>Special Topics in Theatre</td>
<td>3</td>
</tr>
<tr>
<td>THEA 490</td>
<td>Individualized Study</td>
<td>3</td>
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</tbody>
</table>

## Theatre Minor

24 credit hours

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<tr>
<th>Required Courses</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>THEA 120 Stagecraft I</td>
<td>3</td>
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<tr>
<td>THEA 141 Acting I</td>
<td>3</td>
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<tr>
<td>THEA 170 Script Analysis</td>
<td>3</td>
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<tr>
<td>THEA 232 Scenic Design</td>
<td>3</td>
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<tr>
<td>THEA 290 Theatre Practicum</td>
<td>3</td>
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<tr>
<td>THEA 331 Costume Design</td>
<td>3</td>
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<tr>
<td>THEA 332 Lighting and Sound Design</td>
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<tr>
<td>THEA 351 Directing I</td>
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<tr>
<td>THEA 370 Theatre History I</td>
<td>3</td>
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<tr>
<td>THEA 371 Theatre History II</td>
<td>3</td>
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<tr>
<td>THEA 470 Development of Theatre Art</td>
<td>3</td>
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</tbody>
</table>

A grade of "C" or better is required in all courses.

**SUGGESTED COURSE OF STUDY FOR THEATRE EDUCATION MAJORS (THM)**

**First Year—Fall** (These courses may be taken either semester)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>THEA 120</td>
<td>Theatre History I</td>
<td>3</td>
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<tr>
<td>THEA 170</td>
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<tr>
<td>THEA 351</td>
<td>Directing I</td>
<td>3</td>
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<tr>
<td>THEA 470</td>
<td>Methods of Teaching Theatre in High School</td>
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A grade of "C" or better is required in all courses.

## Theatre Education Minor

24 credit hours

<table>
<thead>
<tr>
<th>Required Course</th>
<th>Hrs.</th>
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<tbody>
<tr>
<td>THEA 120 Stagecraft I</td>
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<tr>
<td>THEA 351 Directing I</td>
<td>3</td>
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<tr>
<td>THEA 471 Methods of Teaching Theatre in High School</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

## Music Theatre Performer

See "Interdisciplinary Program" in the College of Fine Arts.

## Theatre Courses (THEA)

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>THEA 100</td>
<td>Introduction to Theatre</td>
<td>3</td>
</tr>
<tr>
<td>THEA 241</td>
<td>Voice and Movement I</td>
<td>3</td>
</tr>
<tr>
<td>THEA 272</td>
<td>Music Theatre History</td>
<td>3</td>
</tr>
<tr>
<td>THEA 471</td>
<td>Methods of Teaching Theatre in High School</td>
<td>3</td>
</tr>
</tbody>
</table>

A grade of "C" or better is required in all courses.

**THEATRE 239**

**THEA 141 Improvisation**

3 hrs.

Techniques of improvisational performing. This course includes spontaneous and planned exercises to evoke and inspire the actor's capacity for inventive imagination and sense of ensemble.

**THEA 142 Acting I**

3 hrs.

Study and practice of the basic principles of acting.

**THEA 170 Script Analysis**

3 hrs.

The study of selected plays from the standpoint of the theatre artist. Emphasis on thorough examination of the play script preparatory to production.

**THEA 220 Stagecraft II**

3 hrs.

A course in technical production including the planning and construction of complex stage scenery, costumes and properties; scene painting; lighting technology; and laboratory work on University Theatre productions. Prerequisite: THEA 120. (Lab fee required for materials.)

**THEA 230 Stage Makeup**

3 hrs.

Study and practice of the basic principles and techniques of stage makeup.

**THEA 231 Drafting and Color Media**

3 hrs.

A methods course for beginning students in lighting, costume, scenic design, and technical production providing instruction and practice in the special techniques of drafting for the theatre and in the use of various color media for design renderings and scale models. Prerequisite: THEA 120.

**THEA 232 Scenic Design**

3 hrs.

A course in scenicography covering the design of stage setting and properties expressed through color renderings and/or the scenic model, including further development of skills in drafting for the theatre. Prerequisite: THEA 120.

**THEA 241 Voice and Movement I**

3 hrs.

Development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisites: THEA 141 and THEA 142.

**THEA 242 Voice and Movement II**

3 hrs.

Continued development and training of the actor's vocal and physical instrument for theatrical performance. Prerequisite: THEA 241.

**THEA 272 Music Theatre History**

3 hrs.

A chronological study of all performing aspects of musical theatre (opera, operetta, singspiel, vaudeville, dance theatre, musical comedy), especially from 1600 to the present. The performing aspects are integrated with the life and times of the people involved.

**THEA 290 Theatre Practicum**

1-8 hrs.

Supervised experience in various areas of theatre in the University Theatre program. May be repeated for credit up to a maximum of eight semester hours (only six of which can apply toward major and three toward minor).
THEA 331 Costume Design
3 hrs.
A course in the design of theatrical costumes and accessories expressed through color rendering and including an overview of the history of the costume. Prerequisite: THEA 120 (THEA 231 recommended).

THEA 332 Lighting and Sound Design
3 hrs.
A course in the design of theatrical lighting and sound and in the practical application of those designs to the stage, including laboratory work on University Theatre productions. Prerequisites: THEA 120, 232, 331. (Lab fee required for materials.)

THEA 341 Acting II
3 hrs.
This course integrates theories and practices of improvisation, Acting I, and Voice and Movement I and II in the process of role study and development. Satisfactory staff evaluation of this course is required to elect more advanced acting courses. Prerequisite: THEA 242.

THEA 342 Acting III
3 hrs.
The application of role study and analysis to character development in the preparation and performance of scenes from full-length plays. Prerequisite: THEA 341.

THEA 351 Directing I
3 hrs.
Functions of the play director as teacher, interpreter, coordinator, and collaborator. Focus is upon principles and problems of directing on the proscenium stage. Prerequisites: THEA 141, THEA 142, THEA 170, THEA 232.

THEA 352 Directing II
3 hrs.
A continuation of THEA 351. Students prepare and direct scenes and one short play using non-proscenium staging. Prerequisite: THEA 351.

THEA 370 Theatre History I
3 hrs.
Survey of theatre history from the beginnings to 1642. Playwrights, acting styles, theatre production, theatre architecture, and audience taste are studied. Prerequisite: ENGL 252.

THEA 371 Theatre History II
3 hrs.
Survey of theatre history from 1642 to the 20th century. Playwrights, acting styles, theatre production, theatre architecture and audience taste are studied. Prerequisite: THEA 370.

THEA 372 Music Theatre Script Analysis and Critique
3 hrs.
Students will learn how to analyze the libretti and scores of opera, operetta, musical comedy, ballet, and dance theatre. Students are required to attend and submit critiques of several live productions.

THEA 390 Professional Theatre Internship
3 or 6 hrs.
Advanced theatre majors may receive credit for participating in the Professional Theatre Internship Program with major professional theatres. Students must arrange an internship application and number of credits with the department's Internship Coordinator. A maximum of six credit hours may be accumulated. Prerequisite: Consent of Internship Coordinator.

THEA 400 Special Topics in Theatre
3 hrs.
An investigation of topics of special interest related to theatre. Repeatable for credit under a different title. Examples of topics for study may include: dialects, mime, puppetry, script

THEA 420 Advanced Technical Problems
3 hrs.
An investigation of the application of modern materials and techniques to the problems of the technical production of scenery, costumes, properties, lighting and/or sound in the theatre. Prerequisites: THEA 220, or 322, or 331, or 332.

THEA 431 Advanced Design
3 hrs.
A course for advanced students in the design of scenery, costumes, properties, and/or lighting; the professional drafting of those designs for technical production; and the preparation of the designer's resume and portfolio. Prerequisites: THEA 232, or THEA 331 or THEA 332.

THEA 441 Acting Studio
3 hrs.
An advanced course in the art of acting with emphasis on the individual needs of the student actor. May be repeated for a maximum of 6 credit hours, only 3 of which are applicable toward major. Prerequisite: THEA 342.

THEA 442 Period Styles of Acting
3 hrs.
Study and practice of acting in plays from selected major periods of theatre activity prior to the 20th century. Topics may include Greek, commedia dell' arte, Shakespeare, Moliere, Restoration, and examples from 18th and 19th century drama. Prerequisite: THEA 441.

THEA 470 Development of Theater Art
3 hrs.
A survey of the development of theatre art and its relationship to the concurrent development in other arts. Recommended for students considering graduate work in the fine arts. Prerequisite: THEA 371.

THEA 471 Methods of Teaching Theatre in High School
3 hrs.
Approaches to teaching theatre in secondary schools. Emphasis on curriculum planning, syllabus, lesson plans, texts, relationship between theatre classes and co-curricular productions. Prerequisite: THEA 352 and ED 301.

THEA 490 Individualized Study in Theatre
Variable
Designed to enable upper division theatre majors, or students in special programs, to initiate, plan and execute projects in particular aspects of theatre. Must be planned in collaboration with a member of the theatre faculty who will act as supervising teacher. Not designed to replace other theatre courses. A maximum of six semester hours may be accumulated, though the student may register for a maximum of three credits each time. Projects may involve study and research in an area of special interest, special performances or other creative activities. Prerequisite: Consent of performance or tech/design area, departmental adviser, and departmental chair.
General Purposes Courses (GENL)

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

GENL 151 Library Resources I
1 hr.
Students will be introduced through lectures, projects and exercises, to materials, methods and people that can help them find what they want in the library. They will become acquainted with (1) library organization, including the card catalog; (2) forms of publication—books, documents, periodicals, microforms, etc.; (3) indexes, bibliographies, on-line computer retrieval systems and other reference tools which aid in the pursuit of information; and (4) strategies for using the library effectively. All of this is intended to help students with their course work and to pursue their personal and career interests in the future. Does not count for General Education. Cannot be repeated for credit.

GENL 195 Methods of Inquiry
4 hrs.
An introduction to independent study techniques, with emphasis on asking questions and locating sources of information. Students will design an independent study project and do some preliminary investigation in their field of interest.

GENL 304 Introduction to the Non-Western World
4 hrs.
A survey of the traditional cultures of certain major societies which have developed essentially apart from the stream of Western civilization. This is followed by an analysis of the Western impact on these societies and their reactions thereto, and by a study of contemporary social, economic, and political problems of non-Western countries.

GENL 305 Non-Western Societies in the Modern World
4 hrs.
An analysis of the distinctive cultural configuration of one of the following regions: East Asia, Southeast Asia, South Asia, the Middle East and North Africa, Sub-Saharan Africa. The type of civilization being made in the particular region from a traditional to a modern society will be explored through an examination of the interrelationship between technology, social structure and ideology.

GENL 333 American Studies
1-4 hrs.
A variable-topics course reflecting the broad range of the American cultural experience. Although the topics may vary, the objective is to broaden our understanding of America through the wide range of themes that such a course offers. Topics might include: Film and American Life, Sports as American Metaphor; the American Way of Death; the World of American Mystery Fiction; America through Photography; Country Music and the American Scene; and American Humor, Wit and National Character. May be repeated for credit when topic changes. Does not count for General Education.

GENL 341 Library Resources II
2 hrs.
Students are asked to select a section of the course that emphasizes either the humanities, the social sciences or the sciences. Students will be introduced through lectures, exercises and a term project to some of the standard reference sources and the basic library research methods in the field emphasized in their section of the course. The course is intended to be of immediate use to students who have specific library needs related to courses in their fields. The course is also intended to provide a broad acquaintance with aids to research in the various disciplines, which are useful for general as well as specialized inquiry, resulting in insight as well as skill. Does not count for General Education credit. Cannot be repeated for credit.

GENL 499 Independent Study in General Studies
1-8 hrs.
Various extra-classroom activities, including independent reading or research under the direction of a faculty member or projects associated with field experience or travel of recognized educational value. Prior arrangement with a faculty member and prior approval of the Chair of the General Studies Faculty and the office of the Dean of the College. May be repeated for credit. This course will not be accepted for General Education credit without the approval of the Coordinator of General Education Advising.

Goals of the College

1. The goals of the College of General Studies will be compatible with the goals of the University.

2. The most comprehensive goal of the College of General Studies is to assist students in developing the ability to think critically and to engage successfully in intellectual pursuits. The General Studies program seeks to engender the disposition to seek knowledge and the habit of bringing knowledge of all kinds to bear on decision making.

3. The College of General Studies aims to assist students in developing confidence in their ability to make judgments while acquiring a willingness to reconsider their judgments in the light of new insights, information, and patterns of values.

4. The College of General Studies acknowledges positively more than one mode of inquiry and encourages exploration of interdisciplinary interests and programs of study.

5. The College of General Studies maintains a coherent program that assists students in developing a responsible awareness of themselves as human beings and of their social and physical environments.

Within the framework of these goals, the faculty of the College has developed individual courses for the Distribution Program which provide alternate choices for students in meeting their general education requirements. Students in the Distribution Program choose from among interdisciplinary courses offered by Humanities, Science, and Social Science, and from among General Purpose courses which apply toward general education area requirements.
HUMANITIES
Visio Sharma, Chair
Philip D. Adams
Lynwood H. Bartley
Lewis H. Carlson
Beverly R. David
Audrey Davidson
Richard dePeau
Howard Dooley
James M. Ferrara
Reginald Gammon
Arnold Gerstein
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.

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

GHUM 102 Direct Encounter with the Arts
A course that uses a direct approach to introduce students to their cultural world by guiding them through first-hand experiences in a number of arts: cinema, photography, theater, sculpture, music, poetry, dance, and architecture. Classroom discussions are held following the students' participation in the various art events scheduled each semester, with students expected to write journals or response papers about the major events of the course. There will be a course charge in lieu of textbooks.

GHUM 105 Introduction to Humanities
A study of one or more of the following themes: love, death, heroism, morality, and freedom, as they have appeared in myth, philosophy, religion, and the arts.

GHUM 300 Arts and Ideas (variable subsections)
4 hrs.
A. Classical to Renaissance
This course, by showing the key stages in the interplay of religion, science, philosophy, and the arts from the age of Socrates to the Renaissance, explores the background of the modern world. 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 GHUM 300A and 300B, with the emphasis on a comprehensive examination of selected arts of modern Western culture (four from among the following: architecture, dance, film, literary arts, music, painting, and sculpture) demonstrating their relationship to the major intellectual and social currents of the twentieth century. May be taken separately from GHUM 300A and GHUM 300B, neither of which is a prerequisite.

GHUM 302 American Culture
4 hrs.
A study of significant concepts in American life focusing on the relationship of the individual to society as seen from the perspectives of literature, the arts, and social and political theory.

GHUM 310 Minority Culture
4 hrs.
An interdisciplinary study of minority cultures in terms of their relations with the majority culture and their ability to maintain a separate identity. Attitudes, problems, and symbols that characterize minority cultures are examined through literature and other arts as well as diverse socio-cultural perspectives.

GHUM 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 students' consciousness of their own communication behavior and through exposing them to the ideas of various communication specialists.

GHUM 316 Mass Media: Messages and Manipulation
4 hrs.
An examination of mass communication in general and of particular mass media. Students will consider the processes, effects, and functions of mass media, and their personal responses to these, through considering relevant scholarship from such diverse fields as sociology, history, psychology, anthropology, art, and literature.

GHUM 402 Beyond 2000: Utopian Visions and Futurism
4 hrs.
A lecture/discussion course which introduces the student to the classic literature of utopias and contemporary futurology, covering utopias of escape and reconstruction from Plato to Skinner, the anti-utopias of Huxley and Orwell, and contemporary futurology, covering utopias of escape and reconstruction from Plato to Skinner, the anti-utopias of Huxley and Orwell, and futurist visions of the world of the 21st century.

GHUM 409 Women: Past, Present and Future
4 hrs.
This course will concern itself with the subject of "women" as a legitimate field for scholarly inquiry and 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.

GHUM 410 Critical Times
4 hrs.
An interdisciplinary study of selected short periods of cultural change. Emphasis will be on the unity of the period and on how significant events, issues and attitudes are reflected in literature, the media, and popular arts. Examples are the Progressive Era, the Twenties, the Vietnam Era.

SCIENCE
Visio Sharma, Chair
Shirley Bach
Franklin G. Fisk
Ronald Flaspohler
David Hargrave
Jules Mollere
Robert H. Poel
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. This is followed by exploration of different points of view and the evolution of alternative solutions in terms of practical considerations and moral and ethical values.

Other courses are directed toward students in elementary education. Scientific concepts and processes are considered in the context of new elementary science programs that see science as a vital part of the general education of children.

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

GSCI 130 Social Issues in Physical Science
4 hrs.
A course designed to look at current science-related problems of society having their factual core of knowledge in the physical sciences. Sufficient understanding of this knowledge is acquired to give non-science students 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.

GSCI 131 Physical Science in Elementary Education
4 hrs.
This course is designed to introduce students to some of the broad concepts of physical science and to the methods of inquiry that have been useful in developing these concepts. Student experiences are designed to further understanding of the interrelationships between the physical sciences and society, as well as those between the physical sciences and elementary general education, and will be taught in laboratory groups of limited size. Because of its broad-based nature, this course is especially valuable for elementary education majors and is at the same time appropriate for majors and minors in all fields of endeavor.

GSCI 132 Aims and Achievements of Science
4 hrs.
This course is designed as a broad philosophical and historical view about science as a human endeavor. It examines the aims or goals of science and compares these to the achievements of the scientific enterprise, as well as demonstrating the methods of science and other methods of obtaining reliable information. The course,
designed for the non-scientist, is a non-mathematical examination of science and the way it affects and is affected by culture. The interrelationships between science and other disciplines and some of the important issues of our day are discussed.

GSCI 133 Issues in Social Biology 4 hrs.
This course involves a study of some recent advances in biology and medicine, their social and ethical implications, and the public-policy problems raised by such questions as organ transplantation, drugs, population control and size, genetic engineering, pollution, and the ethical and moral concerns implicit in these.

GSCI 134 Problem-Solving and Decision-Making 4 hrs.
This course helps students become more proficient in the essential skills of solving problems and making decisions 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.

GSCI 231 Physical Science in Elementary Education II 4 hrs.
This course is a continuation of GSCI 131. Physical Science in Elementary Education, for those students who desire or need further study in the concepts and methods of the physical sciences. Instruction will be in laboratory sections of limited size, and a learning-by-doing inquiry approach will be utilized. This course will further elaborate on some concepts introduced in GSCI 131 and will also introduce additional important concepts in the physical sciences. Prerequisite: GSCI 131 or consent of instructor.

GSCI 432 Science and Parascience 4 hrs.
The goal of this course is to examine open-mindedly several "alternate visions" of the nature and origin of human life in the light of the attitudes and objectives associated with science. Topics examined: astrology, future-predicting machines, ghost-seeing between entities, ESP, telepathy, the aura, PK, UFO's, extraterrestrial life, ancient astronauts, and others.

GSCI 433 Science, Technology, and Society 4 hrs.
This course consists primarily of seminars and discussions centering on the impact of science and technology on contemporary society, viewed from a variety of perspectives. One objective will be to assist the student in acquiring knowledge about current scientific and technological problems.

GSCI 434 Biomedical Ethics and Society 4 hrs.
This course concentrates on contemporary scientific and ethical issues in biomedicine. The range of issues discussed includes: new reproductive technologies and their appropriate use; experimentation on human subjects (the meaning of informed consent, risks and benefits); new technologies to extend life and the quality of the life extended; biological engineering; death, transplantation, and resource allocation; ethical aspects of biomedical innovation.

SOCIAL SCIENCE

Visho Sharma, Chair
Do Young Chang
Sush Datta Sandhu
David DeShon
David Ede
Norman Greenberg
Francis Gross
Bruce Haight
Nita Hardie
Barbara Havira
Artur Helweg
Lawrence Israel
Abdullah Khan
Patricia Klein
George LeBonte
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. The main objective in the teaching-learning process is to facilitate the development of social self-consciousness, an awareness that individuals experience life and define and express their humanity within a human group that is part of a larger social network. To achieve this, social science courses are designed to provide the student an opportunity to examine the cultural reality of behavior: ideas, and values as well as the dynamic and continuing processes by which these are diffused across cultures; the idea that humanness has a socially-determined and historical, as well as individual, basis; the view that there are reciprocal influences of environmental settings, cultural processes, social forces, and individual expression; the view that the social processes of any group tend to define the limits of individual activity; the importance of an empirical analysis of private and social perspectives as well as the predictions that these permit; perspectives which go beyond the specificities of the regular social science disciplines; and experience-based views of social reality that are placed into juxtaposition with one or more theoretical formulations of social processes, the views of student peers, and those of the instructor.

GSSC 222 The Status of Women 4 hrs.
This course is designed as a general exploration of the content and the effect (including affect) of the traditional definition of "woman." Attention is given to such sources as law, religion, literature and art, mass media, psychology, biology, and social conventions, and to the social processes which transmit and reinforce sex role behavior.

GSSC 301 Men, Women, and Work 4 hrs.
This course examines recent significant changes in the structure and conditions of work in industrial society from historical, sociological, political and economic perspectives. These changes include a shift from "smoke stack" to service and government employment, the increasing employment of women, and the role of government in regulating the treatment of workers.

GSSC 325 Self-Images and Social Images 4 hrs.
An inter-disciplinary inquiry into the personal and social factors which shape self-images. The course will examine how images of the self are related to the images of other individuals and groups. The aim is to understand how this process affects the quality of our lives.

GSSC 351 The Twentieth Century Experience 4 hrs.
This course will survey and analyze such key issues as war and peace, revolution and human rights, in the context of changing ideas and beliefs. These issues will be presented against the socio-economic background of world population, urban growth, food and energy, agriculture and industrialization. The course will emphasize the need for a new ethos to match our growing technological capacities.

GSSC 356 In Pursuit of Awareness 4 hrs.
This course is a study of the methods and techniques by which individuals acquire, transmit, utilize, and block knowledge. The students apply various theories of perception in case-studies, exercises, and problem-solving sessions during classroom sessions and in written assignments. These sessions and assignments are designed to give students insights and skills of interpretation that will be useful to them throughout their lives.

GSSC 425 Theories of Human Behavior 4 hrs.
A critical inquiry into the development of social science method and theory with a focus on key individuals who have influenced the directions of present-day inquiry.

GSSC 444 Female and Male: Psychological Perspectives 4 hrs.
This course will examine traditional and contemporary psychological theories and related research on women and men. The course will investigate age-old assumptions about sex roles and sex identity through an analysis of the psychological literature of the twentieth century.

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

GSSC 121 Dimensions of Human Behavior 4 hrs.
A series of learning experiences designed to explore the social, psychological, and cultural dimensions of human behavior, using both individual and group approaches to learning. The emphasis is upon those social processes which impose restraints upon human behavior.

GSSC 123 Human Society 4 hrs.
A study of the biological and social aspects of human diversity. Discussions of the structure of society and its institutions will give special attention to contemporary topics in the American scene as values, political and economic systems, ethnic relations, environmental quality.
THE COLLEGE FACULTY

Molly Vass
Morton Wagenfeld

The College of Health and Human Services provides programs in Blind Rehabilitation (at the graduate level); Community Health Services, including Gerontology, (undergraduate and graduate); Physician Assistant (undergraduate); and Alcohol and Drug Abuse, concentrations in Health Care Administration and Holistic Health Care (at the graduate level); and Occupational Therapy, Social Work, and Speech Pathology and Audiology. Through these professional programs, education, research, and community assistance in health and human services are provided. The programs cover direct service roles in the health and human service professions, as well as functions of policy development, planning, and administration. Students may earn the degrees of Bachelor of Science in Occupational Therapy, Bachelor of Arts or Science in Speech Pathology and Audiology, and Bachelor of Medical Science for Physician Assistant; Master of Arts in Blind Rehabilitation and Speech Pathology and Audiology; Master of Science in Occupational Therapy; and Bachelor and Master of Social Work through their studies.

Mission

The mission of the College of Health and Human Services at Western Michigan University is to contribute to the improvement of the quality of health and human services in the west Michigan area, the State of Michigan, and the nation as a whole through degree and non-degree instructional programs, research, and community service activities. The mission includes a commitment to foster development of a comprehensive health and human service care system responsive to the citizens of the state and the nation 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.
Interdisciplinary Program

Integrated Language Arts Minor (ILAM)

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

An interdisciplinary program of:

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

This 24-hour interdepartmental program for preservice elementary school teachers emphasizes the integrated nature of language learning. The critical importance of fieldwork in the learning of preservice teachers is recognized in the program and is an integral part of each course. The program is 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. ENGL 282, Children’s Literature, is also recommended. 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, Dr. Jim Burns, 3414 Sangren Hall, 387-3470.

Students must see an adviser for entrance into the minor. A 2.75 GPA is required. A minor slip is required.

Program

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

- **Entry Courses**—Must be taken concurrently:
  - ILAM/SPPA 260 Linguistic Development of the Child 2 hrs.

- **Intermediate Courses**:
  - ILAM/ENGL 375 Acquisition of Literacy and the Early Elementary Child 4 hrs.
  - ILAM/ENGL 376 Acquisition of Literacy and the Later Elementary Child 4 hrs.

- **Capstone**—to be taken after at least 16 hours of the minor are completed:
  - ILAM/ED 460 Integrated Language Arts Seminar 4 hrs.

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

BLIND REHABILITATION AND MOBILITY

William R. Wiener, Chair
Robert O. LaDuKe
David Guth
Paul Ponchillia
Susan Ponchillia
James Leja
Marvin Weessies

The Department of Blind Rehabilitation and Mobility offers professional education programs in orientation and mobility, and rehabilitation teaching. In addition, the department provides direct services to students on campus who have severe visual impairments and, in cooperation with the Michigan Commission for the Blind, provides training to visually impaired individuals within the community. Through a federal grant the department is able to offer assistance with tuition and provide stipends to qualified students who enter graduate study in either of the specialties. Part of the department’s function is to conduct workshops for professionals working in the field, provide consulting services, and initiate pertinent research.

Blind Rehabilitation and Mobility Courses (BLRH)

Open to Upperclass Students

BLRH 501 Visual Impairment and Blindness: An Overview

2 hrs.

The purpose of this course is to provide basic information to graduate students and workers in the health and human service professions so that they will be able to work more effectively with blind individuals. It is also intended for undergraduate students who may be interested in entering a career in blind rehabilitation and would like to further explore their interest. Tests and assignments will be different for the graduate and undergraduate students. The graduate student will have additional readings and will be expected to conceptualize the relationship between their discipline and blindness services. An overview of visual impairment will be provided with both theoretical and practical components.

BLRH 584 Computer Technology for Visually Impaired Persons

2 hr.

This course is designed to introduce the student to computer technology as it relates to visually impaired persons. Students will learn the uses, parts, and operating commands of common adaptive computers, as well as the software used with them. In addition, the major adaptive forms of output will be investigated, including speech, braille, and large print. Experimental aspects will be stressed. Students planning to enter this course should have the ability to touch type. Prerequisite: Computer literacy or permission of instructor.

BLRH 587 Low Vision Evaluation and Training

1 hr.

Simulation of common visual impairments is experienced. Evaluation of visual function and training in the use of low vision aids to enhance visual efficiency through environmental manipulation—a hands-on approach. This course is to be part of core program for Orientation and Mobility and Rehabilitation Teaching degree students.
COMMUNITY HEALTH SERVICES

The School of Community Health Services promotes and provides effective high quality educational opportunities and experiences for a variety of health and human service-related professions, disciplines, and specialty areas. The major goal of the school is to be responsive and supportive to emerging health and human service areas. As such, the school encompasses educational programs targeted at the significant unmet health and human service needs of our society, at developing health and human service professions and disciplines, and at emerging health and human service special areas.

The school endeavors to accomplish this mission and goal by promoting the visibility, demonstration, expansion, and evaluation of professional and specialty educational programs for the benefit of citizens, students, and community organizations and agencies. The school recognizes the common developmental problems and opportunities of emerging professions, disciplines, and specialty areas and therefore encourages interdisciplinary cooperation and collaboration in research, demonstration, and educational activities.

Health and Human Services Courses (HHS)

HHS 100 Choices in Living 3 hrs.
The course will focus on the relationship between individual choices, social responsibilities, and optimal human functioning. Students will be educated in current theories and techniques of values clarification, motivation, and behavior change. Health and social issues relevant to young adults and throughout the life cycle will be examined. This course is designed for undergraduate students in all majors and is especially valuable for students interested in health and human services professions.

HHS 110 Introduction to Health and Human Services 3 hrs.
This course provides an overview of the issues, philosophies, political ideologies, economic theories, and American values which have an impact on health and human service delivery. In addition students will be introduced to the historical development, areas of services, and models of service delivery which are part of health and human services. The course will also provide students with the opportunity of learning about potential careers in the various professions within the field.

HHS 511 The Health System and Its Environment 3 hrs.
This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as between the system and its environment.

HHS 512 Principles of Health Finance 3 hrs.
This course is an examination of the principles of finance as applied to health care management. The course will provide a basis for understanding the financial management function in a health care administration environment and on the use of financial information in health care management and decision making. Prerequisite: ECON 517 or equivalent.

HHS 513 Special Studies in Health Care Organization and Delivery Variable Credit
This course deals with intensive analysis of the organization, design, and delivery of health care services in specialized areas. The specialized areas cover long-term, mental health, and mental retardation services, as well as group medical practice.

HHS 514 Basic Principles and Organization of Health Planning 3 hrs.
This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning effective health care services, alternative planning frameworks, and technical approaches to the planning process.

HHS 515 Administrative Functions in the Health Care Setting 3 hrs.
This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision making, personnel management, data processing, service design, and general principles of financial management.

HHS 520 Clinical Theory for Health and Human Services 1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundation knowledge for clinical practice. Theory of environmental health, systems theory for the health setting, theories of substance abuse for nursing and medical practice, and community health theories are among the possible areas of study. The specific topics are announced with each semester offering.

HHS 550 Clinical Practice in Selected Health and Human Service Areas 1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skills and development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of study. The specific areas are announced with each semester.

HHS 551 Problem-Solving in Health and Human Service Organizations 1-4 hrs.
This seminar covers variable topics relating to problem-solving in health and human services. It is a skill development course which helps students to become proficient with theoretical constructs and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem-solving in the health agency are among the topics covered. The specific topics to be
discussed are announced with each semester offering.

HHS 570 Field Education in Health and Human Services
1-6 hrs.
This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. By permission of instructor.

HHS 598 Directed Independent Study in Health and Human Studies
1-6 hrs.
Individualized independent study (reading or research) under guidance of faculty member. Initiative for planning topic for investigation and seeking the appropriate faculty member comes from the student, with consultation from the adviser. Prerequisite: Consent of instructor and Program Adviser.

GERONTOLOGY MINOR
Advisers
Bilbye Chestnut
Physical Education
Geraldine Riley
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 28,000,000 persons beyond age 65—and that population segment is growing. Universities have responded through research and teaching to increase an understanding of the older portion of our population and to provide trained personnel to work with older persons.

The minor in gerontology is 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. Students of gerontology can lead not only to vocational interests in services to older persons but can also prepare one for graduate and professional work, where the awareness of the society in which one lives, and allow the thoughtful and intelligent 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 adviser.

Required Courses
Hrs.
SOC 352 Introduction to Social Gerontology 3
SWRK 464 Social Work Practice in Gerontology 3

OT 470 Functioning of the Older Adult 3
Field Education: Either HHS 570 4
Or a practicum in a participating department 3 or 4

Electives:
BIOS 531 Biology of Aging 3
BIS 292 Consumer Principles and Practices 3
FCL 326 Investment Analysis 3
ECON 313 Poverty and Economic Security 3
ECON 318 Economics of Medical Care 3
ED 504 Adult Development and Learning 3
GSCI 434 Biomedical Ethics 4
CRT 260 Nutrition 3

OR
CR 266 Food for Man 3
CRT 413 Marriage and Family in Maturity 3

HPER 572 Recreation for the Aging 2
SWRK 563 Concepts in Rehabilitation 3
SWRK 572 Community Agency Resources 2
SOC 122 Death, Dying and Bereavement 3
SOC 373 Sociology of Health and Illness 3
SOC 552 Sociology of Aging 3
SPPA 552 Communication Problems of the Aged 3

PHYSICIAN ASSISTANT PROGRAM
Program Staff
James B. Hammond, Director
Sherrill Busboom, Clinical Coordinator
Barbara Hoppes, Clinical Coordinator
Samuel G. Shorter, Clinical Coordinator

The Physician Assistant Program is a professional program which educates assistants to primary care physicians. These assistants perform many of the tasks required in a medical practice and free the physician to spend more time on the difficult and complex matters of medicine. Through the appropriate use of a physician assistant, patients receive more individualized and quality care. Graduates of the program are awarded the Bachelor of Science in Medicine degree and are eligible to sit for the National Certifying Examination for Physician Assistants prepared by the National Board of Medical Examiners (NBME).

Western's Physician Assistant Program has been fully accredited by the Committee on Allied Health Education and Accreditation (CAHEA) since its inception. A major goal of the Program is to increase the availability of health care services to underserved areas.

As a member of the health care team, the physician assistant works under the supervision and direction of a licensed physician. Together they form a team to better meet the time constraints and needs of the patients. To accomplish this, students are provided a wide variety of opportunities and learn to (1) obtain 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 diagnosis and treatment plan; (7) perform certain basic treatment procedures and make an appropriate clinical response to commonly encountered emergency care situations.

COMMUNITY HEALTH SERVICES 247

ADMISSION REQUIREMENTS
The PA Program has the following requirements for application to the professional curriculum. No application missing one or more of these requirements will be considered for admission.

1. A minimum of 1,000 hours (six months) of health care experience (not including education). Many types of experiences are acceptable. The Program staff will answer questions about applicability of health care experiences.

2. A minimum of sixty (60) semester hours of college credits, including CHEM 101 and CHEM 120 or either CHEM 365 or CHEM 360-361 or equivalents.

3. University requirements for admission.

RECOMMENDED
1. Life science credits in the range of 15-20 semester hours, including the Chemistry requirements.

2. Humanities, social and behavioral sciences and the arts are positive selection factors.

APPLICATION PROCEDURE
Admission to the professional curriculum of the PA Program requires separate application. Application forms may be obtained from the PA Office in Bigelow Annex.

SELECTION PROCESS
The selection committee has established the following policies for selection to the junior year. The three-step process consists of:

1. Review of application data: each application is reviewed by at least three members of the selection committee and the candidates are identified for interviews.

2. Interviews; candidates are scheduled for separate required interviews.

3. Final selections: the selection committee reviews all the data including the results of the interviews and recommends candidates for admission.

Students are admitted to the program at the beginning of the Junior (Pre-Clinical) academic year each fall semester. Because of the keen competition for class positions, priority is given to those candidates who present the best overall profile. Selection is based on all aspects of the academic record, assessment of previous health care experience, evidence of good character, and the possession of those attitudes and aptitudes required for the effective health care professional.

THE CURRICULUM
The upper-division curriculum is divided into two parts. The first part is devoted to the basic medical sciences upon which the theoretical concepts of disease can be built. Subjects covered in this portion include anatomy, biochemistry, pharmacology, microbiology, and pathophysiology. During this time the students begin instruction in the clinical areas such as interviewing, history taking and physical diagnosis.

During the senior or clinical year, each senior student is urged to enroll in seven required clinical rotations including: community and mental health, family medicine, internal medicine, surgery, obstetrics and gynecology, and pediatrics and an elected medical specialty. In addition, each senior student is permitted one elective clerkship in any of the medical specialties.

CURRICULUM REQUIREMENTS
1. All courses listed (103 hrs.) are required.

2. Students are required to obtain at least a grade of "C" in each course or they must undergo a prescribed academic review process to determine their continuance in the program.
3. Students are required to successfully pass a comprehensive examination in medical terminology at the start of the fall semester of their junior year.

4. Students must meet Intellectual Skills and Computer Literacy requirements.

**JUNIOR (PRE-CLINICAL) YEAR**

**FALL SEMESTER**
- BICS 401 Pathogenic Microbiology for P.A.’s... 2
- CHEM 350 Chemistry for P.A.’s... 3
- MDSC 301 Medical Terminology... 1
- MDSC 304 Patient Evaluation I... 3
- MDSC 311 Gross Human Anatomy... 5
- BICS 319 Clinical Physiology for P.A.’s... 5

**WINTER SEMESTER**
- MDSC 303 PA History and Legislation Seminar... 1
- MDSC 314 Counseling... 3
- MDSC 317 Internal Medicine I... 6
- MDSC 306 Pathophysiology... 3
- MDSC 410 Pharmacology I for P.A.’s... 4
- MDSC 409 Allergy... 1
- MDSC 413 Dermatology... 1

**SPRING SESSION**
- MDSC 324 Patient Evaluation III... 1
- MDSC 337 Pediatrics... 3
- MDSC 302 General Surgery... 2
- MDSC 317 Internal Medicine II... 3
- MDSC 312 Community and Mental Health... 1

**SUMMER SESSION**
- MDSC 334 Patient Evaluation IV... 1
- MDSC 347 Obstetrics and Gynecology... 3
- MDSC 412 Pharmacology II for PAs... 3
- MDSC 415 Emergency Medicine Lectures... 3

**SENIOR (CLINICAL) YEAR**

**FALL SEMESTER, WINTER SEMESTER, AND SPRING SESSION**
- MDSC 307 Techniques of Patient Counseling... 1
- MDSC 422 Pediatrics Clerkship... 4
- MDSC 432 Pediatrics Seminar... 2
- MDSC 423 Obstetrics and Gynecology Clerkship... 4
- MDSC 433 Obstetrics and Gynecology Seminar... 2
- MDSC 424 Internal Medicine Clerkship... 4
- MDSC 434 Internal Medicine Seminar... 2
- MDSC 425 Surgery Clerkship... 4
- MDSC 435 Surgery Seminar... 2
- MDSC 426 Community and Mental Health Clerkship... 4
- MDSC 436 Community and Mental Health Seminar... 2
- MDSC 428 Elective Clerkship... 4
- MDSC 438 Elective Seminar... 2

**SUMMER SESSION**
- MDSC 427 Family Medicine Preceptorship... 6
- MDSC 437 Family Medicine Seminar... 2

**Physician Assistant Program Courses (MDSC)**

**MDSC 301 Medical Terminology**
1 hr.

The language of medicine—through an understanding of the Greek and Latin derivations and construction of medical terms, the student learns the vocabulary of the health-related professions.

**MDSC 302 General Surgery Lecture**
2 hrs.

This course presents topics related to general surgery including acute, chronic and emergent problems. Topics will include 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.

**MDSC 303 PA History and Legislation Seminar**
1 hr.

Principle events in the history of the Physician Assistant profession are described. Legislative history and current developments are discussed. Additional topics include: importance of professional associations, hospital privileges, PA/physician agreements, and the process for interviewing, resume writing, and other preparation for employment.

**MDSC 304 Patient Evaluation I**
3 hrs.

This is the first in a series of four courses presented sequentially through the pre-clinical year. It provides instruction in the systematic evaluation of patient problems through history taking and physical examination. Lectures, demonstrations, student examination of patients, and critique of those examinations are included among the instructional techniques. Emphasis is placed upon techniques of interviewing and physical examination that 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.

**MDSC 306 Pathophysiology**
3 hrs.

This course focuses on the altered physiology of common disease states. It serves as an introductory foundation to more specific medical courses within the PA curriculum.

**MDSC 307 Techniques of Patient Counseling**
1 hr.

An introduction to patient counseling with emphasis upon interviewing techniques, current theories of personality and psychopathology and including such specialized techniques as methods of crisis intervention, counseling patients with substance abuse problems, coping problems, sexual dysfunction problems. In addition psychotherapeutics counseling is discussed.

**MDSC 309 Allergy**
1 hr.

This course covers basic theoretical and proven concepts of allergy and immunology. Emphasis is placed on clinical recognition of allergic symptoms, importance of accurate etiologic diagnosis and the relationship between pathophysiologic changes and their corrections by proper therapy.

**MDSC 310 Pharmacology I for PAs**
1 hr.

This course emphasizes the general principles of pharmacology as a basis for the rational clinical use of drugs. The course is comprehensive but pragmatic. Factors affecting drug action, such as rates of absorption, metabolism and excretion are discussed. Mechanism of action is covered. The principle thrust is to acquaint the student with drugs commonly used in therapy, their side effects and toxic manifestations.

**MDSC 312 Community and Mental Health Lecture**
1 hr.

This course introduces topics in community and mental health that range from descriptions of community resources to diagnostic categories and terms in the field of psychiatry. Emphasis will be placed on acquainting students with a wide range of clinical presentations, referral options, and therapeutic guidelines related to the role of the Physician Assistant in the health care system. Prerequisites: MDSC 317 and PA curriculum.

**MDSC 314 Patient Evaluation II**
3 hrs.

Second in a series of courses beginning with 304.

**MDSC 317 Internal Medicine I**
6 hrs.

This course has two principle elements. The first is to introduce the student to the broad concepts of medical service emphasizing to psychosocial aspects of care. The second is to begin surveying the etiology, pathophysiology, diagnosis and treatment of common diseases and disorders by body systems. This survey will be completed in MDSC 327.

**MDSC 324 Patient Evaluation III**
1 hr.

Third in a series of courses beginning with 304.

**MDSC 327 Internal Medicine II**
3 hrs.

This course surveys the etiology, pathophysiology, diagnosis and treatment of common diseases and disorders by major body systems. It is a continuation of MDSC 317 Internal Medicine I.

**MDSC 334 Patient Evaluation IV**
1 hr.

Fourth in a series of courses beginning with 304.

**MDSC 337 Pediatric Medicine Lecture**
3 hrs.

This course deals with a systematic developmental approach to the etiology, clinical presentation of signs and symptoms, diagnosis and treatment of common medical disorders in pediatrics, topics areas such as human growth and development, neonatal problems, infectious diseases of childhood and selected disorders of each body system. Prerequisite: MDSC 317 and PA curriculum.

**MDSC 347 Obstetrics/Gynecology Lecture**
3 hrs.

This course introduces the student to women's health care through inquiry into the fields of obstetrics and gynecology, knowledge of normal processes and abnormal conditions, and increased awareness of the unique needs of women seeking health care. Prerequisite: MDSC 317 and PA curriculum.

**MDSC 409 Allergy**
1 hr.

This course covers basic theoretical and proven concepts of allergy and immunology. Emphasis is placed on clinical recognition of allergic symptoms, importance of accurate etiologic diagnosis and the relationship between pathophysiologic changes and their corrections by proper therapy.

**MDSC 410 Pharmacology II for PAs**
1 hr.

This course emphasizes the general principles of pharmacology as a basis for the rational clinical use of drugs. The course is comprehensive but pragmatic. Factors affecting drug action, such as rates of absorption, metabolism and excretion are discussed. Mechanism of action is covered. The principle thrust is to acquaint the student with drugs commonly used in therapy, their side effects and toxic manifestations.

**MDSC 412 Pharmacology II for PAs**
3 hrs.

This course deals with the practical aspects of pharmacology as they relate to primary-care Physician Assistant. This is a continuation of Pharmacology I.

**MDSC 413 Dermatology**
1 hr.

This course provides an introduction to the general field of dermatology including normal structure and function of the skin, techniques of history taking and examination, recognition of common skin diseases, and basic concepts of treatment.

**MDSC 415 Emergency Medicine Lectures**
3 hrs.

This course presents the etiology, evaluation and initial treatment of common medical and surgical emergencies. It also presents practicums on basic skills needed in the
practice of emergency medicine such as suturing, casting, and CPR.

MDSC 422 Pediatric Rotation
4 hrs.
During this six-week rotation emphasis is placed on normal variations of growth and development and childhood illnesses. Emphasis is placed on well-child care, immunizations, nutrition, and general patient and parental education. The student is exposed to treatment of the acutely ill in the office and hospital and assessment of normal growth and development through physical examination.

MDSC 423 Obstetrics and Gynecology Rotation
4 hrs.
This six-week rotation is designed to provide an opportunity for the PA Student to develop proficiency in the special history taking and examination of the Ob/Gyn patient. While on the obstetric service, the management principles of pregnancy, labor and delivery, including prenatal and postnatal complications are taught. The gynecology emphasis is placed on exposing the students to methods and programs relating to cancer detection, venereal disease and birth control. Emphasis is on those obstetric and gynecologic disorders most commonly encountered by the primary care physician assistant.

MDSC 424 Internal Medicine Rotation
4 hrs.
A six-week rotation during which the indications, limitations, and methods of performing the necessary diagnostic procedures and therapeutic measures used in the treatment of general medical disorders are reviewed. Patient problems and conditions as experienced in the out-patient clinic, emergency room, and the hospital are covered in this course. The student, through the collection and review of historical, physical and laboratory data, develops and understanding of patient evaluation and treatment.

MDSC 425 General Surgery Rotation
4 hrs.
This six-week surgical rotation is designed to prepare the student to function as an assistant to the generalist. The student's time is divided between out-patient and in-patient surgical services. The students perform admission histories and physicals and participate in discussions regarding diagnostic tests necessary for proper patient care. The student then follows through with preparative and postoperative preparations, assists in surgery and helps in post-operative care. In this way, the student learns to act not only in the management of routine surgical cases, but also in the treatment of various complications.

MDSC 426 Community and Mental Health Rotation
4 hrs.
This is a six week rotation which emphasizes common problems found in primary care settings which involve mental stresses and mental illness. The objectives center around proper data collection, problem recognition, basic counseling techniques and referral mechanisms. There is also emphasis on patient's legal rights and common treatment modalities. Experience is gained with both pediatric and adult patients and with both in-patient and out-patient settings. The student becomes acquainted with the community and mental health framework including major types of problems encountered by patients in the community and the services provided by agencies which care for client's needs.

MDSC 427 Family Medicine Preceptorship
6 hrs.
Family Medicine is an eight-week rotation during the last two months of the program prior to graduation. It provides an opportunity for students to bring the knowledge gained on the previous rotations to bear on primary care. Emphasis is on proper data collection through history and physical examination, formulation of accurate problem lists, accurate investigations and treatment plans. Students are evaluated on their professional manner. Specific objectives include recognition and treatment of problems encountered in family medicine. Emphasis is placed on acquaintance with available community resources such as child welfare, mental health, public health, welfare, drug and alcohol abuse crisis centers, etc. Students assist physicians in medical and surgical procedures. Emphasis is also placed on counseling patients and family members about medical problems and health problems. This includes areas of preventive medicine in health education.

MDSC 428 Elective Rotation: Variable Title
2-8 hrs.
This six-week rotation is intended to cover the many sub-specialties of medicine to include emergency medicine, dermatology, otolaryngology, ophthalmology, urology, orthopedics, cardiology and oncology. The student may elect to take any combination of these specialties to fill the six-week period. In addition to the specialties, the student may elect to seek further experience in one of the other main specialties such as community and mental health, surgery, internal medicine, ob/gyn, pediatrics or family practice.

MDSC 432 Pediatrics Seminar
2 hrs.
During the six-week clinical rotation in pediatrics, the student reviews selected readings which include major areas of pediatrics: newborn care, disorders of the newborn, infectious diseases of the newborn, musculoskeletal system, neurologic system, infectious diseases, poisonings, child neglect, psychological aspects of childhood, digestive system disorders. Within these topics emphasis is placed on etiology, signs and symptoms, clinical presentation, diagnosis and management, common pediatric problems. Emphasis is also placed on preventive medicine, care and assessment of well children, immunizations, patient and parent education.

MDSC 433 Obstetrics and Gynecology Seminar
2 hrs.
This is a self directed seminar in obstetrics and gynecology which accompanies the obstetrics and gynecology rotation. The student must complete reading assignments in obstetrics and gynecology. Here again the emphasis is on common problems in obstetrics and gynecology which physician assistant would be involved in, including preventive medicine and patient education.

MDSC 434 Internal Medicine Seminar
2 hrs.
This is a self directed seminar which accompanies the internal medicine clinical rotation. The reading list centers on the etiology, clinical presentation, diagnosis and management of common problems in adult medicine.

MDSC 435 Surgery Seminar
2 hrs.
This is a self directed seminar in surgery which accompanies the clinical rotation in surgery, and deals with the etiology, clinical presentation, diagnosis and management of common problems of surgery.

MDSC 436 Community and Mental Health Seminar
2 hrs.
This is directed self study seminar which accompanies the community and mental health
The equal consideration date for fall semester admission is February 14, and July 1 for winter admission. (Contact the department office for information.)

Students interested in applying for Departmental Admission are encouraged to contact a Department Adviser well in advance of expected admission. Imposed deadlines are strictly enforced.

In addition to the coursework required for admission, students must successfully complete three preprofessional courses before beginning courses in the professional curriculum. Abnormal Psychology, 3 credit hours; Human Anatomy, 3-4 credit hours; and Human Physiology 3-4 credit hours.

The Pre-Occupational Therapy Curriculum is designed for those students considering Occupational Therapy as a professional choice. The courses recommended for Pre-Occupational Therapy students are those designed to meet Department admission criteria and University requirements including General Education and Physical Education (See Occupational Therapy-Program for complete list).

Field Work

Students are required to successfully complete two three-month fieldwork experiences. One is taken in a medical model (usually a hospital setting) and the other in a community agency (e.g., a day treatment program or school). To attain competency for practice and for the national AOTA certification examination, students should avoid selecting both experiences in settings that focus on the same area of disability.

To be eligible for fieldwork, students must have a cumulative grade point average of 2.00 or above, with no grades less than “C” in required and prerequisite courses.

Fieldwork is graded on a scale similar to academic coursework. Students are evaluated by a clinical supervisor who assesses areas of performance, judgment, and attitude. Each of the three areas must be passed at minimum competency for entry level practice.

An optional third fieldwork experience, of variable duration, may be scheduled pending available openings. A third experience is highly recommended. It usually does not interfere with graduation dates or eligibility for the AOTA certification examination.

Remediation and Continuance Policy

1. Students will complete all required departmental courses and all required prerequisites with a grade of “C” or better. Subsequent courses cannot be taken until prerequisites are completed successfully.

2. Students can repeat only one required pre-professional or departmental course, and that course only once, to attain a grade of “C” or better.

3. Students who fail to attain a grade of “C” or better in a professional or pre-professional course will be placed on departmental probation following the grade lower than “C”.

4. Students who do not successfully complete departmental probation will not be permitted to continue in the program.

5. The department may refuse to permit a student to continue in the curriculum if at any time it is deemed by a review committee that the student will not be able to perform at a professional level.

FIELDWORK REMEDIATION AND CONTINUANCE POLICY

1. Successful completion of OT 353 is a prerequisite for OT 453.

2. Students who receive a failing grade in fieldwork level I (OT 353, 453) or level II (OT 490, 491) are subject to the academic policy for remediation and continuance, and will repeat the experience in a different setting.

3. Successful completion of OT 453 and all professional and prerequisite coursework is required for OT 490.

4. Successful completion of all undergraduate coursework required for graduation is required for OT 491.

5. Students who fail fieldwork, or who are asked to withdraw, are subject to review in accordance with the departmental remediation and continuance policy.

Miscellaneous

The following course is offered on a credit/no credit basis only: OT 236. Materials fees are required for some courses.

Program

Bachelor of Science Degree

Minimum hours required for this curriculum: 128

Course Requirements:

1. Behavioral Sciences (Psychology, Sociology or Anthropology) 9

2. Basic course in Biological Sciences (BICS 112 or equivalent) 3-4

3. Normal Growth and Development (covering the Life Span) (OT 255, 256, 257, or equivalent) 3

4. English Composition 3

5. Satisfactory completion of all Basic Skills Remediation Requirements.

Pre-Professional Courses: (Prerequisite to related courses in Occupational Therapy theory and techniques)

1. Human Anatomy (BICS 211 or equivalent) 3-4

2. Human Physiology (BICS 240 or equivalent) 3-4

3. Abnormal Psychology (PSY 250 or equivalent) 3

Professional Curriculum 51

OT 202 Orientation to Occupational Therapy 2

OT 203 Professional Language and Interaction 3

OT 312 Adapted Activities 4

OT 321 Integrated Medical Sciences 6

OT 335 Assessment Principles and Instruments 3

OT 344 Disabling Conditions 4

OT 351 Introduction to Theory and Treatment Process I 3

OT 352 Introduction to Theory and Treatment Processes II 2

OT 353 Occupational Therapy Practice I 3

OT 355 Life Skills and Personal/Environmental Adaptations 4

OT 451 Applied Theory and Treatment Process 2
### Occupational Therapy Courses (OT)

**OT 202 Orientation to Occupational Therapy**
2 hrs.
Orientation to the profession of occupational therapy. Will include the history of the profession, current professional roles, issues and trends in the field.

**OT 203 Professional Language and Interactions**
A basic course which includes medical terminology, techniques of information gathering, and professional interpersonal communications. Prerequisite: OT major.

**OT 225 Growth, Development, and Aging**
3 hrs. Fall, Winter
A study of physical, mental, emotional, and social patterns of growth, development, and aging. Aspects to be given special emphasis for the occupational therapy student will be motor development, physiology of aging, growth patterns, and functional development in any of the above aspects. Prerequisite: Pre-OT or nursing.

**OT 296 Independent Practicum**
2 hrs.
Participation in a health service or agency to provide experience with hospital procedure and an orientation to patient groups. A daily log is required. Student must submit a proposal for the course for departmental approval prior to registration. Prerequisite: OT major.

**OT 312 Adapted Activities**
4 hrs.
Includes basic tools use, instruction in core craft and group activities including leather, ceramics, copper tooling, recreation, games and music. Emphasis placed on activity analysis and performance processes. Class demonstration and the application of selected activities to community groups is required. Prerequisite: OT major.

**OT 321 Integrated Medical Sciences**
8 hrs.
An integrated study of human systems as they relate to normal and abnormal functional performance. Emphasis will be placed on the musculo-skeletal, neurological, and neuromuscular systems. Prerequisite: Anatomy, Physiology, and OT major.

**OT 335 Assessment Principles and Instruments**
3 hrs.
The course will cover core components of assessment including process and procedures and testing situations. An integrated approach to psychological and physiological assessments throughout the life span is included. Students will learn the evaluative process, how to critique instruments and the research methodology used to develop assessments. Selected assessments are covered including their administration and interpretation. Prerequisite: OT 321

**OT 344 Disabling Conditions**
4 hrs.
This course will introduce pathogenic processes and their impact upon the total individual. Prerequisite: OT 321 or concurrent; Abnormal Psychology.

**OT 351 Introduction to Theory and Treatment Process I**
3 hrs.
This course is designed to introduce the student to the development of a theory and demonstrate the relationships of theory to current professional practice. Students will learn and apply occupational therapy theory, assessments, and techniques to treatment programs for clients with physical dysfunction accompanied by psychosocial problems. Emphasis is on an integrative approach and holistic intervention. Prerequisites: OT 344, OT 335, or concurrent.

**OT 352 Introduction to Theory and Treatment Process II**
2 hrs.
Companion course to Introduction to Theory and Treatment Process I. Application of occupational therapy theory, assessment, and treatment programs for clients with psychosocial problems accompanied by physical dysfunction. Emphasis is on the integrative and holistic approach to client intervention. Prerequisites: OT 351 or concurrent.

**OT 353 Occupational Therapy Practicum I**
3 hrs.
This course is designed to provide clinical experience in client assessment, the development of treatment plans, the implementation of treatment, and the evaluation of the client's progress related to the treatment plan. Emphasis is directly related to the content in OT 311 and OT 352. Prerequisite: OT 335, OT 351, OT 335, OT 352 or concurrent.

**OT 355 Life Skills and Personal/Environmental Adaptations**
4 hrs.
Examination of the role of occupational therapists regarding life skills. Student will learn to design and adapt physical environments to assist self-care, work, and play/leisure performance by using orthotics, prosthetics, and assistive/adaptive devices. Prerequisites: OT 312, OT 335, OT 351 or concurrent.

**OT 436 Independent Study in Occupational Therapy**
2-4 hrs.
Designed to allow outstanding students to work independently under supervision. Consent of department chair.

**OT 451 Applied Theory and Treatment Process**
2 hrs.
This course is designed to provide the student with occupational therapy theory and principles related to community practice. The content will include group dynamics, social and work adjustment, and pre-vocational assessment. Prerequisites: OT 335, OT 453.

**OT 452 Fieldwork Level II**
2-3 hrs.
An optional three-month affiliation in hospitals or agencies providing the student experience in designated area of occupational therapy. Departmental consent only.

**OT 454 Administration-Supervision-Consultation**
3 hrs.
This course will cover the basic principles of administration including planning, organizing, staffing, directing, and controlling. Administrative skills including leadership, decision-making and professional writing; health care delivery systems; and the consulting process and its relationship to the delivery of OT services will be covered. Prerequisite: Senior status and OT major.

**OT 455 Field Work Level II**
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated area of occupational therapy. Departmental consent only. Prerequisite: Completion of all basic professional course work and prerequisite courses.

**OT 456 Field Work Level II**
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated area of occupational therapy. Prerequisite: Graduate Students—completion of all basic professional course work and prerequisite courses; undergraduate students—completion of all academic work.

**OT 457 Studies in Occupational Therapy**
2-4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.

**OT 470 Functioning of the Older Adult**
3 hrs. Fall, Winter
The objective of this course is to provide understanding of the basic psychological and physiological changes characteristic of human aging and pathological conditions which have consequences for function and behavior.

**OT 480 Administration-Supervision-Consultation**
3 hrs.
This course will cover the basic principles of administration including planning, organizing, staffing, directing, and controlling. Administrative skills including leadership, decision-making and professional writing; health care delivery systems; and the consulting process and its relationship to the delivery of OT services will be covered. Prerequisite: Senior status and OT major.

**OT 490 Field Work Level II**
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated area of occupational therapy. Departmental consent only. Prerequisite: Completion of all basic professional course work and prerequisite courses.

**OT 491 Field Work Level II**
3 hrs.
A three-month affiliation in hospitals or community agencies providing the student experience in designated area of occupational therapy. Prerequisite: Graduate Students—completion of all basic professional course work and prerequisite courses; undergraduate students—completion of all academic work.

**OT 492 Fieldwork Level II**
2-3 hrs.
An optional three-month affiliation in hospitals or agencies providing the student experience in designated area of occupational therapy. Departmental consent only. Prerequisite: OT 490, OT 491.

**OT 530 Sensory Integration and The Child**
3 hrs.
Study of theoretical principles and their application to evaluation and treatment of the child with sensory integration dysfunction. Students will observe and participate in screening and evaluation of children, and they will design treatment plans for selected clients. Prerequisites: OT 335, OT 351; OT 353 or concurrent; or OTR, RPT, or consent.

**OT 597 Studies in Occupational Therapy**
2-4 hrs.
Examines selected topics within the field of Occupational Therapy. Topics considered will vary from semester to semester. May be repeated for credit. Prerequisites: Advanced OT major or departmental permission.
### Social Work

The School of Social Work offers both an undergraduate and graduate professional program leading to a B.S.W. and M.S.W., respectively. Both programs are accredited by the Council on Social Work Education. The undergraduate professional program is designed to prepare students for beginning level social work practice, to provide preparation for graduate training in social work, and to offer social welfare content as part of the student’s Liberal Arts Education. The graduate/ professional program is designed to educate students for social treatment and planning/ administration positions in the field of social welfare.

Students enrolled in the undergraduate social work curriculum are required to complete a major consisting of 32 hours. A minor consisting of a minimum of 15 hours is offered for students in other curricula. In addition, the School of Social Work participates in a University gerontology minor. Social work students should consult their curriculum adviser for program planning for the gerontology minor. A concentration in corrections is also available to social work majors.

Oftentimes 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) and SWRK 210, Social Work Services and Professional Roles, students submit an application to the Director of Admissions of the School of Social Work for processing into the major. SWRK 210 should be taken in the first semester of the sophomore year. Deadlines for submitting applications are January 15, October 1, and May 15 of each year.

A guided interdisciplinary minor of 22-23 hours is required to fulfill the program requirements. In addition, a student may choose to select a second regular curriculum minor from another department. If so, the student should consult the undergraduate social work adviser for approval. Further questions concerning the Social Work major or minor may be directed to the School of Social Work.

The graduate-professional program focus is on contemporary social problems and problem solving processes. It provides a two-year curriculum leading to a master’s degree in social work. Further information about this program can be found in the Graduate Bulletin.

#### Program

**MINIMUM HOURS REQUIRED FOR GRADUATION: 122 hrs.**

**Course Requirements: 122 hrs.**

**General Education: 35 hrs.**

Requirements for the undergraduate Social Work Major: 32 hrs.

- Completed applications are due at least 15 weeks prior to the semester in which field work is to be taken.
- 210 Social Work Services and Professional Roles.
- 300 Social Welfare as a Social Institution.
- 350 Individual and Family Behavior.
- 351 Group, Community and Organization Behavior.
- 401 Social Work Practice: Values and Problem Analysis.
- 410* Field Experience and Seminar I.
- 411* Field Experience and Seminar II.

Note: Following completion of SWRK 210 students must be accepted into the social work curriculum to complete the major.

Required Research Component SOC 382 and 383 Methods of Sociological Inquiry...6 hrs.

Guided Interdisciplinary Minor...22-23 hrs.

- Includes:
  - COM 170 Interpersonal Communication
  - ENGL 305 Practical Writing
  - BIOS 112 Introduction to Biomedical Sciences

Any one of the following:

- ECON 100 Contemporary Economic Problems
- ECON 313 Poverty and Economic Security

Any one of the following:

- PSCI 202 State and Local Government
- PSCI 300 Urban Politics

Any one of the following:

- PSY 150 Introduction to Human Behavior
- PSY 160 Child Psychology
- PSY 250 Abnormal Psychology

Any one of the following:

- SOC 210 Modern Social Problems
- SOC 300 Sociological Theory
- SOC 352 Introduction to Social Gerontology

Physical Education...2 hrs.

Electives...24-28 hrs.

Students are encouraged to elect additional courses in any area of their specific interest. Particularly recommended in preparation for social work practice are: anthropology, communications, economics, history, philosophy, political science, psychology, sociology. The following Social Work courses are also available as electives for undergraduate students.

- 100 Introduction to Social Services
- 464 Problem Solving in Gerontology
- 465 Correctional Process and Techniques
- 512 Social Policy and Community Action in Selected Problem Areas
- 513 Social Welfare and the Law
- 561 Community Development in Selected Countries
- 562 Community Organization in Urban Areas

563 Social Work Concepts in Rehabilitation...3

564 Special Studies in Social Welfare Practice...1

566 Social Service in the Schools...3

567 Institutional Corrections...3

568 Non-institutional Corrections...3

569 Juvenile Justice...3

572 Community Agencies of the National Association of Social Work Code of Ethics governing social workers and their professional relationships with those they serve, with their colleagues, with their employing agency, and with the community. Further details on this policy and procedure may be obtained from the School of Social Work undergraduate adviser.

### Social Work Minor

**15 credit hours**

- 210 Social Work Services and Professional Roles...3
- 300 Social Welfare as a Social Institution...3
- Plus:
  - 350, 351, 433, 464, 465, any 500 level social work course (Excluding SWRK 572)

### Social Work Courses (SWRK)

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

- SWRK 100: An Introduction to Social Services...3 hrs.
  - A descriptive course covering knowledge content related to operation of social service programs. It is a study of the philosophy and value base for these services. Observation visits to field agencies, films, guest lectures and other lab and volunteer experiences may be arranged with the instructor to promote appreciation of knowledge content.

- SWRK 210: Social Work Services and Professional Roles...3 hrs.
  - This course introduces students to the social work profession, its 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.

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**563 Social Work Concepts in Rehabilitation...3**

**564 Special Studies in Social Welfare Practice...1**

**566 Social Service in the Schools...3**

**567 Institutional Corrections...3**

**568 Non-institutional Corrections...3**

**569 Juvenile Justice...3**

**572 Community Agencies of the National Association of Social Work Code of Ethics governing social workers and their professional relationships with those they serve, with their colleagues, with their employing agency, and with the community. Further details on this policy and procedure may be obtained from the School of Social Work undergraduate adviser.**

**Social Work Minor**

- **15 credit hours**
  - 210 Social Work Services and Professional Roles...3
  - 300 Social Welfare as a Social Institution...3
  - Plus:
    - 350, 351, 433, 464, 465, any 500 level social work course (Excluding SWRK 572)

**Social Work Courses (SWRK)**

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

- **SWRK 100: An Introduction to Social Services...3 hrs.**
  - A descriptive course covering knowledge content related to operation of social service programs. It is a study of the philosophy and value base for these services. Observation visits to field agencies, films, guest lectures and other lab and volunteer experiences may be arranged with the instructor to promote appreciation of knowledge content.

- **SWRK 210: Social Work Services and Professional Roles...3 hrs.**
  - This course introduces students to the social work profession, its 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.
SWRK 300 Social Welfare as a Social Institution
3 hrs.
Course objective is to enable the student to develop a perspective on the growth of welfare services and their relationship to welfare needs. It is a critical examination of the forces (e.g., social, economic, historical, political, and philosophical) that have led to the institutionalization of social welfare. Prerequisites: SWRK 210.

SWRK 350 Social Work Concepts in Individual and Family Behavior
3 hrs.
Provides the student with a basic understanding of human behavior, related to human developmental processes, ego psychology, learning theory, and family social and cultural dynamics. Examines socialization and its influence on human behavior. Identifies significant physical, mental, emotional, social and cultural factors which affect the development of the personality, biological and family systems. Prerequisites: SWRK 210 and junior status.

SWRK 351 Social Work Concepts in Group, Community and Organizational Behavior
3 hrs.
Provides the student with an understanding of human behavior related to small group process, role theory, communications theory, social conflict constructs, systems concepts, formal organization and community dynamics. Examines the interplay of various forces which affect the development of social groups, communities, and organizations, and the effects of these interdependent systems on the client system. Prerequisites: SWRK 210, SWRK 350, and junior status.

SWRK 400 Social Work Practice: The Problem Solving Process
3 hrs.
This course provides the problem solving process as the conceptual framework for social work practice. The student achieves a beginning level of professional competence in the following: identifying problems at various system levels, recognizing and seeking varying perceptions of a given problem, interviewing, assessing the accuracy of information needed, ordering and interpreting information from different theoretical perspectives, writing an assessment statement, determining priorities and service limits, formulating objectives, and contracting with others. Prerequisite: SWRK 300, SWRK 350, and C-card.

SWRK 401 Social Work Practice: Intervention and Evaluation
3 hrs.
A study of social work interventions, their differential use at various system levels (i.e., person, group, organization and community), and evaluation of their effectiveness. Students learn to identify and appraise interventions in reported and simulated social work situations, to select and use intervention behaviors in simulations, and to evaluate the effectiveness of these intervention behaviors in simulated and real situations. Prerequisites: Senior status, completion of SWRK 400, enrollment in SWRK 410 concurrently, majors only.

SWRK 402 Social Work Practice: Policy Analysis and Organizational Context
3 hrs.
This course combines conceptual analysis and training in practice skills. It focuses on the effects of social policy and organizational context on social work practice. It examines the basic process of policy development and the relationship between policy, ideology, and values. It pays particular attention to the impact of social policy on human service organizations, analyzing the effects of specific policies on workers, clients, and organizational structure and goals. It helps students develop skills for effective functioning in the organizational environment, including organizational awareness and utilization of organizational resources for effective service delivery. Prerequisites: Senior status, completion of SWRK 401, enrollment in SWRK 411 concurrently.

SWRK 410 Field Experience and Seminar I
4 hrs.
Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. In a social work or allied service agency, students develop a working knowledge of the agency's functions, structure and processes and its service provider role within a total community. Students apply knowledge and develop skills in problem assessment and goal formulation within the context of social work values. Prerequisites: Senior status, submission of field experience application to the Director of Field Education at least fifteen (15) weeks prior to the semester field work is to be taken; arrangement of class schedule so that the student is in a field agency on Tuesdays and Thursdays of each week; concurrent enrollment in SWRK 401 and enrollment in SWRK 411 the following term, majors only. Credit/No Credit only.

SWRK 411 Field Experience and Seminar II
4 hrs.
A continuation of SWRK 410. Two hundred and twenty-five (225) clock hours in the field and fifteen (15) hours in a campus-based seminar. Students engage in social work and practice interventions and practice intervention behaviors in solving problems with individuals, groups, organizations and/or a community. Prerequisites: Senior status, completion of SWRK 401 and 410 and concurrent enrollment in SWRK 402. Field experience application not required if student submitted one for SWRK 410; arrangement of class schedule so that the student is in field agency on Tuesday and Thursday of each week, majors only. Credit/No Credit only.

NOTE: *Completed applications for 410 and 411 are due at least 15 weeks prior to the semester field work is to be taken.

SWRK 433 Dynamics of Race and Culture for Social Work Practice
3 hrs.
Focus is upon ethnic/racial groups who are among social welfare consumer groups and social work clientele. Racial/cultural characteristics, group strengths and weaknesses, group priorities and experiences in the context of social welfare and social work will be examined. Implications of ethnic factors for social work practice, social planning, and social work education will be explored. Prerequisite: Consent of instructor.

SWRK 446 Problem Solving in Gerontology
3 hrs.
This course provides the student with information about social welfare programs, both institutional and non-institutional, which are available to our aged population. The student is introduced to different approaches to service delivery and intervention problem solving techniques utilized by professional social workers in working with minority and majority aged population. Open to social work students and students from related professional disciplines with consent of instructor.

SWRK 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 criminalological theory and accumulated knowledge of the phenomenon of crime and delinquency. Selective techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: Consent of instructor.

SWRK 512 Social Policy and Service Delivery in Selected Problem Areas
3 hrs.
Intensive study in selected field of service specialization and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. Prerequisite: Open only to senior undergraduates and graduate students.

SWRK 513 Social Welfare and the Law
3 hrs.
The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social and individual case situations. Prerequisite: Consent of instructor.

SWRK 581 Community Development in Selected Countries
3 hrs.
This course is intended to provide basic information needed in understanding community life in developing countries. It places emphasis on the history and philosophy of community development in the context of differential socio-economic systems. Includes evaluation and analysis of organizational and administrative problems involved in implementing programs. Prerequisite: Consent of instructor.

SWRK 582 Community Organization in Urban Areas
3 hrs.
Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems in medium and larger size urban communities. Emphasis is placed on the organizing of neighborhood and consumer groups for social interaction and improvement of community condition. Prerequisite: Consent of instructor.

SWRK 583 Work Concepts in Rehabilitation
3 hrs.
Application of social work problem solving concepts to social psychological problems in the broad field of physical and mental rehabilitation. Both individualized services and programmatic implications are given consideration. Open to M.S.W. students and students from related professional department with consent of instructor.

SWRK 584 Special Studies in Social Welfare Practice
1-4 hrs.
Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in
these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor.

SWRK 566 Social Service in the Schools 3 hrs.
The role of the Social Worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention 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 pupil, the school staff and the homes by various interventive means are explored. Prerequisite: Consent of instructor.

SWRK 567 Institutional Treatment of Offenders 3 hrs.
This is a seminar in correctional treatment which focuses on modern means of intervention in closed custody (institutional) settings. Available methods currently utilized to improve the social functioning of the imprisoned lawbreaker will be reviewed. Specific attention is directed at such role functions as correctional diagnostician, correctional counselor, program administrator, institutional parole officer, correctional officer, training school teacher, etc. The impact of custody, classification and prison programming will be examined in detail. Inadvertent products of total institutions on incarcerated inmates will be evaluated in terms of the inmate culture, prisonization and leadership roles. This will be applied to all types of correctional institutions (juvenile and adult, men and women, misdemeanant and felon). Visits to selected institutions will be arranged. Prerequisite: Consent of instructor.

SWRK 568 Non-institutional Treatment of Offenders 3 hrs.
This is a seminar in correctional treatment which focuses on modern means of intervention which emerge from local community resources directed at the improved social functioning of the identified lawbreaker. Specific attention is directed at the role functions relative to such correctional processes as probation, parole, halfway houses, community treatment centers and youth service facilities. Methods and techniques of service delivery to men and women, juveniles and adults, misdemeanants and felons will be analyzed. Visits to selected agencies will be arranged. Prerequisite: Consent of instructor.

SWRK 569 Juvenile Justice 3 hrs.
The course deals with the processing of offenders through the juvenile justice system with concentration on the philosophy and functioning of juvenile courts. Personal and organizational factors that are associated with or that determine offenders' passage through the juvenile court are examined. Prerequisite: Consent of instructor.

SWRK 572 Community Agency Resources 2 hrs.
A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors, teachers, etc. Not recommended for Social Work Students.

SWRK 573 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1-4 hrs.
The course focuses on the development of educational skills for social workers through faculty directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

SWRK 598 Readings in Social Work 1-4 hrs.
Offers advanced students with good scholastic records an independent program of study, arranged in consultation with the instructor. One to four hours credit per semester.

SPEECH PATHOLOGY AND AUDIOLOGY

Robert L. Erickson, Chair
Harold L. Bate
Susan K. Boersma
Michael J. Clark
John M. Hanley
James M. Hillenbrand
Susan D. Kiett
Gary D. Lawson
Frances E. Lohr
Nickola W. Nelson
Donna B. Oas
Karen S. Seelig
Shirley N. Sparks
Candis Warner

Adjunct Faculty
William L. Dawson
Ronald W. Kelley
William L. Locke

Communication is the most complex aspect of human behavior. Impairments in the process of communication—speech, language, and hearing—leave myriad problems in their wake. Speech pathology and audiology is the area of professional specialization that has developed out of concern for persons with disorders of communication.

The basic educational mission of the Department of Speech Pathology and Audiology is to prepare professional personnel who will be maximally effective in the delivery of diagnostic, habilitative, rehabilitative, and preventive services to individuals handicapped by speech, language, and hearing impairments.

The undergraduate program is preprofessional in nature and is designed to prepare students for graduate professional education in speech and language pathology or audiology. Because receipt of the bachelor's degree does not qualify the recipient for employment, students must plan for enrollment in a master's degree program in order to complete their professional preparation. Information about this department's master's degree program can be found in the WMU Graduate Catalog.

Admission

Students who desire to major in speech pathology and audiology will be admitted into the prespeech pathology and audiology curriculum at the time of their admission to the University. This status, however, does not assure admission to the departmental major. The selection of students to be admitted to a speech pathology and audiology major occurs after review of all applicants by a departmental faculty committee.

Further information regarding admission requirements and procedures may be obtained by contacting the department directly.

Transfer Students

It is recommended that transfer students enroll at Western at the beginning of the first semester of the sophomore year. Those who enroll at a later stage may find that an additional semester of study will be required to complete the undergraduate curriculum.
Teacher Certification Track

Students who seek careers as speech and language pathologists in the public schools in Michigan (or in other states which require teacher certification for such employment) must arrange to complete a minor in elementary education which is required for the Elementary Provisional Teaching Certificate. Requirements and approval for this minor are obtained from the Education Advising and Admissions Office, 2504 Sangren Hall. Students must obtain an approved minor slip signed by an approved elementary education advisor.

Completion of the foregoing requirements, together with completion of the curricular requirements described below and completion of a master’s degree program in speech pathology and audiology (with major emphasis in speech pathology, and including a graduate level speech pathology course), will result in recommendation of the student for Elementary Provisional Teaching Certification. Simultaneously, the master’s degree recipient in this track is approved for employment in Michigan as a “Teacher of the Speech and Language Impaired” and typically also will have completed the academic and practicum experiences required for employment in other clinical settings as well. Although Michigan does not require Teacher Certification for audiologists employed in the public schools, other states may require such certification. A graduate emphasis in audiology does not satisfy Teacher Certification requirements.

Non-Teacher Certification Track

Students who seek careers in settings other than the schools (for example, in hospitals, community agencies, and rehabilitation centers) or who are preparing for doctoral study are not required to complete the requirements for teaching certification outlined above. Students in this case are required to complete an academic minor in an area such as linguistics, social work, computer science, physics, psychology, gerontology or other related discipline. Assistance in selecting an appropriate minor is available through the departmental undergraduate advisor.

Completion of the curricular requirements described below, together with the completion of a master’s degree program in speech pathology and audiology, typically satisfies all academic and practicum requirements of the American Speech-Language-Hearing Association for a Certificate of Clinical Competence in the emphasis area (speech and language pathology or audiology) pursued in graduate school.

Speech Pathology and Audiology Curriculum

A major in speech pathology and audiology consists of a minimum of 34 to 36 hours in speech pathology and audiology plus additional coursework specified by the department. These additional requirements include coursework in general education, physical education, supporting courses outside the department and an academic minor. Each student is responsible for obtaining information on degree requirements and for taking the steps necessary to meet those requirements.

Students interested in a major in speech pathology and audiology should contact the department office in the Speech and Hearing Center on the East Campus for an appointment with an undergraduate advisor. Because the sequencing of courses indicated in this major is critically important, students should seek academic advising from the department as soon as possible.

Speech and Hearing Processes Minor

The departmental minor in speech and hearing processes requires a minimum of fifteen hours of credit in speech pathology and audiology coursework. In consultation with a departmental advisor, students may design a minor option in areas such as speech and language hearing science, audiology, speech-language-hearing disorders or other individually tailored sequences complementary to the student’s educational and vocational objectives. The only prerequisite for upgrade courses specifically excluded from consideration in a minor sequence would be SPPA 400 and SPPA 401, both of which are clinical practicum experiences available only to departmental majors. Minor slips are required.

Integrated Languages Arts Minor (ILAM)

The Department of Speech Pathology and Audiology is one of five participating departments in the Integrated Languages Arts Minor—a program designed particularly for preservice elementary school teachers. The program provides opportunities for a wide variety of individual interests and alternative learning styles. For a full description of the program, consult its listing under the “Interdisciplinary Programs” section of the College of Arts and Sciences or its listing in the College of Education or the College of Health and Human Services.

Speech Pathology and Audiology Courses (SPPA)

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

SPPA 200 Introduction to Communication Disorders

This course provides a broad view of the nature of language as the primary means of human communication, its normal acquisition, the common disorders of speech, language and hearing, the social and emotional consequences of these disorders, and individual and societal ways of dealing with communication disorders.

SPPA 203 Normal Language Acquisition

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.

SPPA 204 Phonetics

A study of human speech sounds as a basis for understanding speech production and speech perception. Means of symbolizing speech sounds are provided to prepare the student for accurate transcription of speech behavior.

SPPA 205 Voice and Respiration

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.

SPPA 206 The Auditory System

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.

SPPA 207 Clinical Laboratory

During this registration the student is required to participate in structured observations of clinical activities including out-patient evaluations, on-going therapy and multidisciplinary diagnostics. Must be taken concurrently with SPPA 203 and 204.

SPPA 260 Linguistic Development of the Child

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 ILAMED 260. Required for the Integrated Languages Arts Minor.

SPPA 351 Phonemic Disorders

A detailed study of the nature of phonemic disorders; orientation to clinical management.

SPPA 353 Fluency Disorders

A detailed study of the nature of fluency disorders; orientation to clinical management.

SPPA 354 Language Disorders in Children

A detailed study of the nature of communication problems associated with congenital or acquired impairment of language function in children; orientation to clinical management.

SPPA 358 Disorders of Hearing: Identification and Measurement

An introduction to the measurement of hearing and the field of audiology. The course includes an introduction to aural pathologies.

SPPA 359 Special Studies in Communication Disorders

A survey of neuropathologies and structural deviations which result in communication disorders, including intubate cerebral paity and cleft palate.

Prerequisites: Consent of instructor or SPPA 205.
SPPA 400 Practicum in Speech Pathology and Audiology I
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders.

SPPA 401 Practicum in Speech Pathology and Audiology II
2 hrs.
Clinical experience in the management of speech, language, and/or hearing disorders.
Prerequisite: SPPA 400.

SPPA 403 Vocal Tract Kinetics
3 hrs.
A study of vocal tract kinetics and the neurological base of speech. The course includes a detailed consideration of speech as the time-varying shaping of the vocal tract.
Prerequisite: Consent of instructor or SPPA 205 and SPPA 206.

SPPA 550 Advanced Speech and Hearing Science
2 hrs.
Theories of speech production, reception and perception are considered in this course from the point of view of experimental phonetics and experimental audiology.

SPPA 551 Neuropathologies of Speech
2 hrs.
This course is concerned primarily with surveying selected communication disorders associated with neuropathologies.

SPPA 552 Communication Problems of the Aged
3 hrs.
This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis is on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

SPPA 554 Speech and Hearing Therapy in the Schools
2 hrs.
Study of clinical work with speech, language or hearing disordered children in the school setting.

SPPA 555 Hearing Measurement
2 hrs.
This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the base for clinical and audiometric procedures.

SPPA 556 Rehabilitative Audiology
3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

SPPA 557 Educational Audiology
3 hrs.
This course deals with the educational, psychological and vocational needs of the hearing impaired child and the parameters that affect educational programming.

SPPA 595 Oral Language Development and Dysfunction
2 hrs.
This course is designed to provide the student preparing to be a classroom or special teacher with information about the nature of oral language, its development and conditions associated with dysfunction. Does not apply toward a major in speech pathology and audiology.

SPPA 597 Topics in Speech Pathology and Audiology
1-4 hrs.
Selected topics in speech pathology and audiology are systematically explored through lectures, laboratory experiences, and student projects. Possible areas of study are: instrumentation in audiology, manual communication, electrophysiologic audiometry, computer applications to speech pathology and audiology, augmentative communication, and contemporary professional issues.
The Graduate College offers a wide variety of programs leading to the master's, specialist, and doctoral degree.

The University has sixty-two master's degree programs. Master of Arts degrees are awarded in numerous programs in the following general categories within the College of Education: Counselor Education and Counseling Psychology, Curricula in Teaching, Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Elementary School, and Teaching in the Middle or Junior High School.

A number of other programs at Western also lead to the Master of Arts degree: Anthropology, Art, Chemistry, Communication, Comparative Religion, Economics, English, Geography, History, Home Economics, Mathematics, Mathematics Education, Medieval Studies, Orientation and Mobility, Philosophy, Physics, Political Science, Psychology, Rehabilitation Teaching, Sociology, and Speech Pathology and Audiology.


In 1960 programs leading to the Specialist in Education degree were introduced. This degree is offered in Educational Leadership and School Psychology.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Six of these programs—those in Educational Leadership (Educational Evaluation, Measurement, and Research Design), Mathematics, Physics, Psychology, Science Education, and Sociology—lead to the Doctor of Philosophy degree. The Doctor of Education degree is offered in Counselor Education and Counseling Psychology, Educational Leadership, and Special Education. The Doctor of Public Administration is also offered.

Please refer to The Graduate College Catalog for further information on these programs. Inquiries about financial assistance should be directed to The Graduate College; inquiries about research opportunities should be directed to the Office of Research and Sponsored Programs.
The Division of Continuing Education offers educational opportunities to qualified persons who wish to pursue their education on a part-time basis. Increasing numbers of men and women are interested and involved in improving their educational backgrounds for a variety of reasons—to improve career opportunities, to supplement past educational experience, to meet certification and licensure requirements, and to satisfy personal learning needs.

In response to the needs of these adult learners, Western's continuing education activities have been expanded to include extension courses for both undergraduate and graduate credit; correspondence and other types of self-instructional courses; conferences, seminars, and workshops; and other types of short courses for business, community, educational, and industrial leaders and other interested adults. Course and program offerings in the twenty-five southwestern Michigan counties served by Western's Division of Continuing Education are planned in conferences between representatives from academic units and continuing education professionals who continuously analyze student's needs and interests. In-service educational programs are planned with business, civic, educational, and professional groups. Advisory services are offered as well as actual training programs.

Western's on campus adult, part-time, and evening students are also served by the Office of Adult Learning Services. The office offers step-by-step guidance in entering or re-entering the University and works with each of the seven colleges to plan, monitor, and promote evening degree programs. It also provides pre-admission counseling to part-time students and academic advising to general University Studies students.

The Office of Conferences and Institutes develops and manages conferences and non-credit seminars in cooperation with university departments, professional groups, and community organizations.

The Division's central office is located in A-Wing of Ellsworth Hall on Western's main campus in Kalamazoo. Six additional regional centers are located as follows:

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

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

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

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

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

South Central Regional Center
Kellogg Community College
632 North Avenue
Battle Creek, MI 49016-3299

**General University Studies**

The Division has developed a baccalaureate program for adult students who are unable to take courses on the Kalamazoo campus. It especially serves those with a community college background or its equivalent. This undergraduate degree program is known as the General University Studies curriculum, which leads to either the Bachelor of Arts or the Bachelor of Science degree, depending upon the subject matter content of the program. Specific course requirements vary with the selected area of concentration. All programs must be planned with an academic adviser for the area of concentration. Arrangements for consultation with an adviser will be provided at the student's convenience. Inquiries about the General University Studies programs should be directed to any of the Division's offices.

**General Requirements**

The general requirements for a bachelor's degree in the General University Studies curriculum include the following:

1. Complete at least 122 hours of credit, with a minimum of 60 hours of academic work from an accredited four-year, degree-granting institution. At least 30 hours of credit must be taken through Western Michigan University.

2. Completion of a planned area of concentration, involving a minimum of 45 semester hours of credit. Some work may include credit completed in the first two years of the student's preparation or credit given for non-accredited training or experience.

3. Completion of the General Education requirement of 35 semester hours of credit. This work does not have to be exclusive of work included in the area of concentration.

**Areas of Concentration**

**American Studies**

Lewis H. Carlson, Adviser

This bachelor's degree program is designed for those who wish to broaden their understanding and appreciation of American life and
institutions. Students with an interest in the humanities, fine arts, or social sciences will find this program to their liking. Although the program is primarily nonvocational, it provides a useful background for a number of professional degree programs, such as business administration, public administration, social work, and the law.

The requirements for this 45-hour concentration are as follows:

1. A minimum of 25 credit hours, with at least two courses in each of 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.

Applied Liberal Studies

David A. Ede, Adviser

This program, which leads to the Bachelor of Science degree, is available to those who have completed vocational training programs at a business school, community college, technical institute, or other specialized educational institution. This program will be of particular interest to those adults who, through previous formal study and practical experience, are eligible for promotion to positions of supervisory, managerial, or executive responsibility, but who lack the formal education qualifications necessary for such advancement.

The requirements for this 45-hour concentration are as follows:

1. A minimum of 18 credit hours, with at least 6 hours selected from three of the following topical areas:
   A. Community concerns
   B. Communication skills
   C. Environmental concerns
   D. Human relations
   E. International concerns
   F. Technical skills mastery

2. An additional 12 hours in the three areas chosen above.

3. Up to 15 hours of work taken previously may be applied toward this concentration. Acceptance of this credit does not imply transferability to other degree programs at Western.

Criminal Justice

Carol J. Rogers, Adviser

The General University Studies bachelor's degree in criminal justice is designed for persons who have completed an associate's degree in law enforcement, corrections, or police administration and wish to complete a bachelor's degree through part-time study. Sixty hours of upper division study beyond the associate's degree is required to complete the bachelor's degree in criminal justice. The degree program is interdisciplinary with core courses in law enforcement, courts, and corrections. In addition, each student has an opportunity to take advanced courses in one of these areas.

The requirements are as follows:

1. Prerequisite Courses

   Three social science core courses:
   A. An introductory course in political science
   B. An introductory course in psychology
   C. An introductory course in sociology

   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 262 Criminology
      SOC 462 Criminal Justice Process
      OR
      PSCI 525 Politics of Criminal Justice
      SOC 464 Sociology of Law Enforcement
      SOC 564 Advanced Criminology
      SWRK 465 Correctional Process

   C. Minimum of 15 hours to be selected from:

      ANTH 555 Forensic Anthropology
      BAS 200 Black Presence
      BAS 300 Black Experience
      HIST 301 Law and Justice in Western History
      PHIL 313 Philosophy of Law
      PSCI 300 Urban Politics
      PSCI 320 American Judicial Process
      PSCI 523 Civil Rights and Civil Liberties
      PSCI 525 Politics of Criminal Justice
      PSCI 590 Research Methodology
      SOC 314 Ethnic Relations
      SOC 320 Introduction to Social Psychology
      SOC 353 City and Society
      SOC 382 Methods of Sociological Inquiry
      SOC 495 Special Topics (when appropriate)
      SOC 553 Urban Sociology
      SOC 567 Corporate and White Collar Crime
      SWRK 433 Dynamics of Race and Culture
      SWRK 564 Juvenile Justice
      SWRK 567 Institutional Treatment of Offenders
      SWRK 568 Non-Institutional Treatment of Offenders
      SWRK 572 Community Agency Resources

Health Studies

Sterling Breed, Moyra Etling, Charles Spaniolo, Sue A. Davidson, Advisers

This program is intended for registered nurses (R.N.), registered dental assistants (R.D.A.), dental hygienists, radiologic technologists, respiratory therapists, audiologists, cytotechnologists, and medical laboratory technicians who have achieved licensure or registry in their health profession and who wish to earn a bachelor's degree.

Areas of concentration in health studies require a minimum of 45 semester hours. This total consists of:

1. 15 semester hours from the credit transferred for registry or licensure;

2. 15 semester hours in the following core requirements: Health Science, 3 hours; Human Behavior and Interaction, 9 hours;

   and Planning, Organization and Leadership Skills, 3 hours; and

3. 15 semester hours of course work in the student's specialized interest area.

The area of concentration represents the student's opportunity to further develop individual objectives. Although requirements in the area of concentration are uniform for all students, there is considerable room to accommodate individual interests and objectives.

Social Science Studies

David A. Ede, Adviser

This program was designed to provide career-related preparation for students interested or employed in public service occupations, such as community development, social services (not certified), state and local government. The program will appeal to those with an interest in the social sciences and who are considering a related vocational field, as well as to those interested in the study of public issues, politics, and social questions. A bachelor's degree is conferred upon those completing the program requirements.

The requirements for this 45-hour social science concentration are as follows:

1. A minimum of 12 semester hours of credit selected from the following:

   ANTH 220, Principles of Cultural Anthropology, or ANTH 240, Principles of Cultural Anthropology; ECCN 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 adviser, and may be interdisciplinary—drawn from a number of departments; disciplinary—drawn from a single social science discipline; or applied—identified with the needs of a particular area of study, such as public administration, sociology of education, social science research techniques, or applied social science.

Technical-Scientific Studies

Sandra F. Blanchard, Richard E. Munsterman, Advisers

This program was designed for those interested in technical studies, including the study of aviation, automotive technology, engineering graphics, manufacturing, supervision, and technical vocational education. A student who has completed a two-year vocational-technical study program at a community college, or one who has achieved a comparable level of preparation through a combination of study and work experience, will find this program of interest. A career oriented program, particularly for those in manufacturing, aviation, and transportation technology, 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, and manufacturing management. Students
interested in technical vocational education, such as teachers in skills centers, may substitute such areas as industrial arts, drawing, graphic arts, metal working, woodworking, and auto mechanics.

2. Up to 15 hours taken previously may be applied towards this concentration. Some of these credits may be earned through examination, evaluation of previous experience, and non-accredited training.

3. At least 15 hours must be earned through courses at Western. Students desiring certification as teachers in vocational-technical areas must take additional professional courses in methods course construction and evaluation.

Self-Instructional Courses

Self-instructional courses are available to students when on-campus course attendance is impossible. The Office of Self-Instructional Programs offers over 100 credit courses by correspondence, television, and magazine. All courses are developed by University faculty. Students may register in person or by mail at anytime during the year, and are given up to one year to complete each course. These credit courses may be applied to an undergraduate degree, subject to limitations defined by the University, college, or department in which the student is studying.
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B.S. (M.A.), Ph.D., Michigan State  

**Alves, Galen J., 1974, Professor of Psychology**  
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**Bailey, Thomas C., 1970, Associate Professor of English**  
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**Barley, Lynwood H., 1963, Associate Professor of Humanities**  
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**Baskerville, Walden, Jr., 1978, Associate Professor, Counseling Center**  
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**Bat-Miriam, 1989, Assistant Professor of English**  
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**Batch, Nicholas, 1972, Associate Professor of Finance and Commercial Law**  
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**Batshe, John A., 1960, Adjunct Associate Professor of Management**  
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**Betts, Harold L., 1964, Professor of Speech Pathology and Audiology**  
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**Belonax, Joseph J., 1978, Associate Professor of Marketing**  
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**Belonax, Beverley A., 1979, Professor of Counseling Education and Psychology**  
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<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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</thead>
<tbody>
<tr>
<td>Shamu, Robert</td>
<td>Electrical Engineering</td>
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<td>Seelkj, Karen</td>
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<td>Electrical Engineering</td>
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<td>Electrical Engineering</td>
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B.S., M.A., Ph.D., Columbia

Zusko, Ramon, 1971, Professor of Music
B.S., M.S., Juilliard School of Music
ACT Test, 12
Abuse Services, Substance, 49
Academic Achievers’ Awards, 22
Advising, 34
Options, 62
Policies and Procedures, 31
Rights, Student, 50
Scholarships, 22
Skills Center, 39
Standards, 37
Year Calendars, 6-7
Access to Student Information, 51
Accountancy
Department of, 151
Courses, 151
Major and Minor, 147
Scholarships, 25
Accreditation, 8
Activities, Student, 44
Admissions
Academic Affiars, Provost and Vice President for, 261
Development and Administrative Affairs, Vice President for, 262
Finance, Vice President for, 262
Legislative Affairs and General Counsel, 263
President, 261
Regional Education and Economic Development, 264
Student Services, Vice President for, 264
Administrative Councils, Faculty and, 47
Administrative Systems, 147
Admission
ACT, 12
Advanced Placement, 12
Alpha Program, 13
Coordinate Majors, 54
International Students, 13
Interviews, 12, 13
Martin Luther King, Jr. Program, 13
Nontraditional Admission Program, 14
Notification of Admission Status, 12, 13
Orientation, 12
Permission To Take Classes, 14
Policies and Procedures, 12
Readmission, 14
Senior Citizens, 14
Special Programs, 13
Transfers, 12
Validation Deposit (Entering Students), 15
Admissions, Financial Aid, and Student Services Council, 47
Adult Learning Services, 39
Adult Students, 39
Adult (Part-time) Student Aid, 18
Advanced Placement Program, 12, 37
Advanced Registration, 35
Advising, 149
Advising Freshmen, 13
Freshmen, 34
Offices, 34
Transfer, 34
African Studies Program, 72
Agri-Business (B.B.A.), 150
Agriculture
(See Consumer Resources and Technology)
Scholarships, 26
Air Craft and Automotive Engineering
Department, 184
Cooperative Education, 184
Courses, 185
Programs 185
Air Craft Maintenance (Engineering Technology), 197
Air Way Science Management Recognition, 197
Alcohol Abuse (See Specialty Program in Alcohol and Drug Abuse)
Alpha Program, 13
Alumni Office, 46
American College Test (ACT), 12
American Studies Program, 68
American Studies Program (Continuing Education), 258
Anatomy (See Biological Sciences)
Anthropology
Department of, 77
Courses, 77
Major and Minor, 77
Anthropology/Sociology Major, 77, 144
Application Fee, 15
Applied
Ethics Minor, 125
Liberal Studies (Continuing Education), 259
Mathematics, 120
Mechanics Institute, 181
Music, (See Music Performance)
Statistics Minor, 120
Approved Majors, 54
Archives, 46
Art
Department of, 219
Courses, 220
History, 219
Majors and Minors, 219
Scholarships, 29
Arts and Sciences
College of, 67
Advising Office, 67
Arts and Sciences Curriculum, 67
Coordinate Majors, 54
Courses, 68
Curricula and Approved Majors, 54
Curricula and Majors, 67
Foreign Studies Seminars, 68
Interdisciplinary Programs, 68
Liberal Arts Curriculum, 67
Scholarships, 23
Asian Studies Program, 72
Assessment, University Requirement, 32
Athletic Board, 46
Athletic Facilities, 100
Athletic Training Minor, 174
Athletics (Intercollegiate), 46
Athletics (Intercollegiate) Scholarships, 30
Attendance, Class, 35
Audiovisual Center, 48
Audit Fees, 15
Automotive Engineering, 184
Scholarships, 26
Technology and Management, 197
Aviation Building, 10
Aviation Technology and Operations, 197
Bachelor’s Degrees, 53
Ballet (See Dance)
Bands (Large Ensembles), 231
Biological Sciences
Department of, 79
Courses, 82
Majors, 79, 80
Minors, 81
Scholarships, 23
Black Americans Studies
Courses, 69
Program, 68
Blind Rehabilitation and Mobility
Department of, 245
Courses, 245
Board Fees, 15
Board of Trustees, 8, 261
Board of Trustees Scholarships, 21
Botany Minor, 80
British Studies, 72
Budget and Finance Council, 47
Buildings and Grounds
Athletic Facilities, 10
Campus Map, 11
East Campus, 10
Off-Campus, 10
West Campus, 10
Business
Haworth College of, 146
Advising, 147
Areas of Concentration, 147
Business Education, 148
Communication, 147
Courses, 150
Curricula and Approved Majors, 54
International Seminars, 65
Library, 47
Pre-Business Curriculum, 146
Professional Business Administration Curriculum, 147
Research and Service Institute, 146
Scholarships, 25
Business Information Systems
Department of, 152
Administrative Systems, 147
Business Communication, 147
Business Education, 148
Computer Information Systems, 148
Consumer Relations, 148
Courses, 152
Majors, 147
Scholarships, 25
Business Library, 47
Business-Oriented Chemistry Major, 85
Business Research and Service Institute, 146
Calendars, 6-7
Calliope, 49
Campus Recreational Activities, 46
Campus Map, 11
Campus Visits, 12, 13
Canadian Studies Committee, 66
Career Development Programs, 40
Career Education, 39
Career Exploration Media Center, 40
Career Options, 62
Career Planning and Placement Services, 40
Cartography (See Geography)
Center for Korean Studies, 66
Ceramics (See Art)
Certification, Fees, 54
Certification, Teacher, 53, 159
Change Name, 38
Changing Courses (Drop-Add), 35
Challenge Kaney Memorial, 42
Cheating, Academic Honesty, 50
Cheating, Student, 50
Chemistry
Department of, 85
Courses, 85
Majors and Minors, 85
Placement Examination, 85
Scholarships, 23
Choirs, 231
Cistercian Studies Library, 47
Class Attendance, 35
Classics
(See Languages and Linguistics)
Courses in English, 114
Coaching Minor, 174
College Level Examination Program, CLEP (Also see Admissions), 12, 37
College Scholarships, 23
College Work-Study Program, 17, 18
Colleges and Curricular Offerings, 54
Commercial Law, 148
Communication
Department of, 87
Courses, 88
Majors and Minors, 88
Community College Graduates
Scholarships, 22
Community Health Services
School of, 246
Health and Human Services Courses, 246
Gerontology Minor, 247
Physician Assistant Program, 247
Specialty Program in Alcohol and Drug Abuse, 249
Community Journalism Emphasis, English Major, 98
Comparative Drama, 49
Completion of Work, 38
Composition, Music, 230
Comprehensive Examinations, 37
Computer Aided Engineering Center, 181
Computer Fee, 15
Computer Information Systems, 148
Computer Literacy Requirement, 32
Computer Science
Department of, 91
Courses, 92
Majors, 91
Minors, 92
Computer Systems Engineering, 194
Conduct and Discipline, 51
Confidentiality Policy, Counseling Center, 40
Construction Science and Management, 199
Consumer Relations, 148
Consumer Resources and Technology
Department of, 186
Agriculture Curriculum, 187
Courses, 190
Dietetics Curriculum, 187
Family Life Education Minor, 190
Fashion Merchandising Curriculum, 187
Food Distribution Curriculum, 188
Food Occupations, 190
Food Service Administration Curriculum, 188
Individual and Family Relationships
Curriculum, 189
Industrial Education Curriculum, 189
Interior Design Curriculum, 189
Textile and Apparel Technology, 190
Vocational Education, 186
Contact, For More Information, 9
Contemporary Dance (See Dance)
Continuing Education
Division of, 258
Curricula and Approved Majors, 55
General Requirements, 258
General University Studies, 58
Regional Centers, 258
Cooperative Education
Aircraft and Automotive Engineering, 184
Electrical Engineering, 194
Engineering Technology, 196
Industrial Engineering, 206
Mechanical Engineering, 209
Programs (Work Experience), 187
Correspondence Courses, 31
Correspondence Directory, 9
Councils, Faculty and Administrative, 47
Counseling
Center, 40
Educational, 39
Personal, 40
Counselor Education and Counseling Psychology
Department of, 167
Courses, 167
Numbering, 4
Course Reference, 3
Courses, Repeated, 36
Creative Arts Minor, 161
Creative Writing Emphasis, English Major, 98
Credit by Examination, 37
Credit Evaluation, 13
Credit Hour, (College of Engineering and Applied Sciences), 182
Credit/No Credit System, 36
Criminal Justice
Continuing Education, 259
Program, 69
Sociology, 141
Critical Languages
Minor, 118
Courses, 117
Currently Enrolled Students (Scholarships), 22
Currents, 49
Curricula and Approved Majors, 54
Curricula, Degrees and, 53
Dance
Department of, 224
Courses, 225
Library, 47
Majors, 224
Minor, 225
Scholarships, 26
Dean's List, 36
Degree Requirements, 31
Degrees, 53
Dentistry, 58
Departmental Scholarships, 22
Development Office, 46
Dietetics, 187
Directed Teaching, 159
Directories, 261
Directory, Student, 44
Discipline, Conduct and, 51
Distributive Education
(See Consumer Resources and Technology)
Vocational Minor, 216
Distributive Teacher Education Scholarships, 27
Dormitories (See Residence Halls)
Drop-Add Courses, 35
Drug Abuse (See Specialty Program in Alcohol and Drug Abuse)
Early Childhood Education, 162
Earth Science (See Geology)
East Campus, Buildings and Grounds, 10
East Lake Geographer, 49
Economics
Department of, 95
B.B.A, 149
Courses, 95
Major and Minor, 95
Scholarships, 23
Editing Brush-up Workshop, 39
Education
College of, 158
Admission and Advising, 158
Certification, 159
Course, 167
Curricula and Approved Majors, 54
Library, 47
Requirements, General, 32
Scholarships, 26
Teacher Testing, 159
Education and Professional Development
Department of, 168
Courses, 168
Elementary Education Curriculum, 159
Secondary Education Majors and Minors, 164
Educational Counseling, 40
Educational Goals, University, 8
Educational Leadership, Department of, 171
Electrical Engineering
Department of, 194
Computer Systems Engineering, 194
Cooperative Education, 194
Courses, 195
Electrical Engineering, 194
Elementary Education Curriculum, 159
Elementary Music Curriculum, 163
Emeriti Faculty, 264
Employment
Abroad, 66
Off-Campus, 21
On-Campus, 21
Residence Hall Positions, 21
Student Employment Regional Service, 21
Energy Learning Center, 181
Engineering
Admission Requirements, 182
College Courses, 184
Electrical, 194
Graduation Requirements, 182
Graphics, 199
Industrial, 206
Mechanical, 209
Metallurgy, 199
Off-Campus Degree Programs, 183
Paper Science, 212
Programs, 182
Engineering and Applied Sciences
College of, 181
Academic Advising, 182
Academic Honesty, 182
Computer Use in College Programs, 182
Credit Hour Definition, 182
Curricula and Approved Majors, 55
Enrollment, 182
Pre-Engineering, 182
Pre-Engineering, 183
Prerequisites, 183
Scholarships, 26
Engineering Technology
Department of, 196
Aircraft Maintenance Engineering Technology, 197
Airway Science Management Recognition, 197
Automotive Technology and Management, 197
Aviation Technology and Operations, 197
Construction Science and Management, 199
Cooperative Education, 196
Engineering Technology, Courses, 201
Engineering Graphics, 199
Engineering Metallurgy, 199
Industrial Design, 200
Manufacturing Engineering Technology, 200
Manufacturing Technology Minor, 201
Scholarships, 26
English
Department of, 97
Courses, 99
Majors and Minors, 97
Scholarships, 23
English as a Second Language, 118
English, Classics Courses in, 114
English Language Instruction for International Students, 41
English Translation, Foreign Literature, 113
Ensembles (Music), 231
INDEX 283

Minors, 128
Scholarships, 24
Placement Program, 37
Placement Services, Career Planning and, 40
Police, 48
Political Science
Department of, 130
Courses, 131
Major and Minor, 130
Public Law Concentration, 130
Public Policy Concentration, 130
Scholarships, 24
Practical Writing
Major Emphasis, 98
Minor, 98
Pre-Business Curriculum, 146
Pre-Communication Major, 68
Pre-Engineering, 162
Pre-Engineering, 182
Pre-Law, 59
Pre-Professional Curricula, 58
Architecture, 59
Architecture, 184
Dentistry, 58
Law, 58
Medicine and Osteopathy, 58
Pre-Psychology Major, 134
Preschool, Sara Swickard, 42
Printing, 213
Printing Management Scholarships, 28
Printing (See Art)
Privacy (See Family Educational Rights and Privacy Act)
Production Technology, 183
Public Relations, Communications Major, 88
Public Law, Political Science, 130
PTC Status, 14
Publications, 49
Public Affairs and Administration Curriculum, 147
Program Leadership (See Educational Leadership)
Project SCOPE, 14
Psychology
Department of, 134
Courses, 135
Honors, 135
Majors and Minors, 134
Scholarships, 24
Public Administration, 130
Public Administration (B.B.A.), 150
Public Affairs and Administration School of, 137
Courses, 137
School of, 252
Public History Curriculum, 108
Public History, 109
Public Law, Political Science, 130
Public Policy Concentrations, American Institutions and, 130
Public Relations, Communications Major, 88
Publications, 49
Quantification Requirements, 32
Racial and Ethnic Harmony, 52
Radio, 49
Reading Center and Clinic, 167
Reading Horizons, 49
Reading Requirements, 31, 32
Reading Workshop, 39
Reading, 14
Real Estate, Major, 148
Minor, 149
Recreation
Major, 172
Minor, 174
Recreational Activities, Campus, 46
Refunds, 16
Refund Policy (Financial Assistance), 19
Registration, Records, and Registration, 35
Regional Centers (Continuing Education), 258
Registration, 35
Registration Fee (Late), 15
Religion
Department of, 138
Courses, 138
Major and Minor, 138
Religious Activities, 42
Repeated Courses, 36
Requirements
Computer Literacy, 32
Distribution Program, 33
General Education, 32-34
Intelectual Skills, 31-32
Major and Minor, 34
Quantification, 32
Reading, 31-32
University, 31
Writing, 31, 32
Research Policies Council, 47
Residence Halls, 40
Residence Hall Positions, 21
Residency, 16
Retailing, 149
Romance Studies, 73
Room and Board, 15
Russian
Courses, 116
Minor, 113
Sara Swickard Preschool, 42
Scholarship, Waiver, University Tuition, 35
Scholarships, 17, 21
Academic, 22
and Financial Assistance, 17
Community College Graduates, 122
Currently Enrolled Students, 22
Freshmen, 21
Medallion, 21
Transfer Students, 22
Science
General Studies, 242
(Group) Majors, 75
Science and Mathematics Teaching Minor, 75, 81, 85, 102, 107, 121, 128, 162
Scientific-Technical Studies (Continuing Education), 259
SCORP, Project 14
Sculpture (See Art)
Secondary Education Curriculum, 145
Majors and Minors, 164
Secondary Physical Education Minor, 173
Self Instructional Courses, 260
Programs (See Correspondence Courses), 31
Senior Citizens Admission of, 14
Opportunity Program in Education, 14
Services for Students, 39
Sexual Harassment and Sexism, 52
Short-Term Loans, 20
Sindecuse Health Center (See Health Center), 20
靳
courses, 42
Social Science
General Studies Courses, 243
Major and Minor, 75
Studies (Continuing Education), 259
Social Work
School of, 252
Courses, 252
Major and Minor, 252
Scholarships, 29
Seminars, 65
Sociology
Department of, 140
Courses, 142
Honors, 140
Major and Minor, 140
Scholarships, 24
Social Psychology Concentration, 141
Sociological Anthropology Major, 141
Sorority/Fraternity Housing, 41
Spanish
Courses, 116
Major and Minor, 113
Special Education
Department of, 179
Courses, 179
Emotionally Impaired, 164, 166
Mentally Impaired, 164, 166
Physically or Otherwise Health Impaired, 165, 166
Visually Impaired, 165, 167
Special Physical Education Minor, 173
Special Programs, 13
Special Services, 39
Specialty Program in Alcohol and Drug Abuse, 249
Speech (See Communication or Speech Pathology and Audiology)
Speech, Language, and Hearing Services, 44
Speech Pathology and Audiology
Department of, 254
Courses, 255
Major, 255
Scholarships, 29
Spelling Workshop, 39
Sponsored Scholarships, 22
Sports Clubs, 46
Stafford Loan, 19
Standards, Academic, 37
Statistics B.B.A., 150
Major, 120
Minor, 121
Status
Full-time Student, 16
Notification of, 12, 13
Student Academic Ethics: A Guide to Academic Honesty, 50
Student Academic Rights: Policies and Procedures, 50
Student Activities and Organizations, 44
Student Cheating, 50
Student Directory, 44
Student Employment Reference Service, 21
Student Fees, 15
Student Financial Assistance, 17
Student Health Fee, 43
Student Loans, 19
Student Planned Curriculum, 58
Student Rights and Responsibilities, 50
Student Teaching (See Education and Professional Development)
Students, Services for, 39
Study Abroad, 64
Study Skills Program, 39
Substance Abuse Services, 49
Summer Institutes, 65
Supplemental Educational Opportunities
Grants, 18, 19
Supplemental Instruction, 39
Teacher Certification
Continuing, 53
Provisional, 53
Teacher Testing, 159
Teachers, Curriculum for, 158
Teaching Scholarships, 20
Technical-Scientific (Continuing Education), 259
Technological Studies, Institute of, 181
Television, 48
Terms, Glossary of, 4
Textile Design (See Art)
Testing and Evaluation Services, 44
Textile and Apparel Technology, 190
Theatre
Department of, 238
Courses, 239
Majors and Minors, 238, 239
Music Theatre Performer, 218
Participation in, 49
Scholarships, 29
Tourism and Travel, 102
Training and Internship Programs, 40
Transcripts, 38
Transfer Students
Academic Advising, 12
Admission, 12
Credit Evaluation, 13
General Education Equivalents, 33
Intellectual Skills Requirements, 32
Orientation, 13
Notification of Status, 13
Scholarships, 22
Transferring Credit Back to WMU, 13

INDEX 283
Translation
Center, 113
Courses, 119
Minor, 119
Travel
Abroad (Opportunities), 64
Service and Information, 66
Trial Balloon, 49
Trustees, Board of, 261
Tuition, 15
Tuition Scholarship Waiver, 35

Undergraduate Studies Council, 47
United Student Aid Fund, 19
University
Assessment Requirement, 32
Computer Fee, 15
Curriculum (A Freshman Year Program), 62
Requirements, 31
Services, 46
Tuition Scholarship Waiver, 35
Urban Planning (See Geography)

Vehicle Registration, 49
Veterans Assistance, 44
Visits, Campus, 12, 13
Vocabulary Workshop, 39
Vocal Major (See Music)
Vocational Certification in Business, 216
Vocational Education
Courses, 217
Distributive Education Minor, 216
Food Occupations Minor, 216
Marketing (Secondary Education in), 216
Teaching Curriculum, 216
Vocational-Technical Minor, 216

WIDR, 49
WMU Foundation, 46
WMUK, 49
Watercolor (See Art)
Wellness Program, 43
West Campus, Buildings and Grounds, 10
Western Herald, 49
Western News, 49
the Westerner, 49
Withdrawal From Classes, 15, 35
Withdrawal From The University, 15
Women’s Center, 45
Women’s Studies Minor, 76
Work-Study Program, 18
World Literature Minor, 76, 99, 113
Writing
Lab, 39
Requirements, 31, 32
Writing Emphasis, English Major and Minor, 98

Zoology Minor, 80