

UNDERGRADUATE BULLETIN 2006-2007



NORTHERN MICHIGAN UNIVERSITY

Undergraduate Bulletin Fall 2006-Summer 2007

The Northern Michigan University Undergraduate Bulletin is published by the Registrar's Office, 1401 Presque Isle Avenue, Marquette, Michigan 49855-5323, 906-227-2258.

Northern Michigan University is an equal opportunity/affirmative action institution and is committed to administering all employment and educational policies and practices without unlawful discrimination. Inquiries or complaints about discrimination may be addressed to the Equal Opportunity Office, 502 Cohodas Administrative Center, 1401 Presque Isle Avenue, Marquette, Michigan 49855.

WWW.NMU.EDU

Accreditation

Northern Michigan University is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Secondary Schools.

The Higher Learning Commission of the North Central Association of Colleges and Secondary Schools
30 North LaSalle Street, Suite 2400
Chicago, Illinois 60602-2504
Phone: 312-263-0456; 800-621-7440
Fax: 312-263-7462
Internet: Info@ncacihe.org

All education programs are accredited by the National Council for the Accreditation of Teacher Education. Other accreditations include the American Alliance for Health, Physical Education, Recreation and Dance; American Chemical Society; Commission on Accreditation of Allied Health Education Professionals (Surgical Technology); Council on Academic Accreditation of the American Speech-Language-Hearing Association (Speech, Language and Hearing Sciences); Council on Social Work Education; Department of Transportation Federal Aviation Administration Certification; International Association of Counseling Services, Inc.; Michigan Department of Licensing and Regulation, State Board of Nursing; National Accrediting Agency for Clinical Laboratory Sciences; American Society of Cytology; and the National Association of Schools of Music.

In addition, the nursing programs (practical nursing, baccalaureate and master's degrees) are fully approved by the Michigan Department of Licensing and Regulation, State Board of Nursing and the baccalaureate and master's degrees are fully accredited by the Commission on Collegiate Nursing Education (CCNE).

The baccalaureate degree programs of the Walker L. Cisler College of Business are accredited by the AACSB International-the Association to Advance Collegiate Schools of Business.

Americans with Disabilities Act Accommodations

If an individual has a need for disability related accommodations or services, please inform the coordinator of disability services in the Disability Services Office in the Dean of Student's Office, 2001 C.B. Hedgcock, 906-227-1700. Reasonable and effective accommodations and services will be provided if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state and university guidelines.

Reporting Discrimination

State and federal laws prohibit discrimination against individuals with disabilities, including students or applicants with disabilities. Northern Michigan University's Equal Opportunity office and/or the dean of students coordinates the university's compliance with these state and federal non-discrimination laws, including the federal Vocational Rehabilitation Act of 1973, the federal Americans with Disabilities Act and the amended state Person with Disabilities Civil Rights Act. The Equal Opportunity specialist, located in the Equal Opportunity Office, is also the designated grievance officer for complaints or concerns regarding the university, its programs, procedures or employees. If you believe that a violation or potential violation of state or federal non-discrimination laws has occurred, is occurring or will occur, please notify the Equal Opportunity office or the dean of students, 1401 Presque Isle Avenue, Marquette, Michigan 49855. Telephone: 906-227-2420 or 906-227-1700.

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Welcome to Northern Michigan University

Congratulations on choosing a dynamic institution of higher education. At NMU, I hope your experience will be one full of personal growth and discovery, academic and professional development, and the kind of fun times that make for lifelong memories.

I offer two pieces of advice as you begin your Northern experience. First, get involved. Doing so will help you meet people, learn more about yourself and the world around you, and build your resume. Second, don't be timid; ask questions. The Northern faculty and staff want to help. Students are our top priority.

Best wishes for a life-changing educational experience.

A handwritten signature in black ink that reads "Leslie E. Wong". The signature is written in a cursive, flowing style.

Leslie E. Wong
President

About Northern Michigan University

Northern Michigan University was founded in 1899 as a regional teacher's college. Today it enrolls about 9,700 undergraduate and graduate students who are taught by more than 300 faculty members on a main campus of 358 acres. Constants throughout Northern's history are its reputation for excellent and innovative educational opportunities, its caring faculty and staff, and its natural setting.

Located in Marquette, Michigan, a city of 20,000, Northern offers the best features of rural and urban living in a safe and clean environment. Academically, Northern offers more than 180 programs in 28 different academic departments with credentialing that ranges from certificates and associate degrees to master's degrees. More than 75 percent of Northern faculty members have doctorates or the highest degree in their field.

Northern Michigan University Mission Statement

Northern Michigan University, by providing quality academic programs, strong student support, and extensive regional service for its stakeholders in the upper Midwest, challenges its students, faculty, staff, and alumni to strive for excellence, both inside and outside the classroom, and to become outstanding citizens and leaders.

To accomplish this mission, Northern provides a supportive living and learning environment that includes high-caliber undergraduate and graduate programs, personal attention, extensive use of modern technology, and continuous improvement of curriculum and services through systematic assessment. Challenging themselves and their students, Northern faculty and staff are dedicated to effective teaching and intellectual inquiry; to including students as learning partners in their research, scholarship, and other professional activities; and to advancing the university's roles as a service provider and as a cultural and recreational center in the Upper Peninsula. Northern Michigan University students will study ethics, humanitarian values, and cultural awareness in a strong general education program as well as master specific knowledge in a major career field. As graduates who are lifelong learners, they will possess the skills and attitudes to succeed in a fast-paced, constantly evolving, multi-cultural world. As alumni, they will be challenged to continue an NMU tradition, that of distinguishing themselves in their careers and communities.

ACADEMIC CALENDAR 2006-2007

Fall Semester 2006

Orientation for new students	Wednesday-Friday, August 23-25, 2006
First official day of classes	Monday, August 28, 2006
Labor Day observance—no classes	Monday, September 4, 2006
Planning/conference day—no classes	Friday, October 13, 2006
Thanksgiving recess begins at 8 a.m.	Wednesday, November 22, 2006
Classes resume	Monday, November 27, 2006
Last day of classes	Saturday, December 9, 2006
Examination period	Monday-Saturday, December 11-16, 2006
Commencement	Saturday, December 16, 2006
Final grades due from faculty	Tuesday, December 19, 2006

Winter Semester 2007

Orientation for new students	Wednesday-Friday, January 10-12, 2007
First official day of classes	Monday, January 15, 2007
Midsemester recess begins at 5 p.m.	Saturday, March 3, 2007
Classes resume	Monday, March 12, 2007
Last day of classes	Saturday, April 28, 2007
Examination period	Monday-Saturday, April 30-May 5, 2007
Commencement	Saturday, May 5, 2007
Final grades due from faculty	Tuesday, May 8, 2007

Summer Semester 2007

First official day of classes	Monday, May 21, 2007
Memorial Day observance—no classes	Monday, May 28, 2007
First official day of Session II classes	Monday, July 2, 2007
Independence Day observance—no classes	Wednesday, July 4, 2007
Last day of classes	Saturday, August 11, 2007
Final grades due from faculty	Tuesday, August 14, 2007

ADMISSION POLICIES

CONTACT INFORMATION

Admissions Office

2212 C.B. Hedgcock

Phone: 906-227-2650 • 800-682-9797

Web page: www.nmu.edu/admissions

Director: Gerri L. Daniels

Associate Director: William E. Laffey

Assistant Directors: Michelle A. Borleske, Joanne R. Chalgren,

Alison R. Crowley, José L. García, Gina A. Lombardini,

Meggan L. Mattson, Nicole Popour, Dena A. Russell,

W. Kevin Stulz, Cary Vajda

Senior Counselors: Nathan E. Ament, William B. Richards,

Jon T. Teichman

Counselors: Christina Carr, Michelle Corcoran,

LeTarsha K. Williams

The Admissions Office processes all requests for information and all applications for admission for new and re-entering undergraduate students. Applications for admission and information regarding academic programs and scholarships will be sent upon request. Forms and information are also available on the Admissions Web page.

Admission Philosophy

Northern Michigan University seeks to admit students who exhibit potential to succeed in the program of their choice. Applications for admission to NMU are individually reviewed with strong emphasis given to grade point average in high school college preparatory subjects, standardized achievement test scores, strength of academic curriculum, and/or college academic record. Northern also has a long-standing policy of providing opportunity for students whose previous academic experiences were less than satisfactory but who can show other evidence of their potential for success. However, the university retains the right to exercise judgment as to the eligibility of applicants for specific courses of study.

A student may be admitted to the university in good standing, admitted on probation, admitted with restriction to a specific program, asked to take a pre-admission test or supply further information, or denied admission until the student can demonstrate potential for success at the college level. When a student is admitted, the admission is to the university, not into a particular academic degree program. Academic departments may have additional requirements for admission to specific programs. A student may be asked to agree to certain conditions as part of his or her enrollment.

Applicants denied admission to the university may appeal to the Admissions Review Committee. The university also retains

the right to withdraw an offer of admission or change the admission status if a student's academic record significantly changes between the date of admission and enrollment or if the applicant falsifies or withholds information requested on the application for admission.

Admission Requirements and Application Procedures

Admission requirements differ depending on the status of the applicant (freshman, transfer, etc.) and the level of academic program. The following sections describe the credentials considered, the admission requirements, and the application procedures for each applicant status and program level.

Secondary School Preparation

High school students are strongly encouraged to take the core courses recommended by the Presidents Council (State Universities of Michigan):

- Four years of English
- Four years of college preparatory mathematics
- Four years of social studies
- Four years of science
- Three years of language

Beyond these core courses, students are encouraged to take courses or get experience in the arts and information technology.

Computation of High School Grade Point Averages

NMU recalculates the grade point average of high school students on a 4.00 scale by counting all grades received in the core courses outlined above for a minimum of six semesters. Grades in courses designated on the transcript by the school as honors, International Baccalaureate (IB), or Advanced Placement (AP) receive added weight in the computation. If the high school includes any college courses taken while in high school on the high school transcript, those grades will receive added weight as well. If a student has earned a GED, the "score average" is equated to a grade point equivalent for admissions purposes.

Computation of College Grade Point Averages

In calculating the grade point average of transfer students, Admissions computes college-level courses only, using credits attempted and honor points earned.

Standardized Achievement Testing

All applicants for baccalaureate programs (and some community college level programs) must take the ACT or SAT. Exceptions to this policy are granted to those who: (1) will have earned 12 or more semester hours of college-level credit taken after high school graduation; (2) are international students other than Canadian; (3) are persons who have been out of high school for three years or more; and (4) are applicants to some associate, certificate, certification and diploma programs.

Note: Students intending to pursue an education program should provide their ACT/SAT scores even if exempt as noted above.

Transcripts

Admission decisions are made on official documents. Applicants should request that official transcripts be sent directly to the NMU Admissions Office from each high school and college/university/trade school attended. Students who have earned a GED must have an official score report sent to NMU from the testing center.

Applicant Status

Find your applicant status among the choices below to understand the admissions requirements and application process you should follow. To apply, follow all steps listed under the heading Application Procedures found at the end of this section.

Freshman Applicants

Applicants who have not attended any college or university after high school are considered freshman applicants.

Baccalaureate Program Admission: Freshman applicants seeking admission to a baccalaureate degree program will be admitted if they meet the following requirements:

- Will graduate from high school with a recomputed academic grade point average of 2.25 or better in core courses.
- Attain a minimum ACT composite score of 19 (writing test not required) or a minimum combined SAT score of 900 (out of 1600) on the math and critical reading sections (NMU is not currently considering the writing section for admission).
- Successfully complete core course work as outlined by the Presidents Council of the State Universities of Michigan, as referenced above in Secondary School Preparation. Students who have earned a GED are also considered for admission.

Non-Baccalaureate Program Admissions: Freshman applicants seeking admission into associate, certificate, diploma-level or certification programs will be admitted if they meet the following requirements:

- Applicants may submit records verifying the achievement of the admission standards for baccalaureate programs; or
- Applicants must submit records verifying that they meet the specific admission requirements for the program to which they are applying. Some community college-level programs have specific minimum grade point average and/or test score requirements. This information can be found on the Application for Admission.

Transfer Applicants

Applicants who have attended a college or university after high school graduation or GED attainment are considered transfer applicants. Transfer applicants are admitted in good standing if they have a minimum 2.00 cumulative grade point average on a 4.00 scale for college-level courses taken at all post-secondary institutions attended and are eligible to return to the last institution attended. Transfer applicants who have earned fewer than 12 college-level credits will be reviewed based on high school and college performance.

Dual Enrollment Applicants

Applicants who are still enrolled in high school and wish to be enrolled in NMU courses prior to high school graduation are considered dual enrollment applicants and may be admitted, provided the student has demonstrated consistent, excellent academic achievement. Local school districts have their own requirements regarding approval of students seeking to pursue dual enrollment. Students should contact their school counselor or principal. Additionally, the following requirements must be met for admission as a dual-enrolled student at NMU:

- Applicants must have completed the 10th grade of high school and have achieved a minimum 3.00 academic grade point average, recalculated in academic, core courses; and
- Applicants are limited to taking eight credits per semester and must meet course prerequisites.

To apply, please follow all steps listed under the heading Application Procedures, found at the end of this section. Additionally, the "Dual Enrollment Permission to Enroll Form" must be completed. This form is available from the Admissions Office.

Dual enrollment students wishing to attend NMU as degree-seeking students after high school graduation do not need to reapply for admission. Write or call the Admissions Office to let us know you'd like to continue at NMU.

Re-entry Applicants

Previous Northern Michigan University undergraduate students who have not been enrolled at NMU for at least one year are considered re-entry applicants and will be re-admitted to the university provided they are eligible to do so under the Northern Michigan University Academic Proficiency Policy. Students may complete the re-entry update form at www.nmu.edu/reentry. Additionally, the following requirements must be met:

- Official transcripts must be sent from all institutions students have attended since their last NMU enrollment date.

- If suspended or dismissed from Northern Michigan University following their last enrollment, re-entry student applicants must submit appeals to the Admission and Academic Policies Committee through the Academic and Career Advisement Center.
- All debts to the university must be paid before course registration.

Post-baccalaureate Applicants

Applicants who hold a baccalaureate or higher degree and wish to pursue another undergraduate degree (in a field other than that of previous degree/s) or seek an initial secondary or elementary provisional teaching certificate are considered a post-baccalaureate applicant and will be admitted to NMU providing they have graduated from an accredited college or university. Individual academic programs may have additional requirements for admission.

Non-degree Applicants

Applicants who intend to enroll in classes for personal and/or professional development or for purposes other than obtaining a degree, certificate or diploma are considered non-degree applicants, and the following stipulations will be enforced for admission:

- Non-degree students are limited to a maximum enrollment of eight credit hours during any enrollment period.
- Non-degree students must meet all course prerequisites.
- Non-degree students may enroll under non-degree status for a maximum of 16 attempted credit hours without going through the freshman/transfer admission process.
- Non-degree students are not eligible for financial aid.

Credit earned as a non-degree student may be applied toward degree programs. To begin this process, the non-degree student must complete a Change to Degree Form, supply all required documentation, meet the same minimum grade point average and credit hour criteria as transfer applicants, and be formally admitted to a specific academic program.

Guest Applicants

Applicants who are regularly enrolled at and eligible to return to another college or university, but wish to earn credit from Northern Michigan University, are considered guest applicants. The following stipulations must be met for admission:

- Applicants may not register as degree candidates at NMU.
- Applicants must have the NMU courses they wish to take approved in advance by the registrar of their home institution.
- Applicants must understand that falsification of any part of a guest application may result in cancellation of admission or registration at NMU.

- Applicants must arrange to have any credit earned as guest students sent from NMU to their home institutions.
- Applicants are limited to a maximum of two regular semesters or 32 credit hours and must submit a new guest application for the second semester.

To apply, please complete a Michigan Uniform Undergraduate Guest Application and submit the \$30 application fee.

NMU Students Who Are Guests at Other Institutions

NMU students who wish to attend another institution as guests must complete a guest student application, available in the Registrar's Office, 2202 C.B. Hedgcock. Students must complete this form prior to enrollment at another institution. Students who fail to follow this procedure assume full responsibility for the transferability of courses.

International Applicants

International and Canadian student applicants must provide additional credentials to satisfy U.S. immigration regulations.

Canadian students need to complete the Application for Admission and submit a Declaration and Certification of Finances form, both of which are available from the Admissions Office. Other required credentials are the same as listed in the applicable applicant categories above. NMU may request an evaluation of credentials from an outside agency (ECE) on an individual basis.

International students (non-Canadian) must provide the following:

- Completed International Student Application for Admission.
- Application fee through bank draft, money order or credit card made payable in U.S. funds for \$30.
- Official, original transcripts of all secondary school work (non-U.S. and U.S.), official certificates showing results of any standardized examinations taken in the home country and official transcripts of any colleges, universities or trade schools attended. These documents must be sent directly from the issuing institution to Northern Michigan University. Certified translations are required for any documentation not originally in English.
- Students must submit all non-U.S., non-Canadian academic records to Education Credential Evaluators, Inc. (ECE) or other accepted agency. A form for doing so is included in the International Student Application for Admission.
- Proof of an adequate level of English language proficiency must be provided. Generally, proof of English proficiency is a minimum TOEFL score of 61 on the TOEFL iBT, 173 on the TOEFL CBT, or 500 on the TOEFL PBT. Test results must be sent directly from the testing agency. Other proof of English proficiency will be considered on an individual basis.

- Applicants must provide documentation that they have the ability to finance their education at Northern Michigan University. This is accomplished by completing the Certification of Finances section of the International Student Application for Admission and providing either the bank official's signature on that section or a separate letter from the bank official or a bank account statement.

Admission to Northern Michigan University requires completion of the steps above and meeting the requirements as specified under the applicable applicant status (freshman, transfer, etc). Once a student is admitted, NMU will issue an I-20AB form to the student. Application deadlines for international students are June 1 for the fall semester and October 1 for the winter semester.

Application Procedures

Applicants must follow the required steps of the application process to be considered for admission to Northern Michigan University. Please determine your applicant status in the section above and adhere to the corresponding steps listed below:

- Complete an Application for Admission (unless a student has previously applied; if so, notify the Admissions Office).
- Submit \$30 application fee. (Re-entry students are exempt.)
- Request official high school transcript or GED score report, and/or any college/university/trade school transcripts to be sent to the Admissions Office.
- Request ACT or SAT scores to be sent to NMU. These may be on the official high school transcript or directly from the testing agency. (See exceptions under Standardized Achievement Testing above.)

Home School Policy

Students who have been home schooled at any time during grades 9-12, and who have not earned 12 or more college-level credits after completion of high school, should submit their ACT/SAT results and an official transcript of courses taken and grades earned while home schooled. A final transcript verifying high school graduation/completion, or an official GED score report, is also required. The official transcript may be from a school district, home school/curriculum agency, or the parent (if the parent was the educator). If a transcript is parent-produced, it should contain the graduation date, a statement that the information is accurate, and it should be signed by the parent and notarized. Students who have completed 12 or more college-level credits after completion of high school do not need to submit a high school transcript.

Senior Citizen Applicants

Senior citizen applicants, aged 62 or older, are provided a full tuition scholarship by Northern Michigan University. The scholarship covers tuition only; it does not provide for books or other fees. To be eligible for this program, the senior citizen should submit an Application for Admission (no application fee) to the Admissions Office. Students should then register for courses in the Student Service Center, where they will be asked to provide proof of age.

Civil Rights Policy

Northern Michigan University does not unlawfully discriminate on the basis of race, color, religion, sex, national origin, age, height, weight, marital status, familial status, handicap/disability, sexual orientation, or veteran status in employment or the provision of services and provides, upon request, reasonable accommodations including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

The university has a grievance procedure designed to afford an opportunity for students and employees to exercise or protect the rights guaranteed them under the Civil Rights Act of 1964 (Title VI and VII prohibiting discrimination on the basis of race, sex, color, religion, age, and national origin), Title IX of the Education Amendments of 1972 (prohibiting discrimination in educational programs where federal financial aid is distributed), Executive Order 11246 of 1965 as amended by Executive Order 11375 of 1973 (prohibiting discrimination by educational institutions that have federal contracts), and the Vocational Rehabilitation Act of 1973 (Sections 503 and 504 prohibiting discrimination on the basis of handicap and requiring reasonable accommodations for handicapped persons). Individuals with civil rights concerns should contact the Dean of Students Office, 2001 C.B. Hedgcock. For more information on university policies, student rights and responsibilities, and the student code, see the *NMU Student Handbook*.

Jeanne Clery Act

Northern Michigan University's annual security report includes statistics for the previous three years concerning reported crimes that occurred on campus, in certain off-campus buildings owned or controlled by Northern Michigan University, and on public property within, or immediately adjacent to and accessible from campus. The report also includes institutional policies concerning campus security, such as policies concerning alcohol and drug use, crime prevention, the reporting of crimes, sexual assault, and other matters. You can obtain a copy of this report by contacting Public Safety and Police Services at 906-227-2151 or by accessing the Web site <http://publicsafety.nmu.edu>.

FIRST YEAR EXPERIENCE PROGRAM

PROGRAM OFFICE

2001 C.B. Hedcock

Phone: 906-227-1700

Fax: 906-227-1714

E-mail: fye@nmu.edu

Web Page: www.nmu.edu/fye

Program Coordinator: Susan M. VerDuin



First Year Experience Program at NMU

NMU's First Year Experience Program (FYE) is nationally recognized by the Policy Center on the First Year of College as an Institution of Excellence in the First College Year. FYE was established in 1995 as a beneficial program designed to focus on first-year students as they make the transition from high school to college. The goals of the program are to assist students in developing strategies and attitudes to maximize academic success, to familiarize students with campus resources and how to use them, and to assist students in developing positive relationships with faculty, staff, student leaders and peers. Statistics show that students who participate in FYE earn higher grade point averages and continue their university studies at a much higher rate.

The FYE Block

Students who choose FYE are pre-registered for a block of classes prior to arriving on campus. In each block, students take the same classes and have the same professors as other students in their group. This offers students an excellent opportunity to strengthen their campus connection, develop friendships, form study groups and experience college life with others who are pursuing similar academic interests.

NMU offers several types of blocks: major-specific blocks (i.e. English, psychology, criminal justice, etc.), blocks for undeclared students that focus on career planning, blocks for students in the Honors Program, and blocks for non-traditional students. Blocks of courses generally include three classes and UN 100 Freshman Seminar.

UN 100: Freshman Seminar

The UN 100 Freshman Seminar course featured in all of our blocks is designed to introduce students to college life and expectations. Class sections are small, focus on discussions and include a variety of activities. Topics covered in the UN 100 seminar (an introduction to study skills, note-taking strategies, time management, critical thinking and decision making, NMU technology, diversity, academic advising, etc.) are designed to help students acclimate to college life at NMU and to give them the foundation needed to become lifelong

learners. UN 100 is taught by both departmental faculty and NMU staff members with an undergraduate teaching assistant. It is a two-credit course that counts toward graduation, grade point average and financial aid.

Block Offering

The most current listing can be found on the FYE Web page at www.nmu.edu/fye.

Signing Up

After reviewing the block sections being offered a student can register two different ways.

1. Sign up via the Web by using the secure registration page at www.nmu.edu/fye.
2. Call the FYE office.

HONORS PROGRAM

PROGRAM OFFICE

401 Cohodas Administrative Center

Phone: 906-227-2344

Fax: 906-227-2315

E-mail: honors@nmu.edu

Web Page: www.nmu.edu/honors

Program Director: Robert Goodrich • rgoodric@nmu.edu



Honors at NMU

The honors program provides academically talented students with a four-year series of interdisciplinary and department-based courses designed to complement the student's undergraduate degree, regardless of major field. The honors program is not an academic major itself, but substitutes specially-designed courses for most of the liberal studies and university-wide graduation requirements while providing unique learning experiences.

Graduates who complete four years in the honors program will have the full honors designation printed on their official university transcripts. Those who complete either the first two years or the second two years will have the appropriate lower or upper division designation printed on their transcripts.

Northern's Honors Program offers small class sizes that enhance individual attention. Participants also have the opportunity to engage in independent and collaborative research with NMU faculty members.

Mary L. Campbell Scholarship

The Mary L. Campbell Scholarship is awarded to students with high academic ability and need. First-year students who apply to the honors program will be given first priority, so early application to the honors program is encouraged. Awards are about \$1,000 annually, and students may receive the award for four years. The number of scholarships will vary with the earnings of the endowment fund.

The Academic Program

Full, lower and upper division honors may be earned. For full honors, students earn up to 24 credits of liberal studies credit by completing interdisciplinary core courses usually in the first and second years. In the third and fourth years, students complete 12 credits of contract courses that count toward liberal studies, major, and/or minor requirements, depending on the student's curriculum. In the fourth year, honors program students enroll in a capstone senior experience, completing a research project of independent design. In addition, students must demonstrate proficiency in mathematics at the MA 115 level (Precalculus) or higher and at the 202 level (fourth semester) in a foreign

language for full honors designation. Proficiency can be demonstrated by advanced placement (AP) credit, course work, or appropriate examination. Depending on the student's program, credit earned in mathematics and languages may count toward liberal studies requirements in foundations of natural sciences/mathematics and formal communication studies, respectively.

Students may also complete the first two years of the program for lower division honors or the second two years for upper division honors. Students doing so complete the honors program courses in the lower or upper division and demonstrate either mathematics or language proficiency.

Honors Core Courses

Students successfully completing all four first-year core courses will earn required liberal studies credit in foundations of communication, foundations of humanities and foundations of visual and performing arts. Although only one course is required, those successfully completing both of the 200-level courses will earn four credits each of the required liberal studies credits in foundations of social sciences and foundations of natural sciences/mathematics. See the "Course Descriptions" section of this bulletin.

New students who have earned advanced placement or college credit from dual enrollment in composition earn additional credit in humanities in the first-semester core courses.

Contract Courses

These courses may be used to support the honors program student's major, minor or liberal studies requirements, but may not overlap with other honors program course requirements. Students should complete 12 credits in honors contract courses, at least eight at the 300-level or higher. PY 100H Honors Psychology as a Natural Science and SO 101H Introductory Sociology Honors may be substituted in this group. By agreement between academic departments and the honors program, qualified honors program students may enroll in existing 300-level or higher undergraduate department courses for honors program contract course credit. Prerequisites for selected courses must be met before enrollment. No later than the second week

of the semester, the student must complete an honors program course contract in which different or additional course work is specified after consultation with the instructor. Readings along with field, lab or studio work, and a paper, presentation or performance will be spelled out in sufficient detail to the satisfaction of all parties. To earn honors program credit notation on the transcript, the student must earn at least a "B."

Senior Capstone Experience

In their last year of study, honors program students enroll in a senior capstone experience in which they design, develop and present a research, performance or exhibition project in cooperation with faculty supervision.

Admissions and Retention Policies

Qualifications for first-year student admission to the honors program normally include a 3.50 high school grade point average; a score of 27 or higher on the ACT (or equivalent SAT combined score); two letters of recommendation from high school teachers, counselor, and/or principal; and a written personal statement. Currently enrolled and transfer students with demonstrated academic ability may also join the honors program. In this highly competitive program, the university retains the right to exercise judgment regarding the eligibility of the applicants. To remain in the honors program, students must maintain a 3.00 university grade point average.

Advising

Each honors program student will be advised by both a major department adviser and an honors program mentor. Honors program students will also receive counseling for advanced degree work and professional employment.

STUDY ABROAD

CONTACT INFORMATION

International Affairs Office

145 Whitman Hall

Phone: 906-227-2510

Fax: 906-227-2533

E-mail: iao@nmu.edu

Web page: <http://www.nmu.edu/iao>

Director of International Affairs: John L. Weting •
jweting@nmu.edu

Study Abroad

Full-time NMU students with a grade point average of 2.50 or higher can enrich their academic experience by studying in a country other than the United States. Such studies may apply toward the student's academic program at Northern, provided that prior approval has been granted by the student's academic adviser and the Registrar's Office.

Credit

All students who are contemplating earning study abroad credit, whether or not the program is under NMU sponsorship, must apply through the International Affairs Office. Personnel at the office will work with each student to assist with the application process, coordinate course registration and budget for financial aid.

The International Affairs Office also provides mandatory pre-departure and re-entry orientation. Any student desiring to receive NMU credit for study abroad must:

1. Attend the pre-departure orientation
2. Complete the study abroad course preevaluation form
3. Attend the re-entry orientation.

Please consult the International Affairs Office home page at www.nmu.edu/iao for session scheduling information.

NMU-sponsored and affiliated programs: NMU students can apply for study-abroad programs under official university sponsorship through one of the various consortiums or exchange agreements:

- College Consortium for International Studies (CCIS)
- Council on International Educational Exchange (CIEE)
- Exchange Agreement with several European schools (EU-US)
- Japan Center for Michigan Universities in Hikone, Japan (JCMU)
- Kajaani Polytechnic, Finland-Exchange Agreement
- Midwest Consortium for Study Abroad (MCSA) with sites in Vienna, Austria; Macerata, Italy; and Segovia, Spain

Through these programs, NMU offers study-abroad opportunities in more than thirty foreign countries. The university participates in two exchange agreements with nine European institutions. Language immersion opportunities exist in Japan, France, Canada (Quebec), Mexico, Costa Rica and Spain.

Most programs offer instruction in English as well as instruction in the host country's language.

Non-NMU affiliated programs: Students may apply for non-NMU study-abroad programs after consulting with their major department and with approval from the International Affairs Office. These include programs sponsored by other colleges, universities, or third-party private sponsors.

Some restrictions on credit transfer apply. Students must carefully review program specifics with their academic adviser and the International Affairs Office. Special conditions for applying financial aid must be arranged through the International Affairs and Financial Aid Office.

Directed studies: Students who choose to undertake independent travel, work or study abroad may receive academic credit for such experience by arranging a directed study with an NMU professor prior to departure.

TUITION AND FEES

CONTACT INFORMATION

Financial Services Office

2201 C.B. Hedgcock

Phone: 906-227-1221

Coordinator Student Service Center and Manager

of Financial Services: Steven L. Bigalk

Assistant Manager of Financial Services: Pamela A. Johnson

Students are eligible for registration or for graduation after they have fulfilled all requirements, including the payment of all financial obligations to Northern Michigan University. Students who incur obligations while enrolled may have their enrollment terminated administratively and summarily for failure to pay that obligation.

Tuition and Fees

Tuition is defined as the mandatory charge to attend class and receive an entry (credit or audit) on a transcript. All tuition rates are approved by the Board of Trustees.

A fee is defined as a mandatory charge for a student to attend a class or classes. Fees are approved by the Board of Trustees.

Tuition and fees are subject to change without notice at the discretion of the Board of Trustees.

Students who elect a half credit-hour course will be charged at one-half the cost per credit hour.

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

Payment Plan

Tuition and fees and on-campus housing charges must be paid in full by the due date specified. NMU offers both an installment and deferral plan that enables students to pay tuition and on-campus housing charges. Details about the program may be obtained by contacting the Student Service Center. Information is also available online at www.nmu.edu/paymentplans.

Regardless of registration status, students should not attend classes until all tuition and fees are paid, or an installment or deferral plan has been instated.

Undergraduate and Graduate Student Tuition and Fees

The 2006-2007 academic year rates were not available at the time of printing this bulletin. Current tuition and fee rates may be obtained from the Student Service Center, 2201 C.B. Hedgcock, by calling 906-227-1221, or on the Web at www.nmu.edu/tuition.



Included in the on-campus 2006-2007 academic year tuition and fees rates are the following:

Notebook computer: The use of an IBM ThinkPad notebook computer is provided for all full-time students. The computer will be replaced on a two-year cycle. An additional fee of \$150 per semester for an iBook applies to Art and Design majors.

University fee: There is a per semester fee for the fall and winter semesters for all full-time students.

Student discretionary activity fee: There is a per semester fee for all students enrolled in six or more credits (on campus courses) for the fall and winter semesters.

Athletic fee: A one-time, non-refundable fee of \$150 is charged to all first-time, full-time freshmen and new undergraduate transfer students. The fee is assessed once and permits access to all regular season athletic events based on space available for up to six years as long as the student is enrolled in six credits or more.

The fee for transfer students is prorated based on the number of credit hours they transfer into NMU. Transfer students with 56 or more credit hours will be assessed a fee of \$75. Transfer students with less than 56 credit hours will be assessed a fee of \$150.

Appeals Process

An appeals committee exists to hear appeals from students who request exceptions to university policy in the following areas: refunds past stated deadlines and non-residency status. If a student feels that individual circumstances warrant exception to a policy, a written appeal may be sent to the appeals committee. Students wishing to submit appeals should contact the Dean of Students Office. The committee will consider the timeliness of the appeal in making its decision; appeals will not be considered for past semesters. The student will be notified in writing of the committee's decision.

Tuition and Fee Refunds

The university grants refunds for students who withdraw from the university or reduce their credit-hour load within specified time frames. The computed amount is credited to the student's account and all university obligations are deducted. The balance is returned (prorated) to applicable payment sources. Any refund due to the student is issued by university check.

Steps in the Refund Process

1. Student withdraws or reduces credit hours.
2. Tuition refund credit is calculated and applied to student's account.
3. Room and board/apartment rent credit is calculated and applied to student's account.
4. Financial aid adjustments are calculated and applied to student's account.
5. Any other charges in student's account are deducted from credit.
6. Credit balance is allocated to applicable payment sources.
7. Refund is returned to the payment source(s); if a credit balance remains, the student is issued a refund.

The amount of the tuition and fee refund credit depends upon the time of withdrawal, measured in calendar days. Refunds of Title IV funds are made in accordance with federal regulations.

Complete Withdrawal

Complete withdrawal from the university must be initiated in the Dean of Students Office. Students who are not able to withdraw in person are required to submit a withdrawal request in writing.

Withdrawal prior to the first official day of classes will result in a 100 percent refund credit.

Reduction in Credit Hours

Reduction of credit hours may affect financial aid status. Students should contact the Student Service Center or the Financial Aid Office to determine the impact of a proposed change.

Tuition Refund Schedules for Complete Withdrawal

Once classes begin, tuition refunds are calculated for complete withdrawals as follows:

Fall/Winter Semester Complete Withdrawal Tuition Refund Schedule

Time Period	Refund Credit %
On or Before the First Day of Class	100%
2nd Calendar Day - 11th Calendar Day	90%
12th Calendar Day - 28th Calendar Day	50%
29th Calendar Day - 56th Calendar Day	25%
57th Calendar Day - End of the Semester	0%

Note: The student discretionary activity fee and the student athletic event fee are non-refundable.

Summer College Complete Withdrawal Tuition Refund Schedule

Time Period	Refund Credit %
First Official Day of Classes - Day Three	100%
Day Four - End of Course	0%

Tuition Refund Schedule for Reduction in Credit Hours

Students who reduce their credit hours are granted a refund credit for tuition and fees as follows:

Fall/Winter Reduction in Credit Hours Tuition Refund Schedule

Time Period	Refund Credit %
1st Day of Classes-9th Calendar Day	100%
After the 9th Calendar Day	0%

Note: Applies to all courses. No refunds are given for reduced credit hours within the 12-18 credit hour flat rate tuition range.

Summer College Reduction in Credit Hours Tuition Refund Schedule

Course Length	100% Refund
12 weeks	First three days of the class
8 weeks	First three days of the class
6 weeks	First three days of the class

Note: To receive a refund for classes that meet for less than six weeks, the student must withdraw by the last business day prior to the first day of classes. Business hours during the summer are 7:30 a.m. to 4:30 p.m., Monday through Friday.

Service Charges

Automobile Registration

Students who park or operate a motor vehicle or bicycle on the university campus must register the vehicle with the Public Safety and Police Services Office no later than one week following the first official day of classes each semester. Students must pay the nonrefundable fee upon motor vehicle registration. Further information about automobile regulations can be found in the *Motor Vehicle Ordinances* publication available at the Public Safety and Police Services Office.

Classroom Materials

Certain materials or supplies required by a class may be made available to the student through the university, basically at cost.

General Computer Lab Access Fee

General computer lab access is available for a fee of \$60 per semester.

Graduation Fee

All students (including one-year certificate recipients) will be assessed a nonrefundable \$15 graduation processing charge for each degree awarded. Those students receiving a degree and electing to participate in commencement exercises can purchase a cap and gown through the bookstore.

Health Promotion Fee

The fee for enrollment in the health promotion course HP 211 Beginning Bowling is \$60.

Health Service Charges for Students

Health Center hours are 8 a.m. to 5 p.m. Monday through Friday. Advance appointments are recommended. Patient-doctor visit charges are as follows:

Student and spouse, brief visit: \$25

Student and spouse, limited visit: \$30

Student and spouse, extended visit: \$35

Pharmaceuticals: prescriptions filled at cost plus \$3.75

A complete schedule is available from the Health Center for other service charges (surgical, laboratory, etc.). In addition, a university-approved health insurance plan is available which covers most of these health service charges. Students are encouraged to consider this plan. Further information and a brochure are available through the Health Center.

International Study Fee

This fee applies to NMU students temporarily studying at schools outside the United States. It is equal to the actual costs, assessed by agreement with the foreign institution, which are in excess of the Northern Michigan University tuition level for the number of NMU credit hours granted, and a \$100-\$250 charge depending upon program selected.

Library Fines

Fines accumulate on overdue materials at the rate of 10 cents per day per item. Overdue reserve items are charged at the rate of 60 cents per hour (1 cent per minute).

Students must pay replacement costs of all lost or damaged library materials which have been used in the library or borrowed. Materials not returned within 50 days after the due date, or materials not immediately returned when a student separates from the university (e.g. graduates, withdraws, is not preregistered), are assumed lost, and the borrower is charged for the replacement cost of each item, plus a per-item nonrefundable processing charge.

New Student Enrollment and Orientation Deposit

All newly admitted freshmen, undergraduate transfer and guest students who are planning to register for courses on the Marquette campus are required to pay a \$75 New Student Enrollment and Orientation Fee. The fee provides the university with advance notice of intent to enroll.

Applicants who cancel their admission will receive a \$35 refund if a written request is received by the refund deadline. Specific dates apply, and no refund will be given after these dates. Go to www.nmu.edu/orientation for applicable dates and complete details.

Non-sufficient Funds Charge

A service charge of \$15 is assessed for each paper check returned by a bank. A \$30 service charge is assessed for each electronic check returned by a bank.

Nursing Test Charges

Students taking ERI tests will be charged \$65 per semester. A charge of \$35 is assessed for any student taking the NLN-LPN Mobility Profile exams.

Pre-professional Skills Test

A charge of \$53-110 will be assessed. This test and fee applies only to teacher education students.

Science Breakage Charge

Students enrolled in science laboratory courses must pay the cost of replacement for any broken glassware or equipment in excess of one dollar. Records of student breakage are maintained in the science department stockrooms and students are notified following the last laboratory meeting of any amount due. The breakage charge is not applicable to CH 490 and CH 491. Breakage charges are payable at the Student Service Center.

Transcript Charge

The charge for each official transcript is \$4 per copy and \$1 for an unofficial copy.

Wildcat Express Card

Students receive a permanent identification card, known as the Wildcat Express Card, during their first semester of enrollment free of charge. However, a replacement charge of \$15 is assessed for a lost or damaged ID card.

The Wildcat Express Card is your library card and copy card, and it allows you access to many NMU goods and services. Since many university offices and programs must verify that those requesting services are enrolled, students are required to carry their Wildcat Express Cards for identification purposes. Lending the card to anyone, or failure to present it when requested by university faculty or staff, is a violation of university regulations and subjects the holder to disciplinary action. Contact the Wildcat Express Office, 1107 University Center, for additional information.

NMU Policy Regarding Residence for Tuition Purposes

Among the obligations of Northern Michigan University to the State of Michigan and its taxpayers is the provision of educational opportunity to residents of the state and their spouses and children at lower tuition rates than those charged to nonresidents.

Status as a resident for tuition purposes is dependent on domicile in the State of Michigan. Resident students are defined as students domiciled in the State of Michigan. Nonresident students are defined as those whose domicile is elsewhere. Thus, for a nonresident student to be classified as a resident for tuition purposes, he or she must demonstrate that their previous domicile has been abandoned and a Michigan domicile established, and show intent, on the part of the student or his or her parent or spouse, to make Michigan his or her permanent home, not only while the student is attending the university, but thereafter as well.

Resident Status

Each student is responsible for correctly reporting the state of her or his domicile at application for admission. The Admissions Office shall administer the regulations prior to a student's first enrollment. Thereafter, the regulations shall be administered by the registrar. If there are any possible questions as to a student's domicile, the student is required to advise the director of admissions or registrar of possible changes in residence and to furnish all requested information pertinent thereto.

No students shall be eligible for reclassification as residents unless they shall be domiciled in the State of Michigan and have resided in Michigan continuously for not less than six months immediately preceding the first day of classes of the semester for which reclassification is sought.

For purposes of these regulations, the age of majority is 18 years. A minor does not have the capacity to establish his or her own domicile. Normally, the domicile of a minor follows that of the parents or legal guardian.

Each individual case must be determined on its own particular facts. The following facts and circumstances, although not necessarily conclusive evidence of domicile, have probative value thereon in support of a claim for residence classification:

- a. Graduation from a Michigan high school.
- b. Length of continuous presence in Michigan during periods when not enrolled as a student.
- c. Reliance on Michigan sources of income.
- d. Selective service registration.
- e. Ownership of a home in Michigan.
- f. Acceptance of an offer of permanent employment in the state.
- g. Former domicile in the state and maintenance of significant connections therein while absent.
- h. Domicile in Michigan of family, guardian or other relatives or persons legally responsible for the student.
- i. Commitments to further education in Michigan indicating an intent to stay here permanently.
- j. Other factors indicating an intent to make Michigan the student's domicile will be considered in classifying a student.

A person who is not a citizen of the United States and his or her spouse and children shall be eligible for classification as Michigan residents for tuition purposes if such person has been lawfully admitted for permanent residence in the United States, has received a permanent visa, and fulfills the other requirements for Michigan residency specified in this policy.

The following facts and circumstances, standing alone, shall not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations:

- a. Voting or voting registration.
- b. Automobile registration and/or driver's license.
- c. A statement of intention to acquire a domicile in Michigan.
- d. Employment in any position normally filled by a student.
- e. The lease of living quarters.
- f. Other public records (e.g., birth record).

Resident Status without the Domicile Requirement

Residence in the state while enrolled in the university is not an indication of domicile in Michigan. However, resident status may be gained without the six month domicile requirement in accordance with the following rules:

1. The domicile of a married student follows that of his or her spouse, if such spouse has established a domicile in Michigan.
2. Persons in the active military service of the United States and their spouses or dependents.
3. Persons participating in USOC approved programs.
4. A person who has participated in the USOEC in programs under the auspices of the United States Olympic Committee, who has departed from the program in good standing, and who has obtained State of Michigan residency, may be classified a resident.
5. Dependents of Northern Michigan University graduates who have received an associate, baccalaureate or graduate degree.
6. University employees, including graduate assistants, and their dependents. Student employees are excluded from this section.

Resident-Equivalent Rates

Tuition rates equivalent to resident rates for the same programs are available to students in the following categories:

1. Holders of associate degrees from Northern Michigan University who have not been enrolled at Northern Michigan University for twelve or more months.
2. Holders of baccalaureate degrees from Northern Michigan University.

Requesting Changes in Residency Status

The responsibility for requesting a change in residency classification rests with the student. Application forms for reclassification shall be filed not later than 10 calendar days following the first day of classes of the semester for which such reclassification is sought. Such application shall be filed with the appropriate office (Admissions or Registrar) and shall set forth in writing a complete statement of the facts upon which the application is based, together with affidavits or other supporting documentary evidence. Failure to timely file such an application shall constitute a waiver of all claims to reclassification or rebates for such semester.

Any student may appeal the decision of the Admissions Office or registrar made pursuant to the above by filing with the Registrar's Office a written notice of appeal within 10 calendar days after notice of such decision was given in person or by mail. The director of admissions will act on the appeal. Failure to timely comply shall constitute a waiver of all claims to reclassification or rebates for the applicable semester or semesters.

Any student may appeal the decision of the director of admissions made pursuant to the above by filing with the Residency Determination Appeals Committee a written notice within 10 calendar days after notice of such decision was given in person

or by mail. Failure to timely comply with this paragraph shall constitute a waiver of all claims to reclassification or rebates for the applicable semester or semesters.

Reclassification shall be effective for the semester in which the application was timely filed in accordance with this section and for each semester thereafter so long as the circumstances upon which the reclassification was based shall remain unchanged. Appropriate refunds shall be made within a reasonable time following such reclassification.

The initial application for change and first appeal will be in the form of written documentation only.

In the second reclassification appeal step, the student shall attend a personal conference before the appeals committee after which a decision shall be made by the committee, based on the evidence.

Discretion to adjust individual cases within the spirit of this policy is vested in the registrar.

Inquiries and appeals should be addressed to (whichever is appropriate):

- Director of Admissions
- Registrar
- Residency Determination Appeals Committee c/o Registrar

TEACHING, LEARNING, AND COMMUNICATION INITIATIVE

PROGRAM INFORMATION

Telephone: 906-227-2650

Toll Free: 800-682-9797

Web Site: www.nmu.edu/laptop

E-mail: admiss@nmu.edu



Teaching, Learning and Communication (TLC) at Northern Michigan University

All full-time NMU undergraduate students (registered for 12 or more credit hours) are supplied with a ThinkPad® notebook computer with a standard set of applications, including Microsoft Office, and 24-hour access to the campus network (including the Internet) as part of tuition and fees. Art and design majors may obtain an iBook® notebook computer instead of a ThinkPad for an additional fee of \$150 per semester.

The TLC program, which recently earned Northern Michigan University international recognition as a Laureate recipient in *Computerworld's* Honors Program, includes these comprehensive features:

- Classrooms in new/remodeled buildings are designed to facilitate computer/network use by faculty and students. Classrooms either have a port at every seat or have wireless access to the network.
- Network ports and wireless access is available in residence hall rooms, the library and in numerous lounges, study rooms and public places around campus. Although electronic documents are encouraged, networked printers are installed in various campus locations for hard copy documents.
- The university has a phone-in/e-mail help desk and a walk-in service center located at 116 Edgar L. Harden Learning Resources Center to handle notebook computer maintenance and university supported software problems. Phone: 906-227-2468, e-mail: helpdesk@nmu.edu.
- NMU leases the notebook computers and issues them to students on a two-year replacement cycle (a student will not have a computer more than two years old). There is a \$500 fee that the student will be responsible for if the laptop is stolen, and a \$50 fee if the laptop is subjected to "abnormal abuse" (spilling a beverage on the keyboard, dropping the computer, etc.). It is recommended that an insurance provider be contacted to either obtain additional coverage or add the computer to an existing policy.

- Continuing students who pre-register for the following fall are able to use the computer through the summer at no additional charge.
- Statewide dial-in access for NMU students is available. This service provides students with a local dial-in number within Michigan to connect to the Internet thus avoiding long distance charges.

What To Expect

A few weeks before your first semester begins, you will receive a Teaching, Learning and Communication Initiative information mailing. The mailing will include an agreement along with information on the assigned day, time and place where you may pick up the computer. Distribution will begin within five days of the beginning of the semester.

After you obtain the ThinkPad or iBook, a variety of computer setup and training options will be available for you. There will also be computer accessories available from the NMU Bookstore. The NMU Bookstore offers inexpensive printers, drives for backup and storage, bags and cabling to support the computer.

FINANCIAL AID

CONTACT INFORMATION

Financial Aid Office

2107 C.B. Hedgcock

Phone: 906-227-2327

Web Page: www.nmu.edu/finaid

Director: Michael Rotundo

Assistant Directors: Christine Larson, Susan Bradford-Loduha,
Connie Millar, Scott Thum

Counselor: Candace Ingalls



Financial Aid at NMU

The Financial Aid Office at Northern Michigan University exists to advise and assist students. All students who believe their resources are inadequate to attend NMU should apply for financial aid. The university administers numerous programs to assist students, some of which are awarded solely on the basis of academic achievement. Most forms of financial aid, however, are designated for students who, without such aid, would be unable to pursue a college career. The basic premises of these student assistance programs are that parents are expected to provide, as well as they are able, the basic essentials of life, whether the student lives at home or on a college campus; and students are expected to assist in meeting the expenses of their education, whether through savings or work. It is only when these personal responsibilities have been adequately met that the college or the state or federal government will accept the additional responsibility through programs of student financial aid.

Basically, there are three types of financial aid: (1) a gift, which does not have to be repaid; (2) a loan, which must be repaid; and (3) work. Federal, state and university funds are used for financial aid; students' awards often combine the above types and sources of aid.

Information on specific scholarships, grants and loan programs may be obtained from the Financial Aid Office or the Financial Aid Web pages.

General Eligibility Requirements

All financial aid recipients must meet the following requirements:

1. Have a high school diploma or a General Education Development (GED) certificate or complete a high school education in a home school setting that is treated as a home school or private school under state law. (See the Financial Aid Office for more information.)
2. Be a U.S. citizen or eligible noncitizen.
3. Be enrolled or accepted for enrollment as a regular student working toward a degree or certificate in an eligible program.

4. Have a valid Social Security Number.
5. Make satisfactory academic progress as defined by NMU.
6. Sign a statement certifying that you are not in default on a federal student loan or have made arrangements to repay it and that you do not owe money back on a federal student grant or have made arrangements to repay it.
7. Register with the Selective Service, if required.
8. Eligibility may be affected by prior drug convictions.

Satisfactory Progress Requirements

Federal law requires all students who receive financial aid to be making satisfactory academic progress (SAP) toward their degree. NMU students must meet the following requirements:

1. Students must receive a passing grade in at least 75 percent of the credit hours that they attempt at NMU on a cumulative basis. Classes that a student passes and re-takes count as completed only once. Students who fail to meet this requirement will be put on SAP warning status for their next academic year of attendance. Eligibility for financial aid will be terminated if the deficiency is not corrected by the end of the warning period. Students put on warning status will be told what will be required to keep their eligibility. This standard will be measured at the end of each winter semester.
2. Undergraduate students must achieve a cumulative NMU grade point average of 2.00 by the end of their sophomore year and maintain the 2.00 GPA for the duration of their eligibility. Freshmen (fewer than 28 credit hours completed) must achieve a 1.70 GPA; sophomores (28-55 credit hours) must have a 1.80 GPA. Graduate students must maintain a 3.00 GPA. The university's *Academic Proficiency Standard* is enforced by the Admissions and Academic Policies Committee (AAPC) of the Academic Senate.
3. Graduate students may receive aid in the first 60 credit hours they attempt in their first master's degree; after graduating, they are eligible for another 60 hours if they pursue a second. Bachelor degree students are limited to receiving aid in the first 190 undergraduate hours, and associate degree students

are limited to their first 100 credit hours. Eligible students transferring from a bachelor's degree to an associate degree or certificate program will be eligible to receive aid for 150 percent of the hours required in their degree audit; this provision may only be exercised once. Post baccalaureate and teacher education certificate students will be evaluated when they are admitted and will be eligible for 150 percent of the hours required to complete their individual program. Eligibility for certificate and diploma students is limited to 150 percent of the hours needed for their program. Transfer students will be evaluated by adding their transfer hours to attempted hours at NMU, allowing them to receive aid for the balance of their maximum. This standard will be evaluated early each semester, and students will be notified if their eligibility for the following semester will be terminated.

Satisfactory Progress Requirement Appeals

If special circumstances such as illness, injury or the death of a family member prevent the student from meeting these requirements, the termination of eligibility can be appealed to the SAP Appeal Committee. Documentation of circumstances must be included with appeals.

In addition to the standards listed above, the Northern Michigan University SAP Committee will use professional judgment in assessing a student's eligibility. This will occur in circumstances such as when a student falls significantly below a standard and does not have a realistic chance of meeting the standard by the end of the warning period, or when a student fails all of his or her courses in a semester.

Attempted hours include credit hours successfully completed as well as credit hours that receive non-passing grades (F or U), credit hours that are not yet finished (I, X, MG), and credit hours from which the student withdraws (W).

Application Procedures

To be considered for most financial aid available through NMU, students must submit the Free Application for Federal Student Aid (FAFSA) in one of the following two ways:

1. By Internet, for faster, more accurate results. To have your application processed by using FAFSA on the Web, go to www.fafsa.ed.gov.
2. By mail. A paper version is available from the Financial Aid Office or local high school guidance office.

Applications must be submitted by March 1 for maximum consideration.

Financial aid may include scholarships, grants, Federal Pell Grants, Federal Perkins National Direct Student Loans, Federal Supplemental Educational Opportunity Grants, William D. Ford Federal Direct Loans, or part-time employment. Preference is given to those applicants who have the highest academic records and the greatest financial need.

Award Notification and Disbursement

New freshmen and transfer students are notified regarding the outcome of their financial aid application starting in March. Continuing students will be awarded after completion of the winter semester. All notifications from the Financial Aid Office will be mailed to new students until they start enrollment at NMU. Once a student begins enrollment, all further correspondence from the Financial Aid Office will come through their NMU e-mail account. Disbursement of financial aid will occur no earlier than ten days prior to the beginning of each semester.

The Financial Aid Office bases all initial award amounts on full-time enrollment. However, required enrollment levels for financial aid vary, and are dependent on the individual financial aid program regulations. For students who enroll less than full-time, some awards may be prorated or cancelled at the time of disbursement. For more information on specific programs, please contact the Financial Aid Office.

Summer College

Federal financial aid for summer is limited to the unused portion of annual limits of the Pell Grant and Direct Loan programs from the academic year. Students interested in receiving financial aid for the summer sessions will need to complete the Summer Session Financial Aid Application. Applications are available shortly after spring break.

Study Abroad

Students who study abroad and are enrolled in courses approved for credit at Northern Michigan University may be considered for financial aid provided all other eligibility requirements are met.

ACADEMIC STANDARDS, POLICIES AND DEGREE REQUIREMENTS

CONTACT INFORMATION

Registrar's Office

2202 C.B. Hedgcock

Phone: 906-227-2258

Web Page: www.nmu.edu/records

Registrar: Marilyn M. Robbert

Assistant Registrars: Kathryn A. Dawe, Sara S. Niemi,
Michael D. Truscott

Familiarity with the content of the *Northern Michigan University Undergraduate Bulletin* is essential for all students. It is important that students obtain complete information and understand all of the requirements to successfully complete their degree programs. Although there are faculty advisers and many other sources of assistance, it is ultimately the student's responsibility to meet all graduation requirements.

Undergraduate Degrees

NMU offers the following undergraduate degrees:

At the baccalaureate level

- Bachelor of Arts
- Bachelor of Fine Arts
- Bachelor of Music Education
- Bachelor of Science
- Bachelor of Science in Nursing
- Bachelor of Social Work

At the non-baccalaureate level

- Associate of Arts
- Associate of Science
- Associate of Applied Arts
- Associate of Applied Science
- Associate of Business
- Associate of Technology
- Certificate
- Vocational Diploma

In addition, several departments offer certifications that indicate satisfactory completion of a program of study.

Graduate Degrees

Information about graduate degrees can be obtained in the *Northern Michigan University Graduate Bulletin*, which is available from the Graduate Office, 401 Cohodas, or on the Web site: www.nmu.edu/records.

Bulletin Options for Graduation Requirements

Students may follow the bulletin of their original matriculation

to NMU or the one in effect at the time of graduation. However, students who do not complete their degree within seven years of their first matriculation at NMU must follow the current bulletin unless both the student's major and minor departments grant an extension to follow the major and minor requirements of the original matriculation bulletin. Permission must be submitted in writing prior to the student's senior year from both departments to the Registrar's Office. This permission must include any modifications or substitutions and an established deadline, not to exceed one year beyond the seven-year limit, for degree completion.

Students who select a major not in existence at the time of their original matriculation at Northern must follow the bulletin in effect at the time they select the major. Students who discontinue their enrollment and apply for re-entry must follow the bulletin in effect at the time of readmission. With permission, transfer students may follow the bulletin in effect at the time of their original enrollment in college, if less than three years prior to their enrollment at NMU.

Note: The provisions in this bulletin are not an irrevocable contract between the student and the university. Northern Michigan University reserves the right to change any provision or requirement at any time within the student's attendance.

Family Educational Rights and Privacy Act

The Family Educational Rights and Privacy Act of 1974 (FERPA) helps protect the privacy of student records. It provides students the right to inspect and review their educational records, the right to seek to amend those records and the right to limit the disclosure of information in the records. In complying with the act, Northern Michigan University will not release educational information about a student without the student's written permission. For a more complete explanation of the provisions of the law, see the *NMU Student Handbook*.

FERPA allows the university to identify directory information, which it considers public record, and will release it without student authorization. At NMU this includes the following:

- name
- local address, local telephone, permanent address, permanent telephone
- NMU e-mail address
- dates of attendance at the university, enrollment status, degrees earned, honors, awards, participation in officially recognized university activities and sports, current term candidacy for degrees and/or teaching certification
- program level, class standing, major/minor

Students have the right to restrict the release of all their directory information. This is done by completing a form available from the Registrar's Office. Restrictions can be applied to a student record any time during the semester. However, to prevent information from appearing in the university telephone directory, the request must be made within 18 calendar days of the beginning of the fall semester.

Students should carefully consider the consequence of restricting information. Generally requests for information come from potential employers seeking verification of enrollment or degrees. A request of confidentiality will prevent the university from providing any information regarding a student.

Official University Communications

Every enrolled student automatically receives a university computer account, which provides access to instructional files and software, e-mail, free dial-in access from off campus and other resources. Students are required to maintain this account, which will be used by the university to send time-critical information to students. Northern Michigan University will use a student's NMU e-mail account as its primary means of communicating official university business, including legally required information.

Calendar

Northern Michigan University is on the semester system; the academic year consists of a fall and winter semester followed by summer college.

Course Levels

000-099	Remedial, developmental or vocational*
100-299	Generally for freshmen and sophomores; some require prerequisites
300-499	Generally for juniors and seniors

**Remedial or developmental courses do not meet requirements for associate or bachelor's degrees, but may meet requirements for vocational diplomas and certificates. Remedial, developmental or vocational courses are not calculated in the NMU grade point average and are not counted as earned credit hours toward an associate or bachelor's degree.*

Classification of Students

NMU students are classified according to the number of credit hours earned numbered 100 level or above.

Freshmen	Students who have earned fewer than 28 credits.
Sophomores	Students who have earned 28-55 credits.
Juniors	Students who have earned 56-87 credits.
Seniors	Students who have earned 88 credits or more.

Academic Load

A normal academic load for undergraduate students is 16 credits during the fall or winter semester and 12 credits during a summer session. The minimum number of credit hours required for a baccalaureate degree is 124. Some majors require students to take an academic load in excess of 16 credits, but never more than 20 per semester. In general, students are advised not to enroll in more than 20 credits in the fall and winter semesters or more than 16 credits in the summer. They may be permitted to do so only if they have established an NMU cumulative grade point average of 3.50 or higher.

First semester freshmen, however, are not allowed to take more than the maximum credits in a semester (16 or 20).

Note: A written petition to carry more than the maximum credits in a semester should be submitted to the Registrar's Office by the student's adviser.

Full-time Status

To be considered full time, a student must be enrolled in a minimum of 12 credit hours in each semester of attendance.

Registration

Continuing and re-entry students may register in advance for the next session's classes during the weeks designated by the university. Registration information and the schedule of classes are available in late March for the summer session and fall semester and in late October for the winter semester.

Registration information for continuing students is sent to their NMU e-mail address. Re-entry students should contact the Admissions Office, 906-227-2650, for information. Students who pre-register for classes and decide not to return to NMU are expected to call the Student Service Center at 906-227-1221 to cancel their registration.

Students applying as new freshmen or transfers should contact the Academic and Career Advisement Center, 906-227-2971, for registration information.

Hold Policy

Northern Michigan University places a "hold" on a student's registration, transcript request, diploma or certificate when the student has not met conditions or obligations due the university. The following are general reasons for a hold:

Financial

A hold may be placed by the Financial Services Office because of any financial obligation to the university.

Adviser Registration

An electronic hold may be placed on a student's record to ensure that a student has seen his or her adviser.

Disciplinary

A hold may be placed by the dean of students on students who have been suspended or expelled for disciplinary reasons.

Medical

A hold may be placed at the request of the dean of students on the enrollment of a student who has been withdrawn from the university or who is being denied enrollment because of psychological or medical problems. Holds applied in these situations are made on the basis of recommendations from the director of the University Health Center, another medical doctor, and/or a member of the University Health Center counseling staff. A medical hold may also be placed on students who have not submitted proof of measles (rubeola) vaccinations.

Admissions/Registrar's

A hold may be placed by the director of admissions or registrar on the enrollment of a student who fails to provide proof of high school graduation or transcripts from previous colleges attended.

Academic

A hold may be placed at the request of the chairperson of the Admissions and Academic Policies Committee on the enrollment of a student who has been suspended or expelled for failure to maintain the standards outlined in the Academic Proficiency Policy.

Measles Immunization Policy

Northern Michigan University requires that all full-time, new and re-entry students born after 1956 provide proof of immunity to measles (rubeola) to the University Health Center.

Active military personnel and veterans are exempt from providing proof of immunity, since they have already met comparable immunization requirements. To comply with the policy, active military personnel must present their military I.D. card, and veterans must mail a copy of their DD 214 to the Health Center.

Changing Class Schedules (Add/Drop)

During the first week of classes in the fall and winter semesters, students may add full-semester classes through the fourth day, provided seats are still available. Full-semester classes may be dropped through 5 p.m. of the ninth calendar day of the semester; no grade will be recorded on a student's transcript for courses dropped during this period. The add/drop period varies for classes meeting less than the full semester and during the summer session, depending on the length of the course. See "Tuition and Fees" section of this bulletin for refund infor-

mation for fall and winter semesters. Refer to the summer schedule for specific add/drop information.

Dropping a Class After the Add/Drop Period

Students dropping a full-semester class after the official add/drop period through the 10th week of the fall and winter semesters will be issued a "W" grade. Students dropping courses after the 10th week of class may receive "F" grades in these courses. Dates for withdrawing from a course not meeting for a full semester or for summer session courses will be prorated. These dates are published by the Registrar's Office at the beginning of each registration period. With documentation of the extenuating circumstances preventing a student from meeting the withdrawal deadline, exceptions to this policy may be made with the written approval of the Dean of Students Office. See "Tuition and Fees" section of this bulletin for refund information.

Changing Major and/or Adviser

Before changing your major, you should meet with an academic adviser from the department of the major you are interested in. If you are unsure of what you should declare as a major, it is recommended that you meet with an adviser in the Academic and Career Advisement Center, 3302 Student Services Center.

For most academic majors, declaring or changing your major can be done in one of the following ways:

1. On the Web at www.nmu.edu/advising.
2. In the Academic and Career Advisement Center.

Students who want to declare any of the following majors must go directly to the department: Education, 179 Whitman Hall; Psychology, 346 Gries Hall; Cosmetology and Electrical Line Technician, Admissions Office, 2212 C.B. Hedgcock.

Students with 87 or more credits should also inform the Registrar's Office of this change so that they may begin to prepare a new degree audit.

Student Schedules

Students have access to their class schedules through my.nmu.edu. After the official add/drop period for the fall and winter semesters, the Registrar's Office sends students a reminder to their NMU e-mail address asking them to review their class schedule and to report errors to the Student Service Center, 906-227-1212. Reminders for summer courses are sent in early May and mid-June.

Repeating Courses

Most courses may be repeated, with some exceptions: A student will not be allowed to repeat OC 080 General Mathematics or EN 080 Reading and Writing without approval of the department head. Students who fail these courses may be directed to other means of improving their skills (e.g. computerized instruction or community schools' instruction) and must re-take the appropriate NMU Placement Exam (i.e. math or English) before proceeding to MA 090, EN 090 or a higher level math or English course. Students who fail an NMU class two times must wait for one semester during the academic year prior to enrolling for a third time and must demonstrate to the satisfaction of the department offering the course that the factor(s) causing consistent failure was addressed and resolved.

When a course is repeated, credit is only granted once. The last grade and credit hours for a repeated course are used for computing a student's grade point average and for awarding credit hours applicable toward a degree or certificate, even if the last grade and/or credit hours is lower than the previous grade and credit hours. However, a grade of "W" (withdrawal, no credit) will not replace a previous grade or credit hours for a course.

Students who wish to repeat an NMU course at another college or university must receive permission from the Registrar's Office prior to enrollment. See Transfer Credit Policy for NMU Students in this section of the bulletin.

Under special circumstances a student may petition to repeat a lower-level course with a higher-level course (e.g., EC 101 with EC 201). Written permission from the appropriate department head must be sent to the Registrar's Office before the student enrolls in the course.

Note: To ensure the proper recording of repeated courses on a transcript, students must notify the Student Service Center, 906-227-1221, of the repeat.

Auditing Courses

An auditor is one who enrolls in a course but does not want credit. The cost of auditing a course is the same as enrolling for credit. Students must contact the Registrar's Office to obtain the appropriate form for enrolling in a course for audit. Changing a course from audit to credit or credit to audit must be completed by the ninth calendar day of a semester. The time frame for classes meeting less than a full semester is prorated. At the end of the semester, students will receive a grade of "AU" (audit) on their transcript. The instructor has the option of requesting a withdrawal from the course if a student's attendance is irregular or if the student does not complete the course work required by the instructor. Departments may require a student to meet all prerequisites for a course prior to granting permission to audit a class.

Class Attendance

Students are expected to attend all class meetings of courses in which they enroll. Students who are absent from classes because of participation in university-sponsored activities are excused. Students are responsible for all classwork whether or not their absence is excused.

Admission of Seniors to Graduate Courses

A Northern Michigan University senior with at least a 3.00 NMU grade point average and a 3.00 grade point average in the area of concentration, who is within 12 credit hours of graduation, may petition to enroll for a maximum of eight credit hours of graduate credit. These credits may be applied to the undergraduate degree, at the department's discretion, or toward a master's degree from NMU, but not both.

Credit to be applied toward a master's degree at NMU will be accepted and recorded as graduate credit only after admission to the College of Graduate Studies and the successful completion of an additional 12 credit hours of graduate study. In general, these credits will not be accepted in transfer by another institution.

Permission forms to take a graduate course are available from the Registrar's Office. They require approval from the instructor of the course, the adviser and the registrar.

Note: Students will be charged graduate tuition for all courses taken for graduate credit and for 500-level courses taken for undergraduate credit.

Withdrawal for Non-Attendance

At the discretion of individual departments and/or instructors, students who have not attended through the first four days of the semester (or its equivalent) of a class and who have failed to contact the instructor may be dropped from the class roster. Since this is an optional action on the part of departments, students who wish to drop a class should do so themselves.

Complete Withdrawal from the University

Students who decide to leave the university without finishing the semester for which they are currently enrolled must complete a Notice of Withdrawal form at the Dean of Students Office. Following the proper withdrawal procedures ensures (1) that the maximum allowable proportion of fees due the student will be refunded, (2) that the appropriate grades will be recorded on the student's transcript, and (3) that the individual's records will be properly maintained in the event of future enrollment at NMU or transfer to another university or college.

Students who withdraw from the university after 5 p.m. of the 10th week of classes will not receive “W” grades. They may receive “F” grades.

Grading System

Northern Michigan University uses letter grades that are assigned a numerical value. The total number of grade points (honor points) is the product of the credits and the honor point value of the grade received in the course.

Note: Grade reports are not mailed to the student at the end of each semester. Students access their grades on the Web at my.nmu.edu.

Grade	Significance	Honor Points Per Credit
A	Distinguished	4.00
A-	Superior	3.70
B+	Excellent	3.30
B	Very Good	3.00
B-	Good	2.70
C+	Satisfactory	2.30
C	Average	2.00
C-	Fair	1.70
D+	Inferior	1.30
D	Poor	1.00
D-	Poor but Passing	0.70
F	Failure	0.00
AU	Audit	0.00
I	Incomplete	0.00
MG	No Grade Submitted	0.00
P	Completion	0.00
R	Research in Progress	0.00
S	Satisfactory	0.00
U	Unsatisfactory	0.00
W	Withdrawal	0.00
X	Course in Progress	0.00

Grade of AU: A grade of “AU” (Audit) is awarded to a student who is not taking a course for credit.

Grade of I: A grade of “I” (Incomplete) applies to work of acceptable quality when the full amount is not completed because of reasons acceptable to the instructor, such as illness. It is never applied to poor work. Students cannot graduate with a grade of “I” on their record.

Grade of MG: A grade of “MG” (Missing Grade) is issued when the instructor does not submit a grade by the deadline to be included on the official grade report. Students cannot graduate with a grade of “MG” on their record.

Grade of P: A grade of “P” (Completion) is awarded when a student has marginally completed a student teaching assignment. These students are not recommended to the state for certification.

Grade of R: A grade of “R” (Research in Progress) is issued when research field study or internships extend beyond the end of the semester. Used for graduate courses only.

Grade of S: A grade of “S” (Satisfactory, equivalent to a “C”) is issued when a course has been satisfactorily completed. Courses graded “S” are counted in earned hours. The grades are not included in the computation of the grade point average.

Grade of U: A grade of “U” (Unsatisfactory) is issued when a course has not been completed satisfactorily. Courses graded “U” are included in attempted hours. The grades are not included in the computation of the grade point average.

Grade of W: A grade of “W” (Withdrawal) is awarded when a student has officially withdrawn from a course. Courses graded as “W” are included in attempted hours. The grades are not included in the computation of the grade point average.

Grade of X: A grade of “X” is awarded when a course continues to meet past the time of grading for a particular semester. Students cannot graduate with a grade of “X” on their record.

Grade Point Average (GPA)

Northern Michigan University calculates a grade point average (GPA) for all its students. The GPA is used for admission into majors and degree progress requirements by academic and administrative departments. Students may view their GPA on the Web at my.nmu.edu. Only the Northern Michigan University GPA appears on NMU transcripts. Transfer students have a GPA for NMU, a transfer GPA, and an overall cumulative GPA. The transfer GPA is used for assessment (progress toward degree) only. A student’s GPA is not released outside the university unless the student has signed a written release specifically permitting the university to do so. Under no circumstances will the university release a student’s GPA to anyone over the telephone. Northern Michigan University does not calculate rank in class based on GPA.

How the GPA is Determined

Only courses numbered 100 and above are used in calculating a GPA for baccalaureate and associate degree students and counted as credit toward the minimum credit-hour requirement for the degree. To compute a semester GPA, divide the total honor points earned by the total number of credits carried. Credits carried include failed courses. A cumulative GPA is calculated by dividing the total honor points earned by total credits carried in all semesters. Repeated courses count only once, the last time taken.

Incomplete Grade Policy

Students may receive an Incomplete ("I") grade for coursework in which they are currently enrolled if the following conditions have been met. Failure to complete the specified work within the designated time frame may result in an "F" grade for the course.

Conditions

1. The student must be currently enrolled in the course(s) in question (prior to grading).
2. The deadline for an automatic "W" grade for the course(s) must have passed.
3. The student must be passing the course(s) (student must have completed work of acceptable quality). An "I" grade may never be applied when the student has done poor work.
4. The student must have a legitimate extenuating circumstance(s), such as a severe illness, that prohibits completion of the course. The faculty member will consult her or his department head and/or the Dean of Students Office with any questions regarding legitimacy.
5. Students are not allowed to "re-take" the course as a condition of the incomplete. (If the circumstances are such that the student is meeting the requirements of the course at the time of the "I" grade, then only the remainder of the course content is required to be completed.)
6. The instructor, upon receiving and evaluating the completed work, will record the appropriate grade ("A" through "F," "S" or "U") prior to stated deadlines for grading at the end of each respective semester (see item 7 below).
7. "I" grades will revert to an alternate grade assigned by the instructor if the assigned work is not completed within a period designated by the faculty, not to exceed one year.
8. The instructor granting an "I" grade must provide the Registrar's Office with an Incomplete Grade Form listing:
 - a. the "acceptable" reason for the "I" grade (such as illness), and
 - b. details of the work that has to be performed by the student to complete the course. The form must be returned no later than the deadline identified for end of semester grading.
9. Students cannot graduate with an "I" grade on their record.

Exceptions

Exceptions to this policy (for instance, if a student requests an "I" grade prior to the "W" deadline) may be granted by appeal to the Dean of Students Office; the decision on any appeal to this policy by the Dean of Students is final.

Process for Changing an Incomplete to a Grade

At the time an "I" grade is awarded, the instructor will complete the appropriate form stating (1) the reason for awarding the incomplete, (2) what work has to be performed by the student to complete the course, (3) the deadline for completing the work, and (4) the alternate grade to be awarded in the event the deadline is not met. One copy of this form is retained by the instructor, one is forwarded to the Registrar's Office and one is mailed to the student. If an instructor fails to indicate an alternate grade, the incomplete will automatically revert to an "F" at expiration of the deadline. The maximum time that can be given to complete an "I" grade is one year.

Students may request a duplicate copy of the Incomplete Grade Form from the department in which the course was taken. The student is responsible for obtaining all information regarding the completion of the course, including deadlines, from the instructor or the instructor's department head.

Procedure for Changing Improperly Recorded Grades

If a student believes that a clerical error has been made in awarding the final grade for a course, he or she should meet with the instructor to determine if there has been an error. A change of grade is normally allowed only for clerical error. Requests for a grade change must be signed by the instructor of the course and the head of the department before being referred to the college dean for review. If a grade is changed, the Registrar's Office will notify the student of the change. Grade changes must be received by the Registrar no later than the 15th working day of the following semester (exclusive of the summer session).

Students who believe they have been unfairly graded in a course should follow the appeals procedure outlined in the *NMU Student Handbook*.

Dean's List

The Dean's List is published each semester naming those undergraduate-level students who have achieved a high scholastic standing for the previous semester. To qualify for this recognition, a student must (1) have completed a minimum of 12 credits, earning honor points in at least eight credits, and (2) have earned a semester GPA of 3.25 or higher. Remedial courses at the 080 level are not included in the 12 hours.

Academic Proficiency Standards

The academic proficiency policy defines the academic standards students must meet to be academically successful at NMU. Students must maintain a minimum NMU grade point average of 2.00 to be in academic good standing. Students with an NMU

GPA below this level will be placed on academic probation and will have to attain certain semester GPA requirements to remain at NMU (see Academic Probation Standards).

Students are notified of their academic status via their end of semester grade report. Any questions regarding academic proficiency should be referred to the Academic and Career Advisement Center.

Proficiency Status Definitions

Good Standing: Students with a minimum NMU GPA of 2.00 or higher are considered in good standing.

Academic Probation: Students with an NMU GPA that falls below 2.00 (or those initially admitted to the university on probation) will be placed on academic probation and must meet certain semester GPA requirements based on Academic Probation Standards. Students who fail to meet these requirements will be suspended from the university. Students remain on academic probation until they attain good standing. Students on academic probation will also have to meet certain requirements of their probation including, but not limited to, meeting with their academic adviser on a prescribed basis, enrolling in developmental courses, repeating appropriate coursework, etc.

Immediate Academic Suspension: New freshman and transfer students who have eight or more credit hours and earn a GPA of less than 1.00 in their first semester of enrollment at NMU will be suspended immediately.

Academic Suspension: Any student on academic probation who fails to attain specific semester GPA requirements (see Academic Probation Standards) will be suspended from the university.

Academic Dismissal: Students who have previously been academically suspended from NMU, re-enter, and are academically suspended again, are dismissed from the university.

Academic Probation Standards

This table provides a quick reference to the semester GPA that students on academic probation must attain to remain at NMU.

Overall GPA Credit Hours at the Time of Grading	Semester GPA Required to Remain at NMU
Less than 28 credit hours	1.70 semester GPA or higher
28 to less than 56 credit hours	1.80 semester GPA or higher
56 or more credit hours	2.00 semester GPA or higher

Length of Suspension/Appeals

All academic and immediate suspensions from NMU are for one calendar year. Suspended students have the right to appeal to return early.

Students who are academically dismissed from NMU may not appeal for one calendar year from the date of their dismissal, and the appeal must be approved by the AAPC before the student may re-enter the university.

All appeals are presented to the AAPC by the academic proficiency officer in the Academic and Career Advisement Center, 906-227-2971, so it is important for students to discuss their appeal with this staff member.

Academic Honesty

Students have an obligation to abide by accepted standards of academic honesty, which dictate that all scholastic work shall be original in nature. Procedures and penalties pertaining to academic dishonesty are outlined in the *NMU Student Handbook*.

Semester Deletion Policy

The Northern Michigan University Semester Deletion Policy is designed for students who had a poor academic performance at NMU and who return to the university after an extended period of time to continue their education. It is of greatest benefit to students who have changed majors upon readmission, and whose academic record contains poor grades in courses that are not required in their new field of study. Students eligible to apply the policy will have one semester of grades deleted from their GPA.

Students must fulfill each of the following conditions to be eligible to delete the semester grades:

- Students cannot have attended any community college, college or university during at least a three-year period before re-entering NMU.
- Students must complete a minimum of 12 credits (excluding 080 and 090 courses) after readmission with an overall GPA of 2.50 in these courses.
- Students must be enrolled at NMU at the time they exercise this policy.
- Students may select one semester of grades (prior to readmission) to be deleted from their NMU record. All grades for the semester, including any passing grades, will be deleted, except for courses which have been repeated.
- Students may implement this policy only once.

Note: When this policy is exercised, grades will be replaced by "W" grades, ensuring a re-computation of the GPA. Any courses that are stricken, regardless of previous grade, no longer meet any academic program requirements. Required courses must be retaken and satisfactorily completed to earn a degree, certificate, or diploma.

Semester deletion applications are available in the Academic and Career Advisement Center. Students interested in the policy or who have questions regarding the policy should consult with Academic and Career Advisement Center staff.

Transfer Credit Policy

Transfers from Regionally Accredited Colleges and Universities

Students who have attended regionally accredited community colleges may transfer up to 64 semester hours of credit, plus four semester hours of health promotion credits. There is no limit on the number of credits transferred from regionally accredited baccalaureate-granting colleges and universities. For admission purposes, NMU calculates the grade point average of transfer students on college-level courses only, using credits attempted and honor points earned. All acceptable courses completed with a grade of C- or better are entered on the student's permanent record and may be applied toward graduation requirements. A transfer GPA is calculated and is used for assessment (progress toward degree) only. An NMU department may require a specific grade for a particular course or a specific grade point average for a group of courses. These requirements supercede university requirements for transfer grades.

If a transfer course is equivalent to a Northern Michigan University course, a direct course equivalency will be granted even if the number of credits is different. If a transfer course has no direct equivalent, but could be taught by an NMU department, the course will be assigned departmental credit. Such a course may, at the department's discretion, be used as a program elective. If a course has no equivalent and no home department can be established, the course will be assigned general elective credit. The course can be used to meet the free or general electives available for most degrees. An attempt is made to designate courses with no NMU equivalents that can be used to meet the liberal studies program requirements.

Students who have taken CLEP, APP-CEEB, or International Baccalaureate exams should submit their scores. See the "Advance Placement Policy" in this section of the bulletin for additional information.

No transfer credit is granted for remedial courses or for courses from religious-affiliated colleges or universities that are doctrinal in nature. Transfer credit is not granted for departmental advance placement unless a grade is awarded and the course is included in semester earned hours.

If a student believes that his or her transfer credit evaluation does not accurately reflect the course work he or she has completed, a syllabus for the courses in question should be provided for review.

Transfers from Non-Regionally Accredited Colleges

A student who has credit from a college or university not accredited by a regional accrediting body may, under certain circumstances, receive credit for all or a portion of his or her work. For some students, departmental advance placement credit may be a possibility.

Transfers from International Institutions

All international students, with the exception of those educated in Canada, must submit their credentials to Educational Credential Evaluations. The university follows the recommendation of this agency. NMU grants advance placement credit for EN 111 and EN 211 College Composition for Canadian OAC composition courses completed before September 1990 if the passing score was 60 percent. NMU may request an evaluation of credentials of Canadian students from an outside agency (ECE) on an individual basis.

Transfers from Military Service Schools

Northern Michigan University generally follows the guidelines of the American Council of Education in evaluating military credit. NMU does not grant HP activity credit for basic (recruit) training or for credit at the upper division level. Credits for these schools and credits from the Community College of the Air Force are assigned as general elective credit. They can be used as free or general electives, but may meet major or minor requirements upon the recommendation of a departmental adviser. Students who have completed basic training and have a recommendation on their military transcripts for physical well being, physical fitness or other descriptions of material covered in NMU's HP 200 Physical Well Being will receive transfer credit for that course.

Transfers Under the MACRAO Agreement

Students who transfer from a Michigan community college who have the MACRAO stamp on their transcript will have completed the foundations of communication requirement. The remainder of their credits will be reviewed for completion of the requirements of the other five divisions of the liberal studies program. Many majors require courses that meet part of the liberal studies requirements. These courses are required for the degree, and they must be taken even if a student has sufficient hours to complete a particular category. NMU applies courses transferred under the MACRAO Agreement in accordance with guidelines established by its faculty. In some cases courses used by the community college to meet the MACRAO Agreement may not be accepted by NMU. An example would be mathematics courses below the level of college algebra (MA 103, MA 104, MA 105).

The MACRAO Agreement is designed for freshman and sophomore requirements. It does not cover upper division requirements or graduation requirements not a part of the liberal studies

requirements, although with careful selection of courses students may complete these requirements at the community college. NMU does not recognize the MACRAO Agreement if a student has attended a community college outside the state of Michigan, has attended a baccalaureate institution before or while attending a community college, or was originally matriculated at NMU and subsequently took courses at a community college. An exception to this policy is granted to transfer students from Bay De Noc Community College and Gogebic Community College who were dually enrolled at their community college and at NMU in approved consortium degree programs.

In the event that a student cannot transfer individual course(s) included in the MACRAO Agreement because of insufficient grades, the student must complete a course at NMU that meets the specific divisional requirement. See the "Liberal Studies Program and Graduation Requirements" section of this bulletin. When individual courses are disallowed, all other aspects of the MACRAO Agreement will be honored.

Transfer Student Graduation Requirements

Transfer students must earn a minimum of eight credits in each major and a minimum of four credits in each minor. They need a minimum NMU cumulative GPA of 2.00 to be eligible for a degree. Additionally they must meet the minimum degree credit requirements and GPA established by their academic departments.

Students seeking a bachelor's degree must earn 32 credits at Northern Michigan University. Associate degree, certificate and vocational diploma candidates must earn 16 credits at NMU.

Guest Student Applications and Transfer Credit Policies for NMU Students

NMU students who take classes at other institutions are considered guest students at the other colleges or universities. A special application, called a Guest Student Application, must be completed for admission. For Michigan colleges and universities, this application is the only one necessary and the student does not need to submit a transcript to the guest college. Out-of-state colleges may have additional requirements. The application is available in the Registrar's Office. Staff in the office assist students in completing the application and will review courses to ensure that they are transferable.

Note: Students who attend other institutions without completing a Guest Student Application assume the responsibility for course transfer. All students must request an official transcript of their courses from guest colleges and universities to be sent to the Registrar's Office at NMU.

Advance Placement Policy

Northern Michigan University grants advance placement credit through three national testing programs, CLEP (College Level Examination Program), APP-CEEB (Advanced Placement Program of the College Examination Program), International Baccalaureate and through academic departmental recommendation based upon previous life or educational experiences.

When students receive advance placement credit, the course title and credit is recorded on the transcript. Since no letter grades are given, the courses are not computed in the student's GPA, but they do count as credits earned toward the degree. Advance placement credit will be awarded with the following limitations—32 credits for a baccalaureate degree, 16 credits for an associate degree, and eight credits for a certificate.

Advance Placement via College Level Examination Program (CLEP)

NMU considers college composition with essay, humanities, social sciences and history and natural sciences as freshman examinations. Credit earned through the freshman examinations may be applied toward the liberal studies program requirements only. Students with more than 27 college semester credit hours are ineligible to receive credit at NMU through CLEP freshman examinations. Other examinations measure achievement in specific college courses. Students may not earn credit for CLEP subject examinations if the student has credit in the course, was previously or currently enrolled in the course, or has credit in a higher level course. The determination of a higher level course is the decision of the department head who may approve the examination in writing. Transfer students who have taken CLEP examinations should request that a copy of their test scores be sent to NMU. Credit will be awarded if the test is accepted by the university and the minimum score has been earned. CLEP scores are only accepted from national testing centers. The CLEP code for Northern Michigan University is 1560.

Advanced Placement via APP-CEEB

APP-CEEB is a testing program conducted by participating high schools. NMU grants credits for specific courses based on satisfactory scores on the examinations. Students should specify that their scores be sent to Northern Michigan University. Transfer students who have taken APP-CEEB exams should request that a copy of their test scores be sent to NMU. Credit will be awarded if the test is accepted by the university and the minimum score has been earned.

Advanced Placement via International Baccalaureate

Northern Michigan University recognizes the academic rigor of students participating in the International Baccalaureate (IB) curriculum at their high school. At NMU, credit is available for students who score at least a "5" on the Higher Level Examinations.

CLEP Exam Equivalencies

Freshman Examinations	Passing Score	NMU Course	Credits
English Composition with Essay	50	EN 111 College Composition I	4
Humanities	50	Humanities Liberal Studies Credit	3
Humanities	50	Visual and Performing Arts Liberal Studies Credit	3
Natural Sciences	50	Natural Sciences Liberal Studies Credit	6
Social Sciences and History	50	Social Sciences Liberal Studies Credit	6
Subject Examinations	Passing Score*	NMU Course	Credits
Accounting Principles	53	ACT 230 & 240 Principles of Accounting I and II	6
American Government	63	PS 105 American Government	4
Biology, General	57	BI 111-112 Introductory Biology I and II	8
Chemistry, General	63	CH 111-112 General Chemistry I and II	10
College Algebra	63	MA 105 College Algebra	4
College French, Levels I and II	55	FR 101-102 Elementary French I and II	8
College German, Levels I and II	55	GR 101-102 Elementary German I and II	8
College Spanish, Levels I and II	55	SN 101-102 Elementary Spanish I and II	8
Macroeconomic Principles	62	EC 202 Macroeconomic Principles	4
Microeconomic Principles	64	EC 201 Microeconomic Principles	4
Introductory Psychology	59	PY 100G Psychology as a Social Science	4
Sociology, Introductory	59	SO 101 Introductory Sociology	4

*Northern Michigan University awards credit for subject examinations at the equivalent of a grade of B.

Note: Students may not receive advance placement credit for their native language. The Modern Languages and Literatures Department determines the definition of a native language.

These scores are effective for examinations taken after June 30, 2005.

APP-CEEB Exam Equivalencies

APP-CEEB Examinations	Passing Score	NMU Course	Credits
Art History	3	AD 250 History of Western Art and Architecture	4
Biology	3	BI 111-112 Introductory Biology I and II	8
Calculus AB	3	MA 161 Calculus I	5
Calculus BC	3	MA 161 and 163 Calculus I and II	9
Calculus BC, subscore section	3	MA 161 Calculus I	5
General Chemistry	3	CH 111-112 General Chemistry I and II	10
Computer Science A	3	CS 120 Computer Science I	4
Computer Science AB	4	CS 120 and CS 122 Computer Science I and II	8
Economics, Macro or Micro	3	EC 101 American Economy	4
English Literature and Composition, or English, Language and Composition	3	EN 111 College Composition I	4
Environmental Science	3	ENV 101 Introduction to Environmental Science	4
European History	3	HS 101 or 102 Western Civilization	4
French Language	3	FR 202 Intermediate French II	4
French Literature	3	FR (300 level) French Literature	4
German Language	3	GR 202 Intermediate German II	4
Physics B	4	PH 201, PH 202 Physics I and II	10
Physics C	4	PH 220 Introductory Physics I	5
Physics C-Mechanics Section	4	PH 220 Introductory Physics I	5
Introductory Psychology	4	PY 100G Psychology as a Social Science	4
Spanish Language	3	SN 202 Intermediate Spanish II	4
Spanish Literature	3	SN (300 level) Spanish Literature	4
Statistics	3	MA 171 Introduction to Probability and Statistics	4
U.S. Government and Politics	3	PS 105 American Government	4
U.S. History	3	HS 126 or HS127 The United States	4

International Baccalaureate Equivalencies

Higher Level Examinations	Passing Score	NMU Course	Credits
Biology	5	BI 111-112 Introductory Biology I and II	8
Chemistry	5	CH 111-112 General Chemistry I and II	10
English	5	EN 111 College Composition I	4
History	5	HS 101 History of Western Civilization to 1600	4
Psychology	5	PY100G Psychology as a Social Science	4
Spanish	5	Credit based on individual review by department head	
Visual Arts	5	Visual and Performing Arts Credit	4

Other examinations will be reviewed as IB transcripts are received.

Subject areas will be reviewed by the appropriate academic departments. Some equivalents have been established. Students are encouraged to submit their official IB results to NMU as soon as they are available so other equivalents can be established. Students who have participated in an IB curriculum are also encouraged to apply to the Honors Program at NMU.

Advanced Placement via Department Evaluation

Academic departments at Northern Michigan University may recommend that advance placement credit be awarded to currently enrolled students in degree-granting programs based on their life experience or educational achievements from non-traditional sources. The evaluation measurement for the recommendation is determined within the department and may consist of a comprehensive examination, portfolio review, demonstration of a level of competency in a skill area, or documented verifiable life experiences. If a department is recommending advance placement credit that would apply to general electives, the recommendation must also be approved through the student's major department.

The following regulations apply to departmental recommended advance placement credit:

1. Departments may choose not to recommend advance placement credit for any or all of their courses.
2. Departments may not award advance placement credit for special topics or directed-studies courses.
3. Students must meet course prerequisites before departmental advance placement credit is awarded.
4. Students may not receive departmental advance placement credit for a course in which they were previously enrolled or are currently enrolled.
5. Students may not receive departmental advance placement credit below the level of a course for which the student

already has credit or in which the student is currently enrolled unless approval in writing is obtained through the department head or appropriate departmental committee.

6. Once a student has enrolled at Northern Michigan University, credit via departmental advance placement from another college or university will not be accepted unless approved in advance by NMU.

Institutional Standards of Progress for Students Receiving Veterans Benefits

The following information applies only to VA-assisted students and is not applicable to other students. In order for the Veteran Student Services Office to submit a student's certification to receive VA educational benefits, the following standards apply:

1. VA-assisted students are required to immediately report any withdrawals from school, reduction of credit load, repetition of courses, and/or any changes in major or curriculum. Students who receive a failing grade must notify the Veteran Student Services Office of their last attendance date in the class.
2. VA-assisted students are required to follow the university's Academic Proficiency Standards outlined in the Satisfactory Academic Progress Standards.
3. If a VA-assisted student is terminated, that student may certify for VA benefits only after he or she meets the minimum GPA standards as outlined in NMU's Satisfactory Academic Progress Standards.
4. These standards are subject to change through legislative or administrative action of the federal government, and such changes shall supersede this section.

In addition, VA-assisted students must also meet the minimum academic standards as set forth by Northern Michigan University in order to continue their enrollment.

NCAA Satisfactory Progress Rule for Athletes

For athletic eligibility purposes, all athletes are required to carry a minimum of 12 credit hours each semester and maintain progress toward a baccalaureate degree. Progress is based upon satisfactory completion of courses in an athlete's designated program, as well as his or her overall academic record.

At the beginning of the fifth semester or third year of enrollment, all athletes are required to designate a program of study leading toward a specific baccalaureate degree and carry a minimum of 12 credit hours in a designated program of study leading toward a specific degree.

Advisers of student athletes must complete the Academic Adviser Affirmation Form. Students are responsible for informing their advisers of this requirement and for taking the completed form to the Athletic Office. Failure to do so may result in the loss of athletic eligibility.

Using One Course to Meet More Than One Requirement (Double Counting)

Between Major and Minor Requirements

Students cannot use the same course to fulfill a requirement in more than one major, or a major and a minor, or in more than one minor.

1. If a course is required for both a major and a minor, the major requirement will take precedence over the minor, and an appropriate substitution must be made in the minor with the written approval of the minor department.
2. If a course is required in two majors or two minors, the first designated major or minor will take precedence over any subsequent major or minor and appropriate substitutions must be made with the written approval of the head of the second major or minor department.

Note: All substitutions must be filed with the Registrar's Office.

Between Liberal Studies and Majors, Minors and Courses Designated "Other Required"

Students may use a course from their major, minor or courses designated as "other required" to meet liberal studies requirements. The minimum number of credits required for the degree remains as listed even if a student double counts a course.

Course Limitations

Students in baccalaureate degree programs may count up to six credits of health promotion (HP) courses toward graduation. (Exception: management of health and fitness majors and physical education majors and minors may apply ten credits of HP courses toward graduation.) Students in associate degree programs may apply three credits of HP courses toward graduation,

and those in certificate programs may apply two credits of HP courses toward graduation.

Students in baccalaureate degree programs may apply up to six credits of cosmetology (COS), practical nursing (PN) and surgical technology (ST) courses combined toward graduation unless otherwise prohibited. Students in associate degree programs may apply three credits of these courses combined toward graduation, and those in certificate programs may apply two credits of these courses combined toward graduation unless otherwise prohibited.

Course Substitutions

Normally, the courses required to complete the total degree plan are offered frequently or on a rotational basis so that the student, with academic advisement, may complete all requirements as stipulated in a timely fashion. The faculty adviser with the support of the department head may substitute* a required course in their major or minor with another departmental course when:

1. there has been a curriculum revision and the required course listed is no longer offered;
2. the student is in the final semester before graduation and one required course is offered at a time that conflicts with another required course, or a required course is not being offered during that final semester;
3. the same course is required in the student's minor, second major or minor; or
4. the faculty adviser has waived a requirement and has selected another course to complete the required hours.

**The use of course substitutions and the waiving of requirements is restricted to 50 percent or less of the stipulated course requirements for each major or minor.*

Degree Audit

A degree audit is a listing of course work and requirements that the student must complete before minimally becoming eligible for a certificate or degree. This audit is prepared each semester for eligible students in order to assist them in preparing for their degrees. To be eligible for an audit, a student must be matriculated in a degree-granting program and have declared a major, concentration and minor, if required, and have acquired sufficient earned hours toward a degree according to the following chart:

<i>Baccalaureate degree</i>	87 earned semester credit hours
<i>Associate degree</i>	32 earned semester credit hours
<i>Certificate</i>	16 earned semester credit hours

Course work that is in progress is not considered complete. Students should review their audit carefully with their advisers prior to advance registration. Students who file for graduation will receive a final audit and their records will be reviewed to determine graduation eligibility. A student who is eligible for an audit and does not receive one should contact the Registrar's Office.

Alternate Majors/Minors

Students are allowed to declare alternate majors and/or minors at the time of graduation. An alternate major is a rearrangement of major courses within the same discipline to meet requirements for another major in that discipline. Similarly, an alternate minor is a rearrangement of minor courses within the same discipline to meet requirements for another minor in the same discipline. A note indicating the alternate major and/or minor will be placed on the student's transcript.

The following regulations apply to the declaration of alternate programs:

1. An alternate major/minor is a rearrangement of completed courses. Alternate major(s)/minor(s) should not be interpreted as the official major(s)/minor(s) used for degree purposes. The degree awarded will be based on the official major(s).
2. Each alternate program must have a major separate and distinct from the officially declared major(s) or any other declared alternate major: i.e., the same major cannot be re-declared in order to rearrange courses into new minors.
3. The rearrangement of credits must be such that it would permit a student to graduate in the alternate program. Double counting restrictions apply to alternate programs (see Double Counting above).
4. If waivers or substitutions are necessary for the declaration of alternate programs, they must be obtained from the involved departments.
5. Students in teacher certification programs will be certified only in their official major(s)/minor(s).
6. Students must complete the necessary forms, available in the Registrar's Office. These forms must be completed by the time the student submits application for the degree. Alternate programs will not be accepted after the deadline for submission of degree applications. See "Graduation and Commencement" section of this bulletin.

Bachelor's Degree Requirements

To qualify for a bachelor's degree, students must fulfill the following requirements:

1. Successfully complete the minimum credits required for the chosen curriculum in courses numbered 100 and above, including liberal studies and specific university graduation

requirements. The minimum credits required for a baccalaureate degree is 124. Programs that require 150 or more hours take five or more years to complete.

2. Obtain a minimum NMU cumulative GPA of 2.00.
3. Obtain the minimum GPA and the minimum grades in majors, minors and other courses where required by departments.
4. To qualify for a bachelor of arts degree, students must complete a language offered at Northern Michigan University at the 202 level. Students with a major in the Walker L. Cisler College of Business must complete one of the following options:
 - a. FR 202 and FR 310
 - b. GR 202 and GR 310
 - c. SN 202 and SN 310 or SN 312 or SN 314

In lieu of the culture course, students may meet the requirement by completion of the language at the 202 level and an approved directed study for a summer or semester in a country of the language. This must be submitted in writing by the student's adviser to the Registrar's Office prior to inception of the directed study.

5. Complete a minimum of 32 semester hours of credit in residence at Northern Michigan University, excluding advanced placement credit. Transfer students must earn a minimum of eight credits in each major and four credits in each minor.
6. Apply toward the degree no more than 32 hours of advance placement credit.
7. Adhere to the following limit for a non-business degree: Total credits that may be taken from the Walker L. Cisler College of Business (courses with prefixes ACT, CIS, FIN, IS, MGT, MKT, and OIS) cannot exceed 25 percent of the requirements for a non-business degree. This includes credits taken to complete a major or minor, a minor in the College of Business, and general elective credits taken from the College of Business.
8. Meet one of the following two residency requirements:
 - a. Students must be enrolled at Northern Michigan University for their last 8 credit hours preceding the awarding of their degree, or
 - b. Students must complete 20 of their last 30 credits at NMU. To qualify for this option students must:
 - have a minimum NMU cumulative GPA of 2.00;
 - meet the minimum GPAs as established by their major and minor departments;
 - obtain written approval from their department head as well as the Registrar's Office;
 - have all courses approved prior to enrollment at another institution;
 - have completed the Writing Proficiency Exam if applicable; and

- have processed a guest student application form through the Registrar's Office.

9. Receive only one degree per commencement.

Associate Degree Requirements

To qualify for an associate degree, students must fulfill the following requirements:

1. Successfully complete the minimum credits required for their chosen curriculum in courses numbered 100 and above, with a minimum NMU cumulative GPA of 2.00. The minimum credits required for an associate degree is 62.
2. Complete a minimum of 16 semester hours of credit in residence at Northern Michigan University, excluding advance placement credit.
3. Apply no more than 16 semester hours of advance placement credit.
4. Meet one of the residency requirements as listed in number 8 above, under the requirements for a bachelor's degree.
5. Receive only one degree per commencement.
6. Complete the number of liberal studies requirements associated with their degree.

Associate of Arts and Associate of Science

In addition, the associate of arts and associate of science degrees require 32 semester hours in the following disciplines:

1. *Foundations of communication*: 8 semester hours.*
2. *Foundations of humanities*: 8 semester hours. Courses must be taken in more than one academic discipline. (Students may take any course from Divisions II and VI.)
3. *Foundations of natural sciences/mathematics*: 8 semester hours. One course must be a laboratory science. (Students may take any course from Division III and any MA, CIS, CS and IS course from Division V.)
4. *Foundations of social sciences*: 8 semester hours. Courses must be taken in more than one academic discipline. (Students may take any course from Division IV.)

*Transfer students may meet this requirement with 6 semester hours as long as the total number of liberal studies credits is 32.

Associate of Applied Arts and Associate of Applied Science

In addition, the associate of applied arts and associate of applied science degrees require 12 to 16 semester hours in the following disciplines:

1. *Foundations of communication*: 4 to 8 semester hours.
2. *Other liberal studies*: 8 to 12 hours.

Associate of Business and Associate of Technology

In addition, the associate of business and associate of technology degrees require 8 semester hours in the following disciplines:

1. *Foundations of communication*: 4 semester hours.
2. *Liberal studies*: 4 semester hours.

Certificate Requirements

To qualify for a certificate, students must fulfill the following requirements:

1. Complete the prescribed program of course work. The minimum credits required for the certificate is 31.
2. Maintain a minimum GPA of 2.00 in all course work following matriculation (official admission) into the certificate program.
3. Obtain a minimum GPA of 2.00 in all program courses as well as meet the minimum GPAs established by their major department.
4. Earn a minimum of 16 semester hours of credit in residence at NMU.
5. Apply no more than 8 semester hours of advanced placement credit to a certificate program.
6. Meet one of the following residency requirements:
 - a. Students must be enrolled at Northern Michigan University for their last four credit hours preceding the awarding of their certificate; or
 - b. Students must complete 10 of their last 15 credits at NMU. This allows students to complete their certificate at another school by enrolling in previously approved courses to a maximum of 5 semester hours of credit. To qualify for this option, students must meet the requirements stipulated in points 1 through 5 above.
7. Receive only one degree per commencement.

Vocational Diploma Requirements

To qualify for a vocational diploma, students must fulfill the following requirements:

1. Complete the prescribed program with a minimum NMU cumulative GPA of 2.00. Only those courses applying to the program will be utilized in calculating the GPA.
2. Earn a minimum of 16 credits in residence at NMU.
3. Meet one of the residency requirements described in item 6 above, under the requirements for a certificate.
4. Receive only one degree per commencement.

Additional Degrees and Certificates

Students who have earned a baccalaureate or associate degree or a certificate at Northern Michigan University or elsewhere may earn additional degrees or certificates in academic areas or programs other than any previously earned degrees or certificates. Students must meet all current university requirements relating to their new degree or certificate. Students with an earned baccalaureate degree who are seeking additional degrees must apply in the Admissions Office. Students may not enroll in any courses at the 500 level or above.

To qualify for a second baccalaureate degree, the student must complete a minimum of 32 credit hours at NMU beyond the first baccalaureate degree.

To qualify for an associate degree, the student must complete a minimum of 16 credit hours at NMU beyond the first baccalaureate or associate degree.

To qualify for a certificate, the student must complete a minimum of 16 semester credit hours at NMU beyond the first baccalaureate or associate degree or certificate program.

Scholastic Recognition

Scholastic Recognition Baccalaureate Degree

Scholastic recognition is recorded on the transcript and diploma of a baccalaureate degree for a student with a superior academic record. To qualify for this recognition, a student must have earned, at the end of his or her last required session, an NMU cumulative GPA of 3.30 or higher. To graduate cum laude, a student must earn a GPA of 3.30 to 3.59; to graduate magna cum laude a student must earn a GPA of 3.60 to 3.79; to graduate summa cum laude a student must earn a GPA of 3.80 or higher.

Post-baccalaureate students must also meet the following criterion: a minimum of 32 semester credit hours for which honor points are recorded must be earned at Northern Michigan University as a post-baccalaureate student.

Scholastic recognition at the commencement ceremony is based upon a student's NMU cumulative GPA through the semester prior to graduation, provided the student will have complied with the minimum 32 NMU credit-hour requirement at the completion of the degree program.

Scholastic Recognition Associate Degree

Scholastic recognition is recorded on the transcript and diploma of an associate degree for a student with a superior academic record. To qualify for this recognition, a student must have earned, at the end of his or her last required session, a total cumulative GPA of 3.50 or higher. In order to

graduate with "honor" a student must earn a GPA of 3.50 to 3.79; to graduate with "high honor" a student must earn a GPA of 3.80 or higher.

Post-baccalaureate associate degree students also must meet the following criterion: a minimum of 16 semester hours of credit for which honor points are recorded must be earned at Northern Michigan University as a post-baccalaureate student.

Scholastic recognition at the commencement ceremony is based upon a student's NMU cumulative GPA through the semester prior to graduation, provided the student will have complied with the minimum NMU credit-hour requirement at the completion of the degree program.

Honors graduates are honored at commencement by wearing a gold cord. Honors program students who graduate with full honors designation are honored by wearing a white cord.

Graduation

Students who expect to graduate with a vocational diploma, certificate, associate degree or baccalaureate degree must apply for graduation. Students apply for graduation by registering for graduation using the appropriate coding at the same time they register for their final semester of course work, but never later than the fourth calendar day of that semester. Students expecting to graduate at the end of the summer semester, but wish to be publicly recognized in the preceding winter commencement, must register for graduation at the time they register for that winter semester course work. Graduation and commencement codes can be found in the Schedule of Classes document on the registrar's Web site, www.nmu.edu/records, by following the Course Registration link.

Note: A \$15 graduation fee is payable at the time of application. See "Tuition and Fees" section of this bulletin.

Students who do not register for graduation on time will only be considered for a subsequent graduation period providing they register and still qualify. Students may only receive one diploma, certificate or degree at any one graduation.

Diplomas

The name printed on the diploma, certificate or degree will be the same as the name on the student's academic record. Any change to that name such as the inclusion of a middle name or maiden name must be submitted to the Registrar's Office prior to registering for graduation. Diplomas will be mailed to the permanent address on file with the university approximately four to six weeks after the date of graduation.

Commencement

Commencement is a public ceremony held twice each year to bestow degrees upon students. A student who completes the requirements for a vocational diploma, certificate, associate degree or baccalaureate degree may participate in commencement. Students who plan to participate in commencement must select the appropriate coding from the course scheduling options when registering for graduation. Students graduating in December (fall semester) are eligible to participate in December commencement. Students graduating in April/May (winter semester) are eligible to participate in April/May commencement.

Students who qualify for April/May graduation, but are enrolled in a study abroad program or are enrolled in an internship not located in Michigan or the surrounding states of Minnesota, Wisconsin, Illinois, Indiana or Ohio during the winter semester, may participate in the December commencement preceding that enrollment. At the time of registration for the fall semester but no later than the fourth calendar day of the fall semester, these students must provide the Registrar's Office written verification from their adviser of the location of their winter semester enrollment. These students must then be enrolled in all courses by the end of the first week of advance registration for the winter semester.

Students who qualify for August graduation and are enrolled in their correct courses by the end of the first week of advance registration for that session may participate in the April/May commencement preceding that enrollment. These students must register for their degrees during the registration period for the winter semester but never later than the fourth calendar day of the winter semester, choosing the coding for "August graduation, participating in the April/May commencement" from the Schedule of Classes document on the registrar's Web site. Students who graduate in August may participate in the next December's commencement ceremony. Arrangements must be made in the Registrar's Office.

Commencement is an optional activity. Students who do not participate in commencement at the time they qualified may not participate in a later commencement unless they qualify for the awarding of an additional vocational diploma, certificate or degree. Commencement apparel is ordered through the NMU Bookstore.

Transcripts

In accordance with The Family Educational Rights and Privacy Act of 1974 and current Northern Michigan University policy, all requests for transcripts must be submitted in writing. Written requests must include name at the time of attendance at NMU, student identification number, signature and the exact address

where transcript is to be sent. Transcript request forms can be printed from the Registrar's Web site at: www.nmu.edu/records. Send the transcript request with correct fees to the Registrar's Office, 1401 Presque Isle Avenue, Northern Michigan University, Marquette, MI 49855-5323. Transcript request forms are available at the Student Service Center.

Normal processing time for transcripts is two business days, but one week for processing should be allowed during busy periods. A student's entire academic record, undergraduate- and graduate-level work, if applicable, are included in each set of transcripts ordered.

Each official transcript costs \$4. Unofficial transcripts are \$1 each. Overnight mailing service is available for an additional fee. Call 906-227-2278 for information. A personal check or money order payable to Northern Michigan University are the only payment methods acceptable. First-class postage is included in the transcript fee. If the correct fee does not accompany the transcript request, it will be returned. Currently NMU does not provide a billing service for transcripts.

Transcripts will not be provided to persons who have any outstanding debts to the university. Financial holds are cleared by the Student Service Center, 2201 C.B. Hedgcock, 1401 Presque Isle Avenue, Marquette, MI 49855-5323. Telephone: 906-227-1221.

Policies and Regulations

Northern Michigan University has established policies and regulations that help ensure the living and learning environment of the academic community is free from disruption. Many of the policies and regulations that govern student life at the university are contained within the *Northern Michigan University Student Handbook*. The handbook can be found on-line at <http://dso.nmu.edu/handbook>. Additional policies can be found in this bulletin, as well as these sources:

- *Administrative Policies Manual*
www.nmu.edu/www-sam/humanres/AdminPoliciesMan/PoliciesIndex.htm
- *Financial Aid Right and Responsibilities*
www.nmu.edu/finaid/rights.htm
- *Graduate Bulletin*
www.nmu.edu/gradstudies/
- *Motor Vehicle Ordinances*
publicsafety.nmu.edu/HANDBOOK04-05.htm
- *Student Organizations Handbook*
www.nmu.edu/salp/student_org_services.htm
- *University Ordinances*
publicsafety.nmu.edu/POLICY/ORDINANCES.HTM

Copies of these publications are available in the Dean of Students Office.

ACADEMIC ADVISING

CONTACT INFORMATION

Academic and Career Advisement Center

3302 C.B. Hedgcock

Phone: 906-227-2971

Web Page: www.nmu.edu/acac

Director: James G. Gadzinski

Coordinators: Lenette A. Pynnonen, Barbara A. Quick, and
Lena G. Throlson



Academic Advising Philosophy

Northern Michigan University is committed to the academic and professional development of its students. While a student's academic program is ultimately his or her own responsibility, the university, through the academic advising process, provides the student with information about career options, educational programs, courses, resources, policies and procedures.

The academic advising process is a shared responsibility that involves administration, faculty, staff and student peers. However, a key element is the student-adviser relationship. In this relationship, a faculty or staff adviser and student work together to select, plan and accomplish the student's academic and professional goals. This relationship also provides students with an opportunity to affiliate with professionals in their chosen disciplines.

Orientation and Initial Course Registration

New student orientation programs are provided before each semester. All newly admitted degree-seeking freshman students, undergraduate transfer students and guest students who will be enrolling for classes on the Marquette campus are required to participate in an orientation session. At the orientation session, students receive academic advising and information about university policies and requirements, learn about the campus community and complete their course registration. Questions regarding orientation should be directed to the new student orientation program, Academic and Career Advisement Center, 906-227-1707 or 800-682-9797.

Adviser Assignment

After selecting a major, students are assigned to an adviser in the department that houses their major. Students should maintain close contact with their advisers and keep their own personal file of their academic progress. Students are ultimately responsible for meeting the academic requirements for their desired degree.

Students who are undecided about a choice of curriculum and who do not wish to declare a major are assigned advisers from a core of faculty and staff selected to work with undeclared students. These students should work closely with their advisers to build course schedules satisfying general graduation requirements and also providing some exposure to new fields of interest. During the semester, undeclared students should work with academic advisers in the Academic and Career Advisement Center to discuss potential majors. They may also take advantage of career planning activities coordinated by the center.

Students who plan to enter preprofessional and other interdisciplinary programs are assigned advisers from the appropriate academic departments.

There are many resources available on the NMU campus to assist students in obtaining an excellent education. Students should become familiar with the staff, faculty and other resources available to them and seek these resources out in a timely manner.

Any undergraduate student who would like to discuss an academic and/or career advising issue at NMU may schedule an appointment with an academic adviser in the Academic and Career Advisement Center.

LIBERAL STUDIES PROGRAM AND GRADUATION REQUIREMENTS

Students who have specific questions about these requirements should contact either their current adviser or Dr. Marilyn Robbert, registrar.

Program Objectives

The liberal studies program requirements are based on the principle that well-educated persons need to know more than can be learned from their areas of concentration. Students should make use of this opportunity to explore areas of possible interest and to integrate this work with their other academic studies. The program is divided into six areas of study.

Program Requirements

Baccalaureate degree-seeking students meet the liberal studies requirements by completing selected courses in each of the divisions listed below.

Division I: Foundations of Communication
6-8 credits required

Division II: Foundations of Humanities
6-8 credits required

Division III: Foundations of Natural Sciences/Mathematics
6-8 credits required

Division IV: Foundations of Social Sciences
6-8 credits required

Division V: Formal Communication Studies
3-4 credits required

Division VI: Foundations of Visual and Performing Arts
3-4 credits required

The majority of liberal studies courses at Northern Michigan University are four-credit courses, so normally students meet divisional requirements by taking either eight or four credits of appropriate courses for a total of 40 credits. However, a minimum of six semester credits (two courses) is required for each of Divisions I, II, III and IV. A minimum of three semester credits (one course) is required for each of Divisions V and VI.

Students who complete liberal studies requirements with less than 40 credit hours must complete their liberal studies divisions with the minimum number of credit hours stated above. The difference between the minimum credit hours required and 40 credit hours are added to general electives.

Students in associate degree or certificate programs follow the guidelines for their program listed in the appropriate department section.

Substitute Courses

Transfer students wishing to substitute a course with no specific NMU equivalent to meet a specific divisional requirement should consult their academic adviser. If the adviser approves the request, a written recommendation justifying the request should be submitted to the Registrar's Office. In special cases, the Registrar's Office will confer with the Liberal Studies Committee. NMU courses not designated as liberal studies courses cannot normally be used to meet liberal studies program requirements. All exceptions to this rule must be thoroughly justified by the adviser and have the support of the department offering that course. Students should get approval of the substitution before they register for the course.

Honors Program Participants

Honors program participants take some alternate courses to complete their liberal studies requirements. For information see the "Honors Program" section of this bulletin or contact the honors program director.

Advanced Placement Examinations

Examinations are available in most divisions of the liberal studies program through the College Level Examination Program (CLEP) and the advance placement program of the College Entrance Examination Board (APP-CEEB). The university awards credit for higher level international baccalaureate courses with a score of 5. If these courses are equivalent of NMU liberal studies courses, credit will be awarded. Information may be obtained in the Registrar's Office. (See also the "Academic Standards, Policies and Degree Requirements" section of this bulletin.)

Division I—Foundations of Communication

Students take two courses in this area for a minimum of six credits. Students who complete the courses should be able to generate ideas for writing; organize ideas logically; and use correct and effective grammar, spelling, sentence structure and punctuation. The first course in foundations of communication is EN 111 College Composition I (4 credits).

Course Placement and Requirements

All students, except transfers who have satisfactorily completed the equivalent of EN 111, will have their ACT scores and high school grades reviewed for appropriate placement in EN 111

and/or learning skills courses. Some students may be required to write a placement examination.

Those students who demonstrate exceptional ability in writing may complete the foundations of communication requirement in either of two ways:

1. Students receive course credit for EN 111 by passing the appropriate AP-CEEB examinations or CLEP general test for English Composition with Essay or the appropriate international baccalaureate test, then take EN 211.
2. Students receive a waiver for EN 111 without credit, begin the foundations of communication sequence with EN 211 and complete the sequence with another approved foundations of communication elective at the 200 level or above. A list of approved alternate foundations of communication courses is available to qualified students from the English Department, the Academic and Career Advisement Center and the Registrar's Office.

Note: Those students judged to have a deficiency in writing must achieve a grade of "C" in EN 090 Basic Composition before taking EN 111.

Students must complete one of the following courses for the second course in foundations of communication:

- EN 211A Writing and Literature (4 cr.)
- EN 211B Narrative and Descriptive Writing (4 cr.)
- EN 211D Technical and Report Writing (4 cr.)
- EN 211E Critical Thinking and Writing (4 cr.)

Note: Students must have a "C" or better in EN 111 or equivalent course in order to take the second course in foundations of communication. Students must earn a "C" or better in the second course in foundations in communication.

Division II—Foundations of Humanities

Courses will help students to broaden their understanding of the human experience. Students will study the individual human condition, needs, values, and potentials and achievements within the multiplicity of cultural values that shape it. They will examine, using critical thinking strategies, how peoples in different cultures, times and places deal with common human needs and concerns. They will review and evaluate, using critical thinking techniques, the intellectual, spiritual and ethical concerns of the human experience as recorded in literature, philosophy, religion, history or other similar areas. All courses are four credits unless otherwise noted. Students need a minimum of six credits with two courses.

Humanities Courses

- EN 110 Good Books
- EN 112 Mythology
- EN 220 Introduction to Shakespeare
- EN 283 Survey of British Literature I
- EN 284 Survey of British Literature II
- EN 310 Literature and the Bible
- EN 311 World Literature in English
- EN 311Z World Literature in English
- EN 314 Traditional Oral Literature: Selected Native American Cultures
- EN 316 Native American Novels and Poetry
- EN 317 Native American Drama, Non-fiction and Short Stories
- EN 370 American Literature I: Columbus to the American Revolution (1492-1800)
- EN 371 American Literature II: Emergent National Voices (1800-1865)
- EN 372 American Literature III: Realism and Naturalism to World War I (1865-1930)
- EN 373 American Literature IV: Contemporary Vistas (1930-Present)
- EN 375 Diverse Traditions in American Literature
- EN 375Z Diverse Traditions in American Literature
- FR 310 Introduction to French Civilization and Culture*
- FR 438 Cultural and Artistic Heritage of Europe
- GR 310 Introduction to German Civilization and Culture* (3 cr.)
- HS 101 History of Western Civilization to 1600
- HS 102 History of Western Civilization Since 1600
- HS 234 Indigenous People of Latin America
- HS 251 Latin American Civilization
- HS 252 Arab-Islamic History
- HS 254 Introduction to the History of Africa
- HS 256 Approaching China
- HS 283 The American Woman
- HS 293 Minorities in American History
- HS 315 Imperialism
- HS 352 African American History
- HS 361 History of the Americas
- HS 362 Mexico
- LB 121 Origins of Western Values: Greeks and the Bible
- LB 295H Special Topics in Liberal Studies: Humanities
- LG 317 World Studies through Literature in Translation
- LG 317Z World Studies through Literature in Translation
- NAS 204 Native American Experience
- PL 100 Introduction to Philosophy
- PL 180 Fundamentals of Ethical Theory (4 cr.)
- PL 181 Issues in Business Ethics (2 cr.)
- PL 182 Issues in Computer Ethics (2 cr.)
- PL 183 Issues in the History of Ethics (2 cr.)
- PL 184 Issues in Legal Ethics (2 cr.)

- PL 185 Issues in Medical Ethics (2 cr.)
- PL 186 Topics in Theoretical Ethics (2 cr.)
- PL 200 History of Ancient and Medieval Philosophy
- PL 210 History of Modern Philosophy
- PL 270 World Religions
- PL 280 Philosophy of Religion
- PL 310 Social and Political Philosophy
- PL 330 Existentialism
- PS 207 History of Political Theory
- PS 411 American Political Thought
- SN 312 Introduction to Spanish America
- SN 314 Contemporary Latin American Culture*
- SP 240 Oral Interpretation of Literature
- SP 402 Communication Criticism
- TE 351 Humanity and Technology
- UN 200 Introduction to Gender Studies

*FR 310, GR 310, and SN 314 are taught in English.

Division III—Foundations of Natural Sciences-Mathematics

Students elect a minimum of six credits from this division. Students who complete the science courses should be able to recognize and understand the scientific method; understand and use scientific concepts; understand and discuss general scientific articles; and apply their knowledge of science to everyday experience. Students who complete the mathematics courses should be able to demonstrate a basic understanding of mathematical logic; use mathematics to solve scientific or mathematical problems in college classes; express relationships in the symbolic language of mathematics; and appreciate the role of mathematics in analyzing natural phenomena.

The three numbers in parentheses indicate the hours devoted to lecture, discussion and laboratory. If no indication exists, the credit hours are lecture.

Natural Sciences-Mathematics Courses

- AS 103 Observational and Solar System Astronomy (4 cr.) (3-0-3)
- AS 104 Stellar/Galactic Astronomy and Cosmology (4 cr.) (3-0-3)
- BI 100 Biological Science (4 cr.) (3-0-2)
- BI 104 Human Anatomy and Physiology (4 cr.) (3-0-2)
- BI 111 Introductory Biology: Principles (4 cr.) (3-0-2)
- BI 112 Introductory Biology: Diversity (4 cr.) (3-0-2)
- BI 305 Ecology of the Northern Forest (3 cr.) (2-0-3)
- CH 105 Chemical Principles (4 cr.) (3-0-2)
- CH 107 Introductory Chemistry I (4 cr.) (3-1-2)
- CH 108 Introductory Chemistry II (4 cr.) (3-1-2)
- CH 111 General Chemistry I (5 cr.) (3-1-3)
- CH 112 General Chemistry II (5 cr.) (3-1-3)
- ENV 101 Introduction to Environmental Science (4 cr.)**
- GC 100 Physical Geography (4 cr.) **
- GC 255 Physical Geology (4 cr.) (3-0-2)
- LB 295N Special Topics in Liberal Studies: Natural Sciences (4 cr.)
- MA 103 Finite Mathematics (4 cr.)
- MA 104 College Algebra with Applications in the Sciences and Technologies (4 cr.)
- MA 105 College Algebra for Calculus Preparation (4 cr.)
- MA 106 Trigonometry (3 cr.)
- MA 115 Pre-Calculus (4 cr.)
- MA 161 Calculus I (5 cr.)
- PH 101 Eureka: Einstein, the Universe and Everything (3 cr.)
- PH 102 Physics of Sound and Music (3 cr.) (2-0-2)
- PH 201 College Physics I (5 cr.) (3-1-3)
- PH 202 College Physics II (5 cr.) (3-1-3)
- PH 220 Introductory Physics I (5 cr.) (4-0-2)
- PH 221 Introductory Physics II (5 cr.) (4-0-2)
- PY 100L Psychology as a Natural Science with Laboratory (4 cr.) (3-0-2)
- PY 100H Honors Psychology as a Natural Science (4 cr.) (3-0-2)
- PY 100S Psychology as a Natural Science (4 cr.)**
- PY 204 Physiological Psychology (4 cr.) (3-0-2)

**Most science courses with the exception of those with a double asterisk can be used to meet the graduation requirement of a laboratory course.

Division IV—Foundations of Social Sciences

Students take a minimum of six credits from this division. Students completing these courses should be able to recognize and understand the principles of the scientific method as it applies to the social sciences and the study of the social universe; comprehend commonalities and differences among various social science disciplines; and demonstrate an understanding of the role of social science theories and perspectives in investigating and explaining social phenomena. They should also be able to distinguish between knowledge supported by social science scholarship and "common sense" assumptions and similar forms of "conventional wisdom"; and express an understanding of one's place in society's culture, history and political and economic systems.

All courses are four credits unless otherwise noted.

Social Sciences Courses

- AN 100 Introduction to Socio-Cultural Anthropology
- AN 210 People, Culture and Nature
- AN 320 Native Peoples of North America
- EC 101 The American Economy
- EC 337 American Economic History
- EC 420 Capitalism, Socialism, and Democracy

- GC 164 Human Geography
- GC 300 Regional Studies: World Cultures
- GC 305 Regional Studies
- GC 360 Population Geography
- HL 322 International Health Issues
- HS 104 The Third World in Historical Perspective
- HS 126 The United States to 1865
- HS 127 The United States Since 1865
- HS 233 Native American History
- HS 337 American Economic History
- LB 295S Special Topics in Liberal Studies: Social Sciences
- NAS 288 The Politics of Indian Gaming
- NAS 310 Tribal Law and Government
- PS 101 Introduction to Political Science
- PS 105 American Government
- PS 312 War and Peace in the 21st Century
- PS 415 Politics of American Foreign Policy
- PY 100G Psychology as a Social Science
- SO 101 Introductory Sociology
- SO 101H Introductory Sociology–Honors
- SO 111 Civil Life in Democratic Society (2 cr.)
- SO 113 Social Problems
- SO 232 Marriage and the Family
- SO 251 Sport in American Society (2 cr.)
- SO 322 Social Class, Power, and Mobility
- SO 351 Social Change
- SO 355 Introduction to Social Psychology
- SO 372 Minority Groups*

* Does not satisfy the upper division liberal studies requirement.

Division V—Formal Communication Studies

Students take a minimum of three credits from this division. These courses are designed to introduce students to the ways in which information and ideas are expressed using a communication system other than English. Such courses should foster the student's ability to conceptualize and communicate in an orderly, rational manner. Characteristics of a communication system include: (1) possession of a grammar; (2) operation from an established set of rules; (3) reasoning properties such as deduction, inference drawing and problem solving. This division includes courses in languages and those in which the central focus of the course is on statistics, computers or formal logic.

All courses are four credits unless otherwise noted.

Formal Communication Studies Courses

- CHN 101 Elementary Chinese I*
- CIS 110 Principles Computer Information Systems
- CS 101 Web Site Construction
- CS 120 Computer Science I
- CS 120A Accelerated Computer Science I

- CS 255 Computing for the Elementary School Teacher
- FR 101 Elementary French I*
- FR 102 Elementary French II*
- FR 201 Intermediate French I*
- FR 202 Intermediate French II*
- FR 305 Conversational French and Phonetics*
- GR 101 Elementary German I*
- GR 102 Elementary German II*
- GR 201 Intermediate German I*
- GR 202 Intermediate German II*
- GR 305 Conversational German*
- IS 100 Introduction to Windows, E-mail, and the Internet (1 cr.)
- IS 101 Beginning Word Processing (1 cr.)
- IS 102 Beginning Spreadsheets (1 cr.)
- IS 104 Beginning Database (1 cr.)
- IS 105 Presentation/Multimedia Software (1 cr.)
- IS 107 Beginning Desktop Publishing (1 cr.)
- IS 112 Computerized Small Business Accounting (1 cr.)
- IS 120 Computer Concepts (2 cr.)
- IS 202 Intermediate Spreadsheets (1 cr.)
- IS 204 Advanced Database (1 cr.)
- IS 206 Software Integration (1 cr.)
- IS 207 Intermediate Desktop Publishing (1 cr.)
- IS 208 Web Page Development (1 cr.)
- LB 295F Special Topics in Liberal Studies: Formal Communication Studies (2-4 cr.)
- MA 171 Introduction to Probability and Statistics
- NAS 101 Anishinaabe Language, Culture and Communication I*
- NAS 102 Anishinaabe Language, Culture and Communication II*
- POR 110 Elementary Portuguese*
- POR 210 Intermediate Portuguese*
- PL 160 Introduction to Logic
- PY 305 Psychological Statistics
- SN 101 Elementary Spanish I*
- SN 102 Elementary Spanish II*
- SN 201 Intermediate Spanish I*
- SN 202 Intermediate Spanish II*
- SN 305 Conversational Spanish*
- SO 208 Methods of Social Research I

*Equivalent courses in any other foreign language can be used to meet this requirement.

Note: Native speakers of a foreign language may not test out of their native language to receive formal communication studies credit. They may take a CLEP or departmental test in another foreign language to meet this division requirement.

Division VI—Foundations of Visual and Performing Arts

Students take a minimum of three credits from this division. Students completing these courses will be able to identify the forms of artistic expression (e.g., forms of music, dance, painting, sculpture, etc.) in relation to a historical and cultural context; they will also be able to recognize and articulate the reasons why these forms of artistic expression developed and evolved in the manner they did. Further, students will be able to demonstrate and articulate an understanding of the principles behind the evolution of judgment and taste.

All courses are four credits unless otherwise noted.

Visual and Performing Arts Courses

- AD 200 Native American Art and Architecture of the Great Lakes
- AD 250 History of Western Art and Architecture
- AD 260 Why America Looks This Way
- AD 265 Art and Architecture of Japan
- AD 300 Japan and the West: Crosscurrents in Art and Architecture
- AD 355 Twentieth Century Art and Architecture
- AD 365 History of Modern Craft and Design
- BC 325 Communication and Performance in Africa
- EN 125 Introduction to Film
- EN 385 Theatre in Perspective: The Stratford Festival Stage
- LB 295A Special Topics in Liberal Studies: Visual and Performing Arts (2-4 cr)
- MU 125 Music in Society
- MU 320 Survey of Jazz from Its Origin to the Present
- MU 325 World Music
- PE 381 History of Dance (2 cr.)
- PE 383 Theory of Dance (2 cr.)
- TH 130 Introduction to Theatre
- TH 360 History of Theatre
- TH 361 Modern Drama
- TH 385 Theatre in Perspective: The Stratford Festival Stage

Upper Division Liberal Studies Requirement

At least three liberal studies credits must be at the 300 level or above, chosen from the list of courses included in this section. All courses have the prerequisite of sophomore standing and completion of the foundations of communication requirement.

Liberal Studies Information for Transfer Students

Transfer students must earn a minimum total of 30 semester credits in liberal studies courses. A minimum of six semester credits each (two courses) is required for divisions I through IV.

A minimum of three semester credits (one course) is required for each of divisions V and VI. All transfer courses used to meet liberal studies program requirements in divisions II through VI must be introductory or general in nature.

Students who have completed two courses in freshman English and still need partial foundation of communication credit may enroll in EN 298 College Composition Directed Study for one or two credits. Arrangements may be made by contacting the director of freshman English.

All transfer students must earn a C or above in the equivalents of EN 111 and EN 211.

Some majors require courses that meet specific liberal studies requirements. These courses are noted in the listings for each major. Students who have not completed these courses at their previous institution(s) are required to complete them at NMU even if they have completed the liberal studies program requirement of 30 credits. Upon request, the Admissions Office will provide a transfer guide to help students select courses. Information for transfer students, including course equivalents from many colleges and universities is available on the Web page www.nmu.edu/admissions/transfer.

MACRAO Transfer Agreement

Transfer students who complete their general education requirements in Michigan community colleges under the MACRAO (Michigan Association of Collegiate Registrars and Admissions Officers) Transfer Agreement usually will have met the liberal studies requirements in foundations of communication and three other divisions. Transfer students under the MACRAO Transfer Agreement ordinarily must complete two additional liberal studies courses, including at least three credit hours at the 300 level or above.

Northern Michigan University applies courses transferred under MACRAO Transfer Agreement in accordance with guidelines established by NMU faculty.

Graduation Requirements

There are three baccalaureate graduation requirements that students must complete. They are: (1) a laboratory science course; (2) a world cultures course; and (3) the health promotion requirement. While the baccalaureate graduation requirements are not, strictly speaking, part of the liberal studies program, they often can be fulfilled by courses that meet the various divisional liberal studies requirements.

Laboratory Science Course

All baccalaureate students must complete a course that has an approved laboratory component. Laboratory courses are those

listed specifically under division III—foundations of natural sciences/mathematics as having a laboratory.

World Cultures Requirement

Each baccalaureate student must take at least one course of three credits or more designated to meet the world cultures requirement. These courses deal primarily with living cultures of Asia, Africa and the non-Anglo-Saxon Americas. They may include such topics as literary, artistic and other cultural achievements; religious and ethical values; social, economic and political systems; or intellectual and historical trends. At least two-thirds of the content of each course concentrates on patterns of thought and action that account for the distinctive ethos of the world culture(s) being studied. Transfer students seeking approval of a substitute course to meet this requirement should contact the Registrar's Office and provide a course syllabus for the course they wish reviewed.

Students completing the world cultures requirement should be able to:

1. comprehend and articulate the distinctive world view (e.g., values, norms and beliefs) of at least one culture that varies significantly from Anglo-American and Western European cultures;
2. understand how culture is expressed in terms of artifacts, artistic accomplishments, technology, customs and texts;
3. understand and respect social and cultural diversity and complexity in a global context;
4. understand how factors such as racial, ethnic, gender and class differences affect how groups within a culture relate to each other; and
5. articulate the important achievements and contributions of other cultures in such areas as the arts, literature, philosophy, ethical values, religion and science.

World Cultures Courses

- AD 200 Native American Art and Architecture of the Great Lakes (VI)
- AD 265 Art and Architecture of Japan (VI)
- AD 300 Japan and the West: Crosscurrents in Art and Architecture (VI)
- AN 100 Introduction to Socio-Cultural Anthropology (IV)
- AN 210 People, Nature and Culture (IV)
- AN 320 Native Peoples of North America (IV)
- BC 325 Communication and Performance in Africa (IV)
- BC 415 Intercultural Communication
- EN 311Z World Literature in English (II)
- EN 314 Traditional Oral Literatures: Selected Native American Cultures (II)
- EN 316 Native American Novels and Poetry (II)

- EN 317 Native American Drama, Non-fiction and Short Stories (II)
- EN 375Z Diverse Traditions in American Literature (II)
- EN 411Z Topics in World Literature
- GC 164 Human Geography (IV)
- GC 300 Regional Studies: World Cultures (IV)
- HL 322 International Health Issues (IV)
- HS 104 The Third World in Historical Perspective (IV)
- HS 233 Native American History (IV)
- HS 234 Indigenous People of Latin American (II)
- HS 251 Latin American Civilization (II)
- HS 252 Arab-Islamic History (II)
- HS 254 Introduction to the History of Africa (II)
- HS 256 Approaching China (II)
- HS 362 Mexico (II)
- LG 317Z World Studies through Literature in Translation (II)
- MU 325 World Music (VI)
- NAS 204 Native American Experience (II)
- PL 270 World Religions (II)
- PS 404 Politics of East and Southeast Asia
- PS 421 Politics of Developing Countries (IV)
- SN 314 Contemporary Latin American Cultures (II)

Health Promotion Requirements

The university believes that an important part of a liberal education is providing students with knowledge about their health and well being and the opportunities to acquire leisure-time skills that will enrich their quality of life. The health promotion requirement at the baccalaureate level is a two-course sequence. HP 200 Physical Well Being, the first course, is devoted to the theories and proofs associated with maintaining physical wellness. The second course is a physical activity course.

HP 200

HP 200 Physical Well Being is the core course that all baccalaureate degree, associate degree and one-year certificate program students must complete.

Baccalaureate degree students can complete the second course in the health promotion requirement by selecting from a wide variety of activity courses.

Health Promotion Activity Courses

- HP 205 Archery
- HP 206 Backpacking
- HP 207 Badminton-Beginning
- HP 208 Basketball
- HP 209 Bicycling-Mountain
- HP 211 Bowling-Beginning
- HP 212 Flatwater Canoeing
- HP 212S Solo Flatwater Canoeing

- HP 212F Freestyle Canoeing
- HP 213 Sea Kayaking
- HP 216 Skating-Beginning
- HP 216A Skating-Figure
- HP 216B Skating-Intermediate Figure
- HP 217 Fly and Bait Casting
- HP 218 Folk Dance
- HP 219 Golf-Beginning
- HP 222 Hiking
- HP 223 Individually Prescribed Program
- HP 224 Jogging
- HP 226 Modern Dance-Beginning
- HP 226A Modern Dance-Intermediate
- HP 226C Aerobics
- HP 227 Orienteering
- HP 228 Power Skating and Hockey
- HP 229 Racquetball
- HP 230 Rock Climbing
- HP 230A Rock Climbing-Intermediate
- HP 231 Skiing-Beginning
- HP 231A Skiing-Intermediate
- HP 231B Skiing-Cross Country
- HP 232 Snowboarding-Beginning
- HP 233 Snowshoeing
- HP 234 Soccer
- HP 235A Country and Square Dancing
- HP 235B Ballroom and Latin Dancing
- HP 235C Swing and Salsa Dancing
- HP 236 Softball
- HP 238 Winter Camping
- HP 239 Swimming-Beginning
- HP 239A Swimming-Intermediate
- HP 239B Swimming-Lifeguard Training
- HP 239C Swimming-WSI
- HP 239D Swimming-SCUBA
- HP 239E Swimming-Advanced SCUBA (2 cr.)
- HP 241 Tennis-Beginning
- HP 241A Tennis-Intermediate
- HP 242 Touch Football
- HP 244 Volleyball-Beginning
- HP 244A Volleyball-Intermediate
- HP 245 Weight Training and Conditioning
- HP 245A Weight Training and Conditioning-Intermediate
- HP 246 Karate
- HP 247 Yoga-Beginning
- HP 249 Hunter Safety Education
- HP 253 Adventure-Based Learning
- HP 259 Tai Chi-Beginning
- HP 259A Tai Chi-Intermediate
- HP 260 Rape Aggression Defense System
- HP 295 Special Topics in Health Promotion

Maximum Health Promotion Credit

Students in baccalaureate degree programs may count up to six credits of health promotion (HP) courses toward graduation. (Exception: management of health and fitness majors and physical education majors and minors may apply ten credits of HP courses toward graduation.) Students in associate degree programs may apply three credits of HP courses toward graduation, and those in certificate programs may apply two credits of HP courses toward graduation.

Medical Exemption

Students who, in the opinion of the NMU Health Center physician, cannot benefit from any of the health promotion courses may be exempted from either or both of the health promotion courses. Students who receive medical exemption must meet the minimum credits required for their degree, certificate or diploma. The exempted credits are added to general electives.

ACADEMIC INFORMATION SERVICES

DEPARTMENT OFFICE

Lydia Olson Library

Edgar L. Harden Learning Resources Center

Phone: 906-227-2117

Fax: 906-227-1333

Web Page: www.nmu.edu/ais

Dean: Darlene M. Walch • dwalch@nmu.edu



Academic Information Services at NMU

The curriculum in Academic Information Services is designed to enhance all disciplines. Students explore the changing roles of information and work toward goals of information literacy and technological competency. Some courses, such as Introduction to Information Resources, acquaint students with print and electronic resources and information technology. Others provide background for the pursuit of professional degrees in library and information science.

Academic Information Services Courses

The courses Academic Information Services offers are designed to provide library and information skills applicable to a wide range of disciplines. They also provide a knowledge base for students who expect to enter a graduate program in library and information science at another school. NMU does not offer a degree in library and information science.

Department Facilities and Resources

Academic Information Services includes the Lydia Olson Library, University Archives, Academic Computing Services, Instructional Media Services, and Instructional Technology.

Lydia Olson Library

The library contains books and journals and provides access to numerous databases. As a depository for U.S. and Michigan government publications, Olson Library houses government documents and a map collection. The juvenile/young adult collection also has textbooks and media supporting teacher education.

Library facilities include wired and wireless network access for students' laptop computers, study areas, conference rooms, photocopy machines, microform printers, audiovisual and multimedia equipment.

Librarians offer personal guidance in the use of the online catalog, indexes, abstracts, reference sources, online databases and Internet sources. Students are encouraged to seek assistance in accessing and evaluating the many resources available. Library

tours and instructional presentations are offered to help students become familiar with the library and information resources and to help them develop their research skills.

Current information about the Olson Library can be found by going to the library Web site at www.nmu.edu/olsonlibrary.

Academic Computing Services (ACS)

Staff in Academic Computing provides support to students and faculty for general computing needs. Classroom and lab facilities are available, and the Help Desk offers technical and software support for laptop computers. Current information about Academic Computing can be found at www.acs.nmu.edu.

Central Upper Peninsula and Northern Michigan University Archives

The Central Upper Peninsula and Northern Michigan University Archives are under the direction of a professional archivist who manages the records of the university, and collects, organizes, preserves and encourages the use of historical materials relating to NMU and the central Upper Peninsula. Current information is available at www.nmu.edu/archives.

ART AND DESIGN

DEPARTMENT OFFICE

159 Art and Design

Phone: 906-227-2194

Fax: 906-227-2276

Web Page: <http://art.nmu.edu>

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Art and Design at NMU

The objective of the Art and Design Department is to prepare students for participation in the professional fields of art, design and education, broadening the scope of their experience by providing intellectual support for art beyond the limits of studio skills. The department, through Northern Michigan University's DeVos Art Museum, also provides students with exposure to exhibitions exemplifying the cultural breadth of the visual arts from national, regional and local sources, including the university's permanent art collection. Graduates of the program are employed throughout the country in careers ranging from art directors and art teachers to entrepreneurs of large and small enterprises.

Liberal studies and art courses are combined in programs that lead to the bachelor of fine arts, bachelor of arts, bachelor of science, or a two-year associate of applied arts degree. The department also offers the required courses for art teacher certification, a non-teaching art and design minor and an art history minor.

The department provides support courses in the technical communications major (see "Interdisciplinary and Individually Created Programs" section of this bulletin). Information for students interested in a career in architecture can be found in the "Preprofessional Programs" section.

All of the department's faculty members are regionally and nationally recognized for their work.

In each area of concentration, the Art and Design curriculum provides students with a broad knowledge of concepts, social issues, procedures and tools to prepare them for the design and production of art objects at a professional level. Areas of concentration include:

- ceramics
- electronic imaging
- digital cinema
- drawing/painting
- furniture design
- graphic communication
- human centered design
- illustration
- jewelry/metalsmithing/blacksmithing

- photography
- printmaking
- sculpture
- woodworking

Student Organizations

- Art Students League
- National/Michigan Art Education Association

Department Facilities

The Art and Design department has professionally equipped, safe, new, state-of-the-art studios to support 13 concentrations. Equipment includes:

- large induction furnace
- ceramic kilns
- casting and blacksmithing facilities
- computer labs
- woodworking, papermaking, digital video facilities
- photography darkrooms (color and black and white)
- professionally equipped lighting studios
- combination machine lathe and mill
- CNC router

The library collection in Art and Design includes:

- over 10,000 volumes
- 50 journals and periodicals
- large slide collection

The department has the DeVos Art Museum and a museum director for its many national, regional, local, faculty and student exhibitions, as well as the Students' Art Gallery.

Types of Course Offerings

The following courses provide artists with greater depth in the supporting knowledge of the visual arts. The study of humans, their behavior and the context of art are incorporated into the content of all major courses.

Concentration: Courses comprising one studio area or studio concentration—100-, 200-, and seminar-level courses.

Cognates: Courses developing the concepts drawn from sociology, psychology, and the physical sciences that are used by artists.

Art History: Courses devoted to the study of Western and non-Western art and architecture within a historical framework. Since Art and Design is primarily a studio department, art history courses take as their central concern (though not exclusive) concepts that are relevant to the studio artist.

Individual Art Review: A series of courses required of art and design majors to develop at each level as professional artists. All work is evaluated by the faculty.

Associate Research: Courses arranged with the major professor of the studio concentration for students working toward an associate degree. Courses offer an opportunity for students to advance their skills and experience with studio equipment.

Department/Program Policies

Students must purchase supplies individually and/or contribute to a purchasing cooperative for the studio courses in which they are enrolled.

Community college transfers should take liberal studies courses and art courses in the areas of design, drawing and history of western art.

Students majoring in art and design education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Prerequisites for Individual Art Review

Students registering for AD 203 Individual Art Review, AD 303 Individual Art Review and AD 403 Individual Art Review must complete the following prerequisites prior to enrollment:

1. Instructor permission.
2. Receive a grade of "S" in all previous Individual Art Review courses.
3. Complete the required lower cognate courses and their selected studio concentration with a "B-" (2.70) average.

Criteria for Remaining in the Art and Design Program

1. Students in AD 203 Individual Art Review must receive a grade of "S" to proceed into upper-level courses in art and design.
2. Students in AD 303 Individual Art Review must also receive a passing grade of "S."
3. Both courses may be repeated, but students receiving one or more grades of "U" or Withdrawal will not be allowed to continue in the program.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Art and Design Education Major

Teaching certification for K-12 art is obtained by completing a major/minor in art and design and the professional education sequence.

Total Credits Required for Degree	146
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	59
AD 160 Physical Structures and Concepts	4
AD 175 Visual Structures and Concepts	4
AD 270 Social Structures and Concepts	4
AD 470 Value and Visual Form	4
Art History Course	4
<i>Choose from the following:</i>	
AD 200 Native American Art and Architecture of the Great Lakes (4 cr.) [VI]	
AD 250 History of Western Art and Architecture (4 cr.) [VI]	
AD 260 Why America Looks This Way (4 cr.) [VI]	
AD 265 Art and Architecture of Japan (4 cr.) [VI]	
AD 300 Japan and the West: Crosscurrents in Art and Architecture (4 cr.) [VI]	
Individual Art Review	
AD 103 Individual Art Review	1
AD 203 Individual Art Review	2
AD 303 Individual Art Review	2
AD 403 Individual Art Review	2
Art and Design Concentration	16
<i>Specific courses are listed in the "Course Description" section of this bulletin.</i>	
Art and Design Electives	16
100 level art studios, including, if established by adviser, AD 120, AD 122 and AD 134.	
Other Required Courses	8
AD 355 Twentieth Century Art and Architecture [VI]	4
AD 365 History of Modern Craft and Design	4

Professional Education	41
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
AD 248 Introduction to Art Education	4
ED 301 Dimensions of American Education	2
AD 302 Media and Methodology for Art Education	4
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
AD 350 Curriculum Theory and Objectives in Art Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

Note: The art education courses listed above must be taken sequentially.

Art and Design Major with Double Minor

The major in art and design, together with minors in associated fields, prepares students especially well for particular career goals. This planning is done with the aid of faculty advisers.

Total Credits Required for Degree	125
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	43
AD 160 Physical Structures and Concepts	4
AD 175 Visual Structures and Concepts	4
AD 270 Social Structures and Concepts	4
AD 360 Methodology and Visual Form <i>or</i> AD 375 Perception and Visual Form <i>or</i> AD 470 Value and Visual Form	4
Art History Elective	4
<i>Choose from the following:</i>	
AD 200 Native American Art and Architecture of the Great Lakes (4 cr.) [VI]	
AD 250 History of Western Art and Architecture (4 cr.) [VI]	
AD 260 Why America Looks This Way (4 cr.) [VI]	
AD 265 Art and Architecture of Japan (4 cr.) [VI]	
AD 300 Japan and the West: Crosscurrents in Art and Architecture (4 cr.) [VI]	
AD 355 Twentieth Century Art and Architecture (4 cr.) [VI]	
AD 365 History of Modern Craft and Design (4 cr.) [VI]	
Individual Art Review	
AD 103 Individual Art Review	1
AD 203 Individual Art Review	2
AD 303 Individual Art Review	2
AD 403 Individual Art Review	2
Art and Design concentration	16
<i>Specific courses are listed in the "Course Description" section of this bulletin.</i>	
Minor	20
Outside the Art and Design Department	20
Additional Minor	20
Outside the Art and Design Department	20

Art and Design Major with Single Minor

The major-minor combination provides breadth and depth of experience for professional performance while allowing students to minor in an area of art and design according to their interests or specific vocational aims.

Total Credits Required for Degree	125
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major-Minor	63
AD 160 Physical Structures and Concepts	4
AD 175 Visual Structures and Concepts	4
AD 270 Social Structures and Concepts	4
AD 360 Methodology and Visual Form AD 375 Perception and Visual Form <i>or</i> AD 470 Value and Visual Form	4
Art History Electives	8
<i>Choose from the following:</i>	
AD 200 Native American Art and Architecture of the Great Lakes (4 cr.) [VI]	
AD 250 History of Western Art and Architecture (4 cr.) [VI]	
AD 260 Why America Looks This Way (4 cr.) [VI]	
AD 265 Art and Architecture of Japan (4 cr.) [VI]	
AD 300 Japan and the West: Crosscurrents in Art and Architecture (4 cr.) [VI]	
AD 355 Twentieth Century Art and Architecture (4 cr.) [VI]	
AD 365 History of Modern Craft and Design (4 cr.) [VI]	
Individual Art Review	
AD 103 Individual Art Review	1
AD 203 Individual Art Review	2
AD 303 Individual Art Review	2
AD 403 Individual Art Review	2
Art and Design concentration	16
<i>Specific courses are listed in the "Course Description" section of this bulletin.</i>	
Art and Design electives	16
Minor	20
Outside the Art and Design Department	20

Bachelor of Fine Arts Degree

This degree is for students who wish to be fully prepared professionals in the visual arts with the appropriate credentials for participation in professional associations in various fields of art and design. The program combines the advantages of professional art school experience with the university's concern for intellectual support of professional action. It prepares students to participate more broadly in the arts beyond the limits of studio skills.

Total Credits Required for Degree 129

Liberal Studies 30-40
Health Promotion 2

Courses Required for Art and Design B.F.A. 87

General Requirements 59

Individual Art Review
AD 103 Individual Art Review 1
AD 203 Individual Art Review 2
AD 303 Individual Art Review 2
AD 403 Individual Art Review 2

Art and Design Cognates
AD 160 Physical Structures and Concepts 4
AD 175 Visual Structures and Concepts 4
AD 270 Social Structures and Concepts 4

Art and Design Cognate Electives 8
Choose from the following:
AD 360 Methodology and Visual Form (4 cr.)
AD 375 Perception and Visual Form (4 cr.)
AD 470 Value and Visual Form (4 cr.)

Art and Design Concentration 20
Specific courses are listed in the "Course Description" section of this bulletin.

100 Level Course in concentration 4
200 Level Course in concentration 4
300 Level Seminar in concentration 4
400 Level Seminar in concentration 4
B.F.A. Seminar in concentration 4

Art History Electives 12
Choose from the following:
AD 200 Native American Art and Architecture of the Great Lakes (4 cr.) [VI]
AD 250 History of Western Art and Architecture (4 cr.) [VI]
AD 260 Why America Looks This Way (4 cr.) [VI]
AD 265 Art and Architecture of Japan (4 cr.) [VI]
AD 300 Japan and the West: Crosscurrents in Art and Architecture(4 cr.) [VI]
AD 355 Twentieth Century Art and Architecture (4 cr.) [VI]
AD 365 History of Modern Craft and Design (4 cr.) [VI]

Specific Requirements 28

Because of the nature of the differences in the BFA vocational applications, each concentration requires a different set of support courses. The specific requirements for each concentration follow.

BFA Specific Requirements for Areas of Concentration in Art and Design

Ceramics

General Requirements 59
AD 365 History of Modern Craft and Design 4
Required as part of the art history electives.

Specific Requirements 28
AD 116 Sculpture 4
AD 120 Drawing/Illustration 4
AD 216 Sculpture: Bronze and Aluminum Casting 4
AD 220 Drawing/Illustration 4
Metalworking or Woodworking Elective 4

Art and Design Electives 8

Digital Cinema

General Requirements 59

Specific Requirements 28
AD 117 Photography: Black and White 4
AD 118 Introduction to Graphic Communication 4
AD 134 Electronic Imaging: Introduction 4
AD 234 Electronic Imaging: Web Design 4
AD 334 Electronic Imaging: 3D 4

Art and Design Electives 8
Students may substitute broadcasting, theater or music courses with adviser approval.

Drawing and Painting

General Requirements 59
AD 250 History of Western Art and Architecture 4
AD 355 Twentieth Century Art and Architecture 4

Both are required as part of the art history electives.

Specific Requirements 28
AD 115 Printmaking: Serigraphy and Intaglio 4
AD 117 Photography: Black and White 4
AD 122 Ceramics: Handbuilding Techniques *or* 4
AD 116 Sculpture *or*
AD 118 Introduction to Graphic Communication

Art and Design Electives 16

Electronic Imaging

General Requirements 59

Specific Requirements 28
AD 120 Drawing/Illustration 4
AD 117 Photography: Black and White 4
AD 118 Introduction to Graphic Communication *or* 4
AD 218 Graphic Communication: Studio Practices

Art and Design Electives 16

Students may substitute computer science and mathematics courses with adviser approval.

Furniture Design

General Requirements	59
AD 360 Methodology and Visual Form	4
<i>Required as part of the cognate electives.</i>	
AD 365 History of Modern Craft and Design	4
<i>Required as part of the art history electives.</i>	

Specific Requirements	28
AD 116 Sculpture	4
AD 120 Drawing/Illustration	4
AD 134 Electronic Imaging: Introduction <i>or</i>	4
AD 118 Introduction to Graphic Communication <i>or</i>	
AD 334 Electronic Imaging: 3D	

Art and Design Electives	16
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Graphic Communication

General Requirements	59
AD 365 History of Modern Craft and Design	4
<i>Required as part of the art history electives.</i>	

Specific Requirements	28
AD 117 Photography: Black and White	4
AD 120 Drawing/Illustration	4
AD 134 Electronic Imaging: Introduction	4
AD 234 Electronic Imaging: Web Design	4

Art and Design Electives	12
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Human Centered Design

General Requirements	59
EN 211D Technical Report Writing [I]	4
TE 351 Humanity and Technology [II]	4
AD 260 Why America Looks This Way	4
<i>Required as part of the art history electives.</i>	
AD 360 Methodology and Visual Form	4
<i>Required as part of the cognate electives.</i>	
AD 365 History of Modern Craft and Design	4
<i>Required as part of the art history electives.</i>	

Specific Requirements	28
AD 120 Drawing/Illustration	4
AD 122 Ceramics: Handbuilding Techniques <i>or</i>	4
AD 123 Jewelry/Metalsmithing <i>or</i>	
AD 124 Woodworking: Joinery and Greenwood	
AD 134 Electronic Imaging: Introduction	4
AD 216 Sculpture: Bronze and Aluminum Casting <i>or</i>	4
AD 222 Ceramics: Wheelforms <i>or</i>	
AD 223 Blacksmithing/Metalsmithing <i>or</i>	
AD 224 Woodworking: Turning and Bending	
MF 134 Manufacturing Process	4
DD 100 Technical Drafting with Introduction to CAD	4
DD 202 Product Development and Design	4

Illustration

General Requirements	59
AD 250 History of Western Art and Architecture	4
AD 355 Twentieth Century Art and Architecture	4
AD 365 History of Modern Craft and Design	4

All are required as part of the art history electives.

Specific Requirements	28
AD 114 Painting	4
AD 117 Photography: Black and White	4
AD 134 Electronic Imaging: Introduction	4
AD 234 Electronic Imaging: Web Design	4
AD 334 Electronic Imaging: 3D	4
AD 434 Electronic Imaging: Seminar	4
AD 116 Sculpture <i>or</i>	4
AD 122 Ceramics: Handbuilding Techniques <i>or</i>	
AD 123 Jewelry/Metalsmithing <i>or</i>	
AD 124 Woodworking: Joinery and Greenwood	

Jewelry, Metalsmithing and Blacksmithing

General Requirements	59
AD 365 History of Modern Craft and Design	4
<i>Required as part of the art history electives.</i>	

Specific Requirements	28
AD 116 Sculpture	4
AD 120 Drawing/Illustration	4
AD 216 Sculpture: Bronze and Aluminum Casting	4
WD 140 Introduction to Welding	4

Art and Design Electives	12
Students may substitute engineering technology courses with adviser approval.	

Photography

General Requirements	59
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Specific Requirements	28
AD 118 Introduction to Graphic Communication	4
AD 121 Digital Cinema: Introduction	4
AD 134 Electronic Imaging: Introduction	4
AD 221 Digital Cinema: Animation <i>or</i>	4
AD 234 Electronic Imaging: Web Design	

Art and Design Electives	12
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Printmaking

General Requirements	59
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Specific Requirements	28
AD 117 Photography: Black and White	4
AD 120 Drawing/Illustration	4
AD 220 Drawing/Painting	4
AD 320 Drawing/Painting/Papermaking Seminar	4

Art and Design Electives	12
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Sculpture

General Requirements	59
AD 355 Twentieth Century Art and Architecture	4
<i>Required as part of the art history electives.</i>	

Specific Requirements	28
AD 120 Drawing/Illustration	4
AD 122 Ceramics: Handbuilding Techniques	4

AD 123 Jewelry/Metalsmithing	4
AD 223 Jewelry/Metalsmithing/Blacksmithing: Functional/Ornamental	4
WD 140 Introduction to Welding	4

Art and Design Electives 8
Students may substitute industrial technology courses with adviser approval.

Woodworking

General Requirements	59
AD 360 Methodology and Visual Form <i>Required as part of the cognate electives.</i>	4
AD 365 History of Modern Craft and Design <i>Required as part of the art history electives.</i>	4

Specific Requirements	28
AD 111 Human Centered Design: Shelters <i>or</i> AD 211 Human Centered Design: Social Goods	4
AD 116 Sculpture	4
AD 120 Drawing/Illustration	4

Art and Design Electives 16

Art and Design Associate Degree Program *Associate of Applied Arts*

This two-year art curriculum leads to an associate degree in one of three area majors: **media illustration**—electronic imaging, drawing/painting, illustration, printmaking; **crafts**—ceramics, sculpture, metalworking, woodworking, furniture design; or **industrial media**—electronic imaging (publishing, modeling), graphic communication, photography, digital cinema, human centered design.

Total Credits Required for Degree 62-66*

Liberal Studies	12
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities Elective	4

Health Promotion	1
HP 200 Physical Well Being	1

Cognates	12
AD 160 Physical Structures and Concepts	4
AD 175 Visual Structures and Concepts	4
AD 270 Social Structures and Concepts	4

Major Concentration 25-29*

Choose from area majors Media Illustration, Crafts or Industrial Media.*

AD 100 and 200 level courses in preferred studio area	8
AD 103 Individual Art Review	1
AD 299 Associate Research	4
AD 100-level courses in any of the non-preferred studio areas within the chosen major	12
AD 219 Illustration Forms	4

Media Illustration concentration only

Other Required Courses	12
AD 200 Native American Art and Architecture of the Great Lakes <i>or</i> AD 250 History of Western Art and Architecture <i>or</i> AD 260 Why America Looks This Way <i>or</i> AD 265 Art and Architecture of Japan	4

Art and Design Electives 8
Choose a 100 or 200 level courses from each of the two areas not chosen for the major.

**The media illustration concentration requires one additional course.*

MINOR PROGRAMS

Art and Design Minor

Total Credits Required for Minor 20

AD 175 Visual Structures and Concepts	4
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Art and Design Electives 16

Students can either (1) choose from a broad range of art history and studio courses or (2) develop skills at a more advanced level by selecting all courses from a single area of concentration.

Note: This minor is not approved for teacher certification.

Art History Minor

The art history minor offers a unique combination of art history classes that address the varied interests of students. All courses within the minor are taught in a way that is relevant to the art major as well as the general student population.

Total Credits Required for Minor 20

AD 175 Visual Structures and Concepts	4
AD 300 Japan and the West* <i>or</i> AD 355 Twentieth Century Art and Architecture (4 cr.) <i>or</i> AD 365 History of Modern Craft and Design (4 cr.)	4

Art and Design Electives 12

Choose from the following:

AD 200 Native American Art and Architecture of the Great Lakes (4 cr.)	
AD 250 History of Western Art and Architecture (4 cr.)	
AD 260 Why America Looks This Way (4 cr.)	
AD 265 Art and Architecture of Japan* (4 cr.)	
AD 300 Japan and the West: Crosscurrents in Art and Architecture (4 cr.)	
AD 355 Twentieth Century Art and Architecture (4 cr.)	
AD 365 History of Modern Craft and Design (4 cr.)	

**Students may not apply both AD 265 and AD 300 toward the minor.*

BIOLOGY

DEPARTMENT OFFICE

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Biology at NMU

The Biology Department offers programs leading to the bachelor of arts, bachelor of science and master of science in biology. The department offers four separate majors: biology, botany, zoology and biology/secondary education. Students with a biology major have the opportunity for further specialization by choosing from one of four concentrations: general biology, ecology, microbiology and physiology. The department also contributes course work to interdisciplinary programs in water science, biochemistry, environmental science, diagnostic genetics and science technologist. The department offers three minor programs of study: biology, human biology and biology education. The offerings complement programs in nursing, health, liberal arts and sciences, physical education, clinical laboratory sciences, and environmental conservation, among others. The courses emphasize fundamental concepts of biology at the subcellular, organismic and population levels. The laboratory courses provide students with first-hand experience in understanding biological concepts, thus furthering their understanding of life.

Biologists should have a knowledge of organisms at all levels ranging from molecular activities within cells to ecosystem dynamics. For this reason, the biology tracks and the botany and zoology majors are built around a common core of courses. The remaining courses for the major are selected to satisfy the student's interests and career plans. A strong background in the physical sciences is helpful to a biological career.

Student Organizations

- Pre-Dental Club
- Pre-Medical Club
- Pre-Veterinary Club
- Student Michigan Education Association
- Tri Beta Society
- Wildlife Society

Department Facilities

- greenhouse
- herbarium
- Lake Superior research boat
- Longyear Forest
- molecular biology facilities
- small-animal facility
- zoological collections

Department/Program Policies

A 2.00 grade point average is required for all biology courses taken for any non-teaching major in the department. Exceptions must be requested via petition to the department's academic programs committee. Students majoring in secondary education biology or minoring in biology education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minor and required cognates combined.

Students enrolled in biology laboratory courses must pay replacement costs for damaged supplies (e.g., glassware and microscope slides) or equipment (e.g., microscopes) having value in excess of one dollar. Records of assessments for damage are maintained in the department, and students are notified of any costs due no later than the last laboratory meeting.

Recommendation for Students Bound for Graduate School

Students who plan to apply to a professional school or pursue graduate work in biology are strongly advised to take Organic Chemistry I and II (CH 321, 322) and a year of physics.

Many graduate programs in the biological sciences, including the one at Northern Michigan University, require the Graduate Record Examination (GRE) for admission. Students intending to pursue graduate study in the biological sciences should take this examination early in their senior year.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

General Biology Major

This major provides an opportunity for a diversified background in biology, applicable to a wide range of introductory positions of employment in business and industry, hospitals, universities, the military and government at the local, state and federal levels. It also provides excellent preparation for graduate work in biology or related sciences.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	43-45
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 218 Introduction to Cell and Molecular Biology	4
BI 312 Genetics	4
BI 315 Evolution	4
<i>Choose from the following:</i>	4
BI 313 Cell Biology (4 cr.)	
BI 327 Animal Physiology (4 cr.)	
BI 431 Plant Physiology (4 cr.)	
<i>Choose from the following:</i>	4
BI 230 Plant Kingdom (4 cr.)	
BI 430 Plant Anatomy (4 cr.)	
BI 434 Plant Ecology (4 cr.)	
<i>Choose from the following:</i>	3-4
BI 221 Comparative Anatomy (4 cr.)	
BI 321 Embryology (4 cr.)	
BI 322 Vertebrate Zoology (4 cr.)	
BI 324 Invertebrate Zoology (4 cr.)	
BI 423 Parasitology (3 cr.)	
BI 424 Entomology (4 cr.)	
BI 427 Ecological Animal Physiology (4 cr.)	
BI 460 Ichthyology (4 cr.)	
BI 461 Herpetology (3 cr.)	
BI 462 Ornithology (3 cr.)	
BI 463 Mammalogy (3 cr.)	
BI 465 Aquatic Insect Ecology (4 cr.)	
<i>Choose from the following:</i>	5
BI 203 Medical Microbiology (5 cr.)	
BI 303 General Microbiology (5 cr.)	

Biology Electives	3-4
Any BI course at the 200 level or above except for BI 206 and BI 305 [III]	

Other Required Courses	28
CH 111 General Chemistry I* [III]	5
CH 112 General Chemistry II* [III]	5
Chemistry electives numbered 215 or above	8
PH 201, PH 202 College Physics I and II [III] <i>or</i>	10
PH 220, PH 221 Introductory Physics I and II [III]	

**Transfer students may satisfy this requirement with a minimum of 4 credit hours.*

Biology Major–Ecology Emphasis

This major provides a background for further study or for introductory positions of employment in fish and wildlife management, forestry, environmental science and other natural resource fields. Students interested in a career in wildlife biology should obtain information from the Biology Department on course selection for certification as an associate wildlife biologist by the Wildlife Society.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	50-52
Core	
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 218 Introduction to Cell and Molecular Biology	4
BI 310 Ecology Theory and Methods	4
BI 312 Genetics	4
BI 315 Evolution	4
Physiology Elective	
<i>Choose from the following</i>	4
BI 327 Animal Physiology (4 cr.)	
BI 431 Plant Physiology (4 cr.)	
Conservation and Management Elective	
<i>Choose from the following:</i>	4
BI 240 Conservation Biology (4 cr.)	
BI 441 Fisheries Management (4 cr.)	
BI 442 Wildlife Management (4 cr.)	
Behavioral, Population and Community Ecology Elective	
<i>Choose from the following:</i>	4
BI 402 Microbial Ecology (4 cr.)	
BI 428 Behavioral Ecology (4 cr.)	
BI 434 Plant Ecology (4 cr.)	
BI 465 Aquatic Insect Ecology (4 cr.)	
Ecosystems Elective	
<i>Choose from the following:</i>	4

- BI 410 Ecology of the Great Lakes (4 cr.)
- BI 411 Limnology (4 cr.)
- BI 435 Boreal Ecosystems (4 cr.)

Taxonomic and Organismal Biology Electives

Choose 6-8 credits from groups above or from the following:

- BI 230 Plant Kingdom (4 cr.)
- BI 322 Vertebrate Zoology (4 cr.)
- BI 324 Invertebrate Zoology (4 cr.)
- BI 423 Parasitology (3 cr.)
- BI 424 General Entomology (4 cr.)
- BI 427 Ecological Animal Physiology (4 cr.)
- BI 433 Boreal Flora (2-3 cr.)
- BI 460 Ichthyology (4 cr.)
- BI 461 Herpetology (3 cr.)
- BI 462 Ornithology (3 cr.)
- BI 463 Mammalogy (3 cr.)
- BI 390 Field Experience (1-2 cr.)
- BI 498 Directed Studies (1-4 cr.)
- BI 499 Internship (1-6 cr.)

Other Required Courses

- CH 111 General Chemistry I* [III] 5
- CH 112 General Chemistry II* [III] 5
- CH 220 Introductory Organic Chemistry (5 cr.) *or* 4-5
 - CH 321 Organic Chemistry I (4 cr.)
- MA 171 Introduction to Probability and Statistics [V] 4
- PH 201 College Physics I [III] *or* 5
 - PH 220 Introductory Physics I [III]

Electives

Choose from the following:

- GC 202 Soils (4 cr.)
- GC 225 Introduction to Maps (2 cr.)
- GC 255 Physical Geology (4 cr.) [III]
- GC 335 Geographic Information Systems (4 cr.)
- GC 401 Biogeography (4 cr.)

**Transfer students may satisfy this requirement with a minimum of 4 semester hours.*

Biology Major–Microbiology Emphasis

This major is appropriate for pre-professional students in pre-medicine, pre-dentistry, and pre-veterinary medicine. It provides a foundation for introductory positions of employment in such fields as pharmaceuticals, manufacturing of biological products, and monitoring of health and environmental standards. It can also serve as a foundation for graduate studies in special areas of microbiology.

Total Credits Required for Degree 124

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 44

- BI 111 Introductory Biology: Principles [III] 4
- BI 112 Introductory Biology: Diversity [III] 4
- BI 210 Principles of Ecology 4
- BI 218 Introduction to Cell and Molecular Biology 4
- BI 303 General Microbiology 5
- BI 312 Genetics 4
- BI 315 Evolution 4

Biology Electives 15

Choose from the following:

- BI 203 Medical Microbiology (5 cr.)
- BI 313 Cell Biology (4 cr.)
- BI 327 Animal Physiology (4 cr.)
- BI 402 Microbial Ecology (4 cr.)
- BI 404 Virology (3 cr.)
- BI 405 Immunology (3 cr.)
- BI 413 Biochemistry of Development (4 cr.)
- BI 418 Molecular Biology (4 cr.)
- BI 423 Parasitology (3 cr.)
- BI 431 Plant Physiology (4 cr.)

Other Required Courses 32

- CH 111 General Chemistry I* [III] 5
- CH 112 General Chemistry II* [III] 5
- CH 321 Organic Chemistry I 4
- CH 322 Organic Chemistry II 4
- CH 450 Introductory Biochemistry 4
- PH 201, 202 College Physics I and II [III] *or* 10
 - PH 220, 221 Introductory Physics I and II [III]

**Transfer students may satisfy this requirement with a minimum of 4 credit hours.*

Biology Major–Physiology Emphasis

This major is appropriate for pre-professional students in pre-medicine, pre-dentistry, pre-veterinary medicine, pre-optometry and physical therapy. It provides a foundation for introductory positions of employment in such fields as biomedical research, food and drug manufacturing, nutrition and sports physiology. It can also serve as a basis for graduate studies in developmental biology, physiological ecology, embryology and molecular biology.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	43-45
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 218 Introduction to Cell and Molecular Biology	4
BI 221 Comparative Anatomy (4 cr.) <i>or</i> BI 201 Human Anatomy (3 cr.)	3-4
BI 327 Animal Physiology (4 cr.) <i>or</i> BI 202 Human Physiology (5 cr.)	4-5
BI 312 Genetics	4
BI 313 Cell Biology <i>or</i> BI 431 Plant Physiology (4 cr.)	4
BI 315 Evolution	4
Biology Electives	8
<i>Choose from the following:</i>	
BI 201 Human Anatomy (3 cr.)	
BI 202 Human Physiology (5 cr.)	
BI 203 Medical Microbiology (5 cr.)	
BI 221 Comparative Anatomy (4 cr.)	
BI 225 Physiology of Aging (3 cr.)	
BI 303 General Microbiology (5 cr.)	
BI 313 Cell Biology (4 cr.)	
BI 321 Embryology (4 cr.)	
BI 327 Animal Physiology (4 cr.)	
BI 405 Immunology (3 cr.)	
BI 413 Biochemistry of Development (4 cr.)	
BI 416 Experimental Cytogenetics (2-3 cr.)	
BI 418 Molecular Biology (4 cr.)	
BI 419 Biology of Cancer (4 cr.)	
BI 425 Endocrinology (3 cr.)	
BI 426 Human Histology (4 cr.)	
BI 427 Ecological Animal Physiology (4 cr.)	
BI 431 Plant Physiology (4 cr.)	
Other Required Courses	32
CH 111 General Chemistry I* [III]	5
CH 112 General Chemistry II* [III]	5
CH 321-322 Organic Chemistry I and II <i>or</i> CH 220 Introductory Organic Chemistry plus 3 additional chemistry credits	8
CH 450 Introductory Biochemistry	4
PH 201, PH 202 College Physics I and II [III] <i>or</i> PH 220, PH 221 Introductory Physics I and II [III]	10

*Transfer students may satisfy this requirement with a minimum of 4 semester hours.

Botany

This program provides an opportunity for a diversified background in botany applicable to a wide range of introductory positions in business and industry, universities and government at the local, state and federal levels. It also provides preparation for graduate work in botany or related sciences.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	44
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 218 Introduction to Cell and Molecular Biology	4
BI 312 Genetics	4
BI 315 Evolution	4
BI 431 Plant Physiology	4
Biology Electives	11-12
<i>Choose from the following:</i>	
BI 230 Plant Kingdom (4 cr.)	
BI 430 Plant Anatomy (4 cr.)	
BI 433 Boreal Flora (3 cr.)	
BI 434 Plant Ecology (4 cr.)	
Biology Electives	4-5
Any BI course above 220 except for BI 305	
Other Required Courses	28
CH 111 General Chemistry I* [III]	5
CH 112 General Chemistry II* [III]	5
Chemistry Electives 200 level or above	8
PH 201, 202 College Physics I and II [III] <i>or</i> PH 220, 221 Introductory Physics I and II [III]	10

*Transfer students may satisfy this requirement with a minimum of 4 credit hours.

Secondary Education Biology Major

Successful completion of this major's biology courses and the professional education sequence leads to certification as a secondary school teacher in biology. Students in this program must select an academic minor in another department. A minor in chemistry education is recommended. Advising for this major is provided by Carolyn J. Lowe in the School of Education.

Total Credits Required for Degree	145
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	40
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 312 Genetics	4
BI 315 Evolution	4
BI 203 Medical Microbiology <i>or</i>	5
BI 303 General Microbiology (5 cr.)	
BI 327 Animal Physiology <i>or</i>	4
BI 313 Cell Biology (4 cr.) <i>or</i>	
BI 431 Plant Physiology (4 cr.)	
Biology Electives	11
Chemistry Electives	18
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
Chemistry Electives (200 level and above)	8
Physics Electives	10
PH 201 College Physics I [III]	5
PH 202 College Physics II [III]	5
Other Required Courses	4
<i>Choose from the following:</i>	
AS 103 Observational and Solar System Astronomy (4 cr.) [III]	
GC 100 Physical Geography (4 cr.) [III]	
GC 225 Introduction to Maps (2 cr.)	
GC 246 Earth Science (4 cr.) [III]	
GC 255 Physical Geology (4 cr.) [III]	
GC 260 Minerals and Rocks (4 cr.)	
GC 390 Oceanography (2 cr.)	
Teaching Minor, minimum	20-24
Professional Education	37
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
MSED 340 Fundamental Concepts in Science	4
MSED 350 Methods and Materials in the Teaching of Science Education	4

Zoology Major

This major provides a foundation for introductory positions of employment in museums, zoos, universities and state and federal agencies involved in fish, wildlife and other natural resource use. It is an appropriate program for pre-medicine, pre-dentistry, and pre-veterinary science students. It also provides a solid background for students who wish to pursue graduate studies in special areas of zoology.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	44
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 218 Introduction to Cell and Molecular Biology	4
BI 312 Genetics	4
BI 315 Evolution	4
BI 327 Animal Physiology <i>or</i>	4
BI 313 Cell Biology (4 cr.)	
<i>Choose from the following:</i>	3-4
BI 324 Invertebrate Zoology (4 cr.)	
BI 423 Parasitology (3 cr.)	
BI 424 Entomology (4 cr.)	
BI 465 Aquatic Insect Ecology (4 cr.)	
<i>Choose from the following:</i>	3-4
BI 322 Vertebrate Zoology (4 cr.)	
BI 460 Ichthyology (4 cr.)	
BI 461 Herpetology (3 cr.)	
BI 462 Ornithology (3 cr.)	
BI 463 Mammalogy (3 cr.)	
<i>Choose from the following:</i>	4
BI 221 Comparative Anatomy (4 cr.)	
BI 321 Embryology (4 cr.)	
BI 426 Human Histology (4 cr.)	
BI 427 Ecological Animal Physiology (4 cr.)	
Biology Electives	4-5
Any BI courses above 220.	
Other Required Courses	28
CH 111 General Chemistry I* [III]	5
CH 112 General Chemistry II* [III]	5
Chemistry Electives 200 level or above	8
PH 201, PH 202 College Physics I and II [III] <i>or</i> PH 220, PH 221 Introductory Physics I, II [III]	10
<i>*Transfer students may satisfy this requirement with a minimum of 4 semester hours.</i>	

MINOR PROGRAMS

Biology Minor

Total Credits Required for Minor	20
BI 111 Introductory Biology: Principles	4
BI 112 Introductory Biology: Diversity	4
Biology Electives	12

Biology Education Minor

Total Credits Required for Minor	20-29
BI 111 Introductory Biology: Principles	4
BI 112 Introductory Biology: Diversity	4
BI 210 Principles of Ecology	4
BI 312 Genetics	4
Biology Electives	4-5

Choose from the following:

BI 202 Human Physiology (5 cr.)	
BI 303 General Microbiology (5 cr.)	
BI 313 Cell Biology (4 cr.)	
BI 315 Evolution (4 cr.)	
BI 327 Animal Physiology (4 cr.)	
BI 431 Plant Physiology (4 cr.)	
MSED 340 Fundamental Concepts in Science*	4
MSED 350 Methods and Materials in the Teaching of Science Education*	4

**Not required if major is chemistry education, earth science education, physics education or integrated science education.*

Human Biology Minor

A minor in human biology provides students with an introduction to the human body. Students who minor in human biology will have a strong introduction to the clinical sciences.

Total Credits Required for Minor	20-21
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
Biology Electives	12-13

Choose credits from the following:

BI 203 Medical Microbiology (5 cr.)	
BI 206 Human Genetics (3 cr.)	
BI 312 Genetics (4 cr.)	
BI 321 Embryology (4 cr.)	
BI 405 Immunology (3 cr.)	
BI 425 Endocrinology (3 cr.)	
BI 426 Human Histology (4 cr.)	

WALKER L. CISLER COLLEGE OF BUSINESS

COLLEGE OFFICE

301 Cohodas Administrative Center

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Web Page: www.nmu.edu/business

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Coordinator of Student Affairs and Internships:

Charles R. Rayhorn • crayhorn@nmu.edu

College of Business at NMU

The goal of the Walker L. Cislser College of Business is to prepare students for successful careers through excellence in teaching, learning and research. The college offers degree programs that foster intellectual curiosity, leadership, ethical behavior and global awareness, as well as provide quality content knowledge and develop problem solving, decision making and communication skills. Students are encouraged to work together on class projects, pursue internship opportunities and participate in college and university study abroad experiences.

The college's programs of study include eleven baccalaureate majors, eight minors, four associate degrees, and one certificate program. Each provides the student with a concentration of knowledge and skills in one of the many aspects of the business world.

The College of Business is accredited by the Association to Advance Collegiate Schools of Business. It is one of about 400 business programs worldwide and one of about 35 undergraduate-only programs to have this accreditation.

Student Organizations

- Accounting and Finance Club
- Association of Information Technology Professionals
- Beta Alpha Psi
- Beta Gamma Sigma
- Business Professionals of America
- Collegiate Chapter of the American Marketing Association
- Institute for Managerial Accountants/Accounting Club
- Pi Omega Pi Honorary Society
- Student Michigan Education Association

College Facility

- Business Research and Analysis Center

College/Program Policies

Admission to the College of Business

Admission to the university does not guarantee admission to the College of Business. All baccalaureate majors with the exception of business education must apply for admission.

To be eligible for admission, applicants must:

1. Successfully complete the following pre-admission courses: College Composition I and II (EN 111, 211); Finite Mathematics (MA 103); Introduction to Probability and Statistics (MA 171); Principles of Accounting I and II (ACT 230, 240); Microeconomic/Macroeconomic Principles (EC 201, 202); four credits of IS courses (except CIS majors); eight credits of liberal studies courses; and other elective credits to total 48 semester credit hours.
2. Complete the 48 semester credits listed above with a minimum grade point average of 2.25. Current enrollment can count toward meeting the minimum requirements; however, formal admission will not be granted until after successful completion of the minimum credits.

Note: Petition for exception to the above requirements must be made in writing and submitted to the Registrar's Office. The petition must include reasons why an exception should be made and documentation of the reasons, if applicable.

Application Deadlines

Applications must be submitted by the following dates: For fall semester, February 15; winter semester, October 1; summer session, February 15. Applications received after these dates will not be acted upon until the following semester. Application forms are obtained at the College of Business office.

Other Policies

1. College of Business majors cannot enroll in NMU business courses at the 300 level or above until they have been admitted to the college and have attained junior status (56 hours).
2. In order to receive a degree from the College of Business, students must complete at least 32 credit hours (24 within the College of Business) after admission to the college.
3. Students seeking a second bachelor's degree must be admitted to the College of Business.
4. Students who drop enrollment from NMU and subsequently re-enroll as a business major at a later date (re-entry students) must reapply for admission to the College of Business.
5. Baccalaureate degree students must take a minimum of 62 credit hours in courses outside the College of Business.
6. All CIS courses except CIS 110 are invalid after seven years.

Grade Point Average Requirements

Associate degree students must earn a 2.00 grade point average in all business courses.

CIS majors or minors and CIS associate degree students must earn a minimum grade of "C-" in each CS/CIS/IS course applying to their CIS major, minor or associate degree.

Students majoring in secondary education business must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minor and required cognates combined.

All other baccalaureate degree students must obtain a 2.00 GPA in their business core and major courses as well as a 2.00 cumulative Northern Michigan University GPA.

All business minors must earn a 2.00 GPA.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Business Core Requirements for all Bachelor Degree Programs (Except Business Secondary Education)

Total Credits Required for Core	21
ACT 230 Principles of Accounting I	3
ACT 240 Principles of Accounting II	3
FIN 351 Management of Financial Resources	3
MGT 221 Business Law I: Legal Environment of Business	3
MGT 225 Operations Management	3
MKT 230 Introduction to Marketing	3
MGT 240 Organizational Behavior and Management	3

Accounting Major

This major provides basic competency in the functional areas of accounting and provides students with the minimum requirements to sit for professional examinations such as the CPA and CMA examinations. This major prepares students for such career opportunities as certified public accountant (CPA), cost analyst, controller, financial analyst, senior accountant, and vice president for finance and accounting.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Accounting	30
ACT 301 Financial Accounting I	4
ACT 302 Financial Accounting II	4
ACT 311 Cost Accounting	4
ACT 321 Federal Income Taxation	4
ACT 403 Accounting III	4
ACT 441 Auditing	4
ACT Electives*	6
Other Business Requirements	4
IS Electives** [V]	4
Business Electives**	6
Other Required Courses	28
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication (4 cr.)	
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III] <i>or</i>	4
MA 104 College Algebra with Applications in the Sciences and Technologies (4 cr.) [III] <i>or</i>	
MA 105 College Algebra for Calculus Preparation (4 cr.) [III] <i>or</i>	
MA 115 Pre-Calculus (4 cr.) [III] <i>or</i>	
MA 161 Calculus I (4 cr.) [III]	
MA 171 Introduction to Probability and Statistics [V]	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i>	4
PY 100G Psychology as a Social Science [IV]	
SO 101 Introductory Sociology [IV] <i>or</i>	4
SO 113 Social Problems [IV]	
General Electives (outside the College of Business)	9

*Courses will be chosen with the consent of the adviser and must include two 300 or 400 level ACT courses, excluding ACT 491.

**See adviser for courses required.

Accounting/Computer Information Systems Major

This major provides a basic competency in the functional areas of accounting and computer information systems and provides students with the minimum requirements to obtain employment and to sit for professional examinations. Expertise in both accounting and computer information systems can lead to positions such as controller, cost analyst, director of information systems, computer programmer and systems analyst, to name a few.

Total Credits Required for Degree	150
Liberal Studies	30-40
Health Promotion	2
Business Core	21

Accounting	20
ACT 301 Financial Accounting I	4
ACT 302 Financial Accounting II	4
ACT 311 Cost Accounting	4
ACT 403 Accounting III	4
ACT 441 Auditing	4
CIS	17
IS 120 Computer Concepts [V]	2
CIS 220 Network Concepts	2
CIS 155 Software Development with Databases	4
CIS 250 Systems Development I	4
CIS 255 Systems Development II	4
CIS 464 Database Management Systems	3
Other Business Requirements	8-11
ACT/CIS Electives-300 level or above or approval of adviser or MGT 344 Managerial Communications. ACT 321 Federal Income Taxation, ACT 422 Advanced Federal Taxation and ACT 431 Accounting Information Systems are recommended for the CPA exam.	
Business Electives	6
ACT 482 Accounting for Non-Profit Enterprises and ACT 484 Current Developments in Accounting are recommended for the CPA Exam.	
Other Requirements	0-3
Students must demonstrate competency in Windows, E-mail, Internet and spreadsheets through placement tests or by completing IS 100, IS 102 and IS 202.	
Other Required Courses	20
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication (4 cr.) <i>or</i>	
SP 120 Small Group Process (4 cr.) <i>or</i>	
SP 220 Interviewing (4 cr.)	
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
General Electives (outside the College of Business)	21

**Accounting/Corporate Finance Major
(pending approval)**

This major provides students with basic competency in the functional areas of accounting and corporate finance. It provides students with the minimum requirements to obtain employment and to sit for professional examinations such as the CPA exam.

Total Credits Required for Degree	150
Liberal Studies	30-40
Health Promotion	2
Business Core	21

Finance Electives	20
<i>Choose from the following with adviser approval:</i>	
FIN 352 Financial Management (4 cr.)	
FIN 354 Money and Capital Markets (4 cr.)	
FIN 413 New Venture Finance: Capital Formation (3 cr.)	
FIN 420 Financial Statement Planning (3 cr.)	
FIN 458 International Financial Management (3 cr.)	
FIN 460 Employee Benefits & Retirement Planning (3 cr.)	
FIN 461 Management of Financial Institutions (3 cr.)	
FIN 462 Investment Analysis (4 cr.)	
FIN 463 Portfolio Management (3 cr.)	
FIN 491 Internship in Finance (1-4 cr.)	
FIN 495 Special Topics in Finance (1-4 cr.)	
FIN 498 Directed Study in Finance (1-4 cr.)	
Accounting	33
ACT 301 Accounting I	4
ACT 302 Accounting II	4
ACT 403 Accounting III	4
ACT 311 Cost Accounting	4
ACT 321 Taxation	4
ACT 441 Auditing	4
ACT 422 Advanced Tax	3
ACT 431 Accounting Information Systems	3
ACT 482 Accounting for Non-Profit Entities	3
Other Requirements	4
IS Credits or CIS 110	4
Other Required Courses	24
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication <i>or</i>	
SP 220 Interviewing	
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
SO 101 Introductory Sociology [IV]	4
General Electives (outside the College of Business)	9

Accounting/Financial Planning Major

This major provides students with basic competency in the functional areas of accounting and financial planning and provides students with the minimum requirements to obtain employment and to sit for professional examinations such as the CPA and CFP exams.

Total Credits Required for Degree	150
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Financial Planning	20
FIN 355 Insurance	3
FIN 450 Estate Planning	3
FIN 462 Investments	4
FIN 460 Employee Benefits and Retirement Planning	3

FIN 424 Capstone Course in Financial Planning	3
ACT 321 Taxation	4
Accounting	32
ACT 301 Accounting I	4
ACT 302 Accounting II	4
ACT 403 Accounting III	4
ACT 311 Cost Accounting	4
ACT 441 Auditing	4
ACT 422 Advanced Tax	3
ACT 431 Accounting Information Systems	3
ACT 482 Accounting for Non Profit Entities	3
ACT 484 Current Developments in Accounting	3
Other Requirements	7
Students must demonstrate competency in Windows, e-Mail, Internet and spreadsheets through placement tests or by completing IS 100, IS 102, IS 105 and IS 202; or CIS 110.	4
MGT 344 Managerial Communications	3
Other Required Courses	24
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication (4 cr.) <i>or</i>	
SP 220 Interviewing (4 cr.)	
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics* [III]	4
MA 171 Introduction to Probability and Statistics* [V]	4
PY 100L, S or H Psychology as a Natural Science [III] <i>or</i>	4
PY 100G Psychology as a Social Science [IV]	
General Electives (outside the College of Business)	16
Business Secondary Education Major	
This business secondary education major is under revision. New students will not be accepted into the program during the 2006-2007 academic year.	
Computer Information Systems Major	
This program's objectives are to apply computer theory to business applications and to provide a strong dual knowledge foundation in technical and problem-solving skills. Students select an area of emphasis from help desk/call center, information technology/marketing, networking, systems analysis or software development. People-oriented career paths lead to positions as computer consultants, analysts, trainers and high-tech marketers. Alternate careers as software programmers, database managers and network administrators tie the technical skills to the support and use of computer systems.	
Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Other Business Requirements	3
MGT 344 Managerial Communications	3

Technology Core	16
IS 120 Computer Concepts [V]	2
CIS 155 Software Development with Databases	4
CIS 220 Network Concepts	2
CIS 250 Systems Development I	4
CIS 255 Systems Development II	4
Area of Concentration	
<i>Choose one of the following concentrations:</i>	
Systems Analysis	18
CIS 355 Web Applications Programming	3
CIS 440 Mgmt Info Systems	3
CIS 464 Database Management Systems	3
MGT 355 Methods of Training <i>or</i>	3-4
ET 281 Computer Systems Servicing <i>or</i>	
CIS/IS/CS elective approved by advisor	
CIS 415 System Project <i>or</i>	3
CIS 291/ 491 Internship	
CIS/IS/CS elective or other approved by advisor	2-3
Software Application Development	18
CS 120 Programming I	4
CS 122 Programming II	4
CIS 355 Web Applications Programming	3
CIS 464 Database Management Systems	3
Electives (Any CIS, CS, IS, or ET281 or other approved by advisor)	4
Networking	18
CIS 230 Novell Network Operating Systems I	2
CIS 234 Microsoft Network Operating Systems I	2
CIS 330 Novell Network Operating Systems II <i>or</i>	3
CIS 334 Microsoft Network Operating Systems II	
CIS 355 Web Applications Programming	3
CIS 464 Database Management Systems	3
Electives from CIS course 200 or above	5
Other Required Courses	24
EN 211D Technical and Report Writing [I]	4
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication <i>or</i>	
SP 120 Small Group Process <i>or</i>	
SP 220 Interviewing	
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
General Electives (outside the College of Business)	8

Entrepreneurship Major

This major is designed for students who desire to develop their own businesses. It provides a comprehensive knowledge of accounting, finance, management, marketing and computer information systems as these areas relate to entrepreneurial business. This includes an understanding of how to develop a new business plan, conduct marketing research to determine the feasibility of a new business, obtain capital resources for a new business enterprise, manage the case flow of a new

business, and understand the legal issues related to entrepreneurial endeavors. The market potential of the entrepreneurship graduate is almost infinite.

Total Credits Required for Degree	124
<hr/>	
Liberal Studies	30-40
Health Promotion	2
<hr/>	
Business Core	21
<hr/>	
Entrepreneurship	15
MGT 215 Introduction to Entrepreneurship	3
ACT 325 Financial Management for Entrepreneurs	3
MKT 310 Marketing for Entrepreneurs	3
MGT 414 Small Business Management	3
FIN 413 New Venture Finance: Capital Formation and Legal Issues	3
<hr/>	
Other Business Requirements	7
IS Electives* [V]	4
MGT 436 Strategic Management	3
<hr/>	
Business Electives	10
<i>Choose from the following:</i>	
MGT 343 Human Resource Management (3 cr.)	
MGT 344 Managerial Communications (3 cr.)	
MGT 475 International Business (3 cr.)	
OIS 121 Introduction to Business (4 cr.)	
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Other Required Courses	32
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i>	4
PY 100G Psychology as a Social Science [IV]	
SO 101 Introductory Sociology [IV] <i>or</i>	4
SO 113 Social Problems [IV]	
SP 100 Public Address	4
SP 110 Interpersonal Communication	4
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General Electives (outside the College of Business)	8

Finance Major

The major provides students with basic competency in the functional areas of finance and provides students with the education foundation that is needed to prepare them for professional exams such as the Series 7, CFP and CFA. This major, as well as the personal financial planning major, combines the applications of analytical skills to the problems facing financial managers, financial institutions and individual investors while developing an understanding of today's financial markets. This program leads to careers in business financial management, banking, securities and commodity brokerage, consulting, insurance, financial planning and small business entrepreneurship.

Total Credits Required for Degree	124
<hr/>	
Liberal Studies	30-40
Health Promotion	2

Business Core	21
<hr/>	
Finance	18-20
FIN 352 Financial Management	4
FIN 354 Money and Capital Markets	4
FIN 462 Investments	4
ACT or FIN Electives**	6-8
<hr/>	
Other Business Requirements	7
IS Electives*** [V]	4
MGT 436 Strategic Management	3
<hr/>	
Business Electives	6-8
<hr/>	
Other Required Courses	27-28
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
MGT 344 Managerial Communications* (3 cr.) <i>or</i>	3-4
EN 303 Technical Writing* (4 cr.)	
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i>	4
PY 100G Psychology as a Social Science [IV]	
SO 101 Introductory Sociology [IV] <i>or</i>	4
SO 113 Social Problems [IV]	

General Electives (outside the College of Business)	16-17
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**Or other course chosen with the consent of the adviser.*

***Courses will be chosen with the consent of the adviser.*

****See adviser for courses required.*

Management Major

This program's objectives are to provide a theoretical base as well as the working applications of management; the ability to critically evaluate managerial actions; and the ability to apply managerial decision-making skills to future situations. Leaders with an appreciation for the forces active in complex organization, worker effectiveness and operating efficiencies are the foundation of any successful enterprise. Positions include job titles such as management consultant, quality control manager, director of planning and employee relations manager.

Total Credits Required for Degree	124
<hr/>	
Liberal Studies	30-40
Health Promotion	2
<hr/>	
Business Core	21
<hr/>	
Management	12
MGT 326 Deterministic Models in Business <i>or</i>	3
MGT 327 Random Models in Business (3 cr.)	
MGT 343 Human Resource Management	3
MGT 417 Organizational Theory	3
MGT 436 Strategic Management	3

Management Electives**	13-15
<i>Choose from the following:</i>	
MA 271 Calculus with Applications (4 cr.)	
MGT 210 Time Management (1 cr.)	
MGT 285 International Business Seminar (3-4 cr.)	
MGT 322 Business Law II (3 cr.)	
MGT 326 Deterministic Models in Business (3 cr.)	
MGT 327 Random Models in Business (3 cr.)	
MGT 360 Controversial Issues in Marketing and Management (3 cr.)	
MKT 410 Sales Management (3 cr.)	
MGT 412 Compensation Administration (3 cr.)	
MGT 414 Small Business Management (3 cr.)	
MGT 415 Small Business Consulting (3 cr.)	
MGT 419 Seminar in Human Resource Management (3 cr.)	
MGT 421 Labor Law (3 cr.)	
MGT 422 Business and Government Policy (3 cr.)	
MGT 423 Seminar in Organization and Behavior (3 cr.)	
MGT 424 Collective Bargaining (3 cr.)	
MGT 425 Business Research (3 cr.)	
MGT 426 Advanced Business Research (3 cr.)	
MGT 475 International Business (3 cr.)	
MGT 491 Internship in Management (1-4 cr.)	
MGT 495 Special Topics in Management (1-3 cr.)	
MGT 498 Directed Study (1-3 cr.)	
CIS 440 Management Information Systems (3 cr.)	
Other Business Requirements	7
IS Electives* [V]	4
MGT 344 Managerial Communication	3
Business Electives**	6-8
Other Required Courses	28
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i> PY 100G Psychology as a Social Science (4 cr.) [IV]	4
SO 101 Introductory Sociology [IV] <i>or</i> SO 113 Social Problems (4 cr.) [IV]	4
SP 100 Public Address (4 cr.) <i>or</i> SP 110 Interpersonal Communication (4 cr.)	4
General Electives (outside the College of Business)	9

*See adviser for courses required.

**Or other courses approved by the adviser and the Associate Dean of the College of Business.

Marketing Major

This major provides a theoretical base as well as working applications of marketing. Growing domestic and global populations, increasing demands for a wide range of products and services in modern society, and technology and media advancements stress the need for marketing professionals who understand the operations and problems associated with getting goods and services from the producer to the user. Career paths include product consultant, sales representative, marketing manager, retail store buyer, research analyst and advertising professional.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Marketing	15
MKT 335 Consumer Behavior <i>or</i> MKT 430 Services Marketing (3 cr.)	3
MGT 425 Business Research	3
MKT 435 Marketing Strategy	3
MKT 438 Marketing Management <i>or</i> MKT 466 International Marketing (3 cr.)	3
MKT 411 Personal Selling <i>or</i> MKT 410 Sales Management (3 cr.)	3
Marketing Electives*	9
<i>Choose from the following:</i>	
MGT 210 Time Management (1 cr.)	
MGT 285 International Business Seminar (3-4 cr.)	
MGT 326 Deterministic Models in Business (3 cr.)	
MGT 327 Random Models in Business (3 cr.)	
MGT 415 Small Business Consulting (3 cr.)	
MGT 422 Business and Government Policy (3 cr.)	
MGT 426 Advanced Business Research (3 cr.)	
MGT 475 International Business (3 cr.)	
MKT 310 Marketing for Entrepreneurship (3 cr.)	
MKT 331 Retail Administration (3 cr.)	
MKT 335 Consumer Behavior (3 cr.)	
MKT 337 Marketing Channel (3 cr.)	
MKT 360 Controversial Issues in Marketing and Management (3 cr.)	
MKT 410 Sales Management (3 cr.)	
MKT 411 Personal Selling (3 cr.)	
MKT 430 Services Marketing (3 cr.)	
MKT 432 Advertising and Sales Promotion (3 cr.)	
MKT 438 Marketing Management (3 cr.)	
MKT 466 International Marketing (3 cr.)	
MKT 470 E-Commerce and Marketing (3 cr.)	
MKT 491 Internship in Marketing (1-4 cr.)	
MKT 495 Special Topics in Management/Marketing (3 cr.)	
Other Business Requirements	10
IS Electives** [V]	4
MGT 344 Managerial Communication	3
CIS 440 Management Information Systems	3
Business Electives*	6-7
Other Required Courses	28
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i> PY 100G Psychology as a Social Science (4 cr.) [IV]	4
SO 101 Introductory Sociology [IV] <i>or</i> SO 113 Social Problems (4 cr.) [IV]	4
SP 100 Public Address	4
General Electives (outside the College of Business)	8-9

*Or other courses approved by the adviser and the Associate Dean of the College of Business.

**See adviser for courses required.

*Or other courses approved by the adviser and the Associate Dean of the College of Business.

**See adviser for courses required.

Personal Financial Planning Major

The personal financial planning major provides a basic competency in the functional areas of finance and provides students with the education foundation that is needed to prepare students for professional exams such as the Series 7, CFP and CFA. Like the finance major, the personal financial planning major combines the applications of analytical skills to the problems facing financial managers, financial institutions and individual investors while developing an understanding of today's financial markets. The program leads to careers in business financial management, banking, securities and commodity brokerage, consulting, insurance, financial planning and small business entrepreneurship. Students who have completed the personal financial management major have the option of private consulting. Becoming a Certified Financial Planner (CFP)* is another option by electing to take a national exam.

*CFP® and CERTIFIED FINANCIAL PLANNER® are federally registered marks of the Certified Financial Planner Board of Standards, Inc. (CFP Board).

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Finance	26
FIN 355 Insurance	3
FIN 450 Estate Planning	3
FIN 462 Investments	4
ACT 321 Taxation	4
FIN 460 Employee Benefits and Retirement Planning	3
FIN 424 Capstone Course in Financial Planning	3
ACT or FIN or other Business Electives	6
Other Business Requirements	10
IS Electives** [V]	4
MGT 436 Strategic Management	3
MKT 411 Personal Selling <i>or</i> MKT 430 Services Marketing (3 cr.)	3
Other Required Courses	27-28
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
MGT 344 Managerial Communications* (3 cr.) <i>or</i> EN 303 Technical Writing* (4 cr.)	3-4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
SO 101 Introductory Sociology [IV] <i>or</i> SO 113 Social Problems [IV]	4
General Electives (outside the College of Business)	13-14

*Or other courses approved by the adviser and the Associate Dean of the College of Business.

**See adviser for courses required.

Ski Area Business Management Major

This is a joint program between NMU and Gogebic Community College in Ironwood, Michigan. At GCC, students learn the technical skills necessary to manage ski areas or functional areas in ski area operations. At NMU, students gain comprehensive knowledge of accounting, finance, management, marketing and computer information systems. Graduates of the ski area business management program are placed at resorts nationwide.

Due to course sequencing and prerequisite course work for admission to the NMU College of Business, this program can take over four academic years to complete. To finish the program in a timely manner, students should select one of two options: (1) Attend GCC for two years, complete an associate degree in ski area management, and transfer to NMU to complete the bachelor's degree; or (2) Attend NMU for one year, transfer to GCC for two years, complete an associate degree in ski area management, and transfer to NMU to complete the bachelor's degree.

Total Credits Required for Degree	126
Liberal Studies	30-40
Health Promotion	2
Business Core	21
Ski Area Management Electives	6
<i>Choose from the following:</i>	
MGT 326 Deterministic Models in Business (3 cr.) <i>or</i> MGT 327 Random Models in Business (3 cr.)	
MGT 343 Human Resource Management (3 cr.)	
MGT 417 Organizational Theory (3 cr.)	
MGT 436 Strategic Management (3 cr.)	
Technical Ski Core	38
<i>Taken at Gogebic Community College</i>	
SAM 106 Snowmaking	2
SAM 100 Intro to Ski Area Management	3
SAM 101 Ski Area Layout	3
SAM 103 Ski Lift Construction And Design	3
SAM 104 Ski Equipment Mechanics	2
SAM 105 Ski Area Maps	1
SAM 107 Slope Grooming	2
SAM 200 Ski Area Operational Cost Analysis	3
SAM 202 Risk Management and Related Issues	2
SAM 205 Applied Industrial Skills	2
Cooperative Experience/Internship	15
Other Business Requirements	7
IS Electives** [V]	4
MGT 344 Managerial Communication	3
Other Required Courses	28
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
MA 103 Finite Mathematics [III]	4
MA 171 Introduction to Probability and Statistics [V]	4

PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i>	4
PY 100G Psychology as a Social Science (4 cr.) [IV]	
SO 101 Introductory Sociology (4 cr.) [IV] <i>or</i>	4
SO 113 Social Problems (4 cr.) [IV]	
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication	

***See adviser for recommended courses.*

ASSOCIATE DEGREE PROGRAMS

Computer Information Systems

Associate of Business

This program provides a basic foundation of knowledge in the computing area and the ability to apply computer theory to business applications. Graduates find employment in organizations ranging from small firms to large corporations as computing technicians, providers of help desk services and software trainers.

Total Credits Required for Degree	62
Liberal Studies	20
EN 111 College Composition I	4
EN 211 College Composition II	4
MA 103 Finite Mathematics	4
MA 171 Introduction to Probability and Statistics	4
Liberal Studies Electives*	4
Health Promotion	1
HP 200 Personal Well Being	1
Technology Core	16
IS 120 Computer Concepts	2
CIS 155 Software Development with Databases	4
CIS 220 Introduction to Networking	2
CIS 250 Systems Development I	4
CIS 255 Systems Development II	4
CIS Electives**	6
Other Required Courses	10
SP 100 Public Address <i>or</i>	4
SP 110 Interpersonal Communication (4 cr.) <i>or</i>	
SP 120 Small Group Process (4 cr.) <i>or</i>	
SP 220 Interviewing (4 cr.)	
ACT 230 Principles of Accounting I	3
ACT 240 Principles of Accounting II	3
General Electives	9
If transferring to a CIS bachelor of science degree program after associate graduation, EC 201 Microeconomic Principles and EC 202 Macroeconomic Principles should be taken as electives.	

**Liberal studies electives must be taken outside the College of Business.*

***Electives must be approved by adviser.*

General Business

Associate of Business

This program has two goals: to provide educational experiences enabling graduates to enter a variety of entry-level positions and to provide students with skills and experiences that will assist them in functioning as a consumer in today's modern society. Career opportunities with this degree are numerous and may include a variety of situations in retail stores, insurance companies/agencies, banks and many types of small businesses. Job titles include sales associate, assistant manager, insurance clerk and teller.

Total Credits Required for Degree	65
Liberal Studies	12
EN 111 College Composition I	4
Liberal Studies Electives*	8
Health Promotion	1
HP 200 Physical Well Being	1
Associate Degree Core	24
ACT 201 Practical Accounting Procedures	4
IS 105 Presentation/Multimedia Software	1
IS 107 Beginning Desktop Publishing	1
OIS 161 Word Processing I	4
OIS 183 Business Administrative Procedures	4
OIS 185 Spreadsheets and Database Software	4
OIS 190 Professional Development	3
OIS 244 Applied Office Communication	3
General Business Core	16
OIS 121 Introduction to Business	4
MGT 215 Entrepreneurship	3
MGT 221 Business Law I	3
MGT 240 Organizational Behavior and Management	3
MKT 230 Introduction to Marketing	3
General Electives	12
<i>*Liberal studies electives must be taken outside the College of Business.</i>	

Office Information Assistant

Associate of Business

This program provides advanced skills required for employment in an office environment. Career opportunities in the office support field are available in public and private institutions and companies for positions such as office clerks, secretaries, information processors and administrative assistants.

Total Required for Degree	64
Liberal Studies	8
EN 111 College Composition I	4
Liberal Studies Electives*	4
Health Promotion	1
HP 200 Personal Well Being	1

Associate Degree Core	24
ACT 201 Practical Accounting Procedures	4
IS 105 Presentation/Multimedia Software	1
IS 107 Beginning Desktop Publishing	1
OIS 161 Word Processing I	4
OIS 183 Business Administrative Procedures	4
OIS 185 Introductory Software Applications	4
OIS 190 Professional Development	3
OIS 244 Applied Office Communication	3

Office Information Assistant Core	15
IS 207 Intermediate Desktop Publishing	1
OIS 261 Word Processing II	3
OIS 263 Business Document Editing	4
OIS 285 Advanced Software Applications and Integration	3
OIS 293 Integrated Office	4

Electives**	10
<i>Choose from the following:</i>	
IS 208 Web Page Development (1 cr.)	
OIS 121 Introduction to Business (4 cr.)	
OIS 171 Medical Terminology (4 cr.)	
MGT 215 Entrepreneurship (3 cr.)	
MGT 221 Business Law I (3 cr.)	
MKT 230 Introduction to Marketing (3 cr.)	
MGT 240 Organizational Behavior and Management (3 cr.)	

General Electives

**Liberal studies electives must be outside the College of Business.*

***Or other courses approved by the Associate Dean of the College of Business.*

Health Information Processing
Associate of Business

This program provides advanced skills required for employment in an office environment and with specialized skills necessary for employment in the medical field. The health care industry is supported by many behind the scenes individuals who are employed in a variety of administrative/support areas. General clerical/support positions include insurance clerk, billing clerk and medical records clerk. Administrative/technical positions include medical transcriptionist, medical coder, health unit coordinator, office manager and administrative assistant.

Total Credits Required for Degree	69
Liberal Studies	8
EN 111 College Composition I	4
Liberal Studies Electives*	4
Health Promotion	1
HP 200 Personal Well Being	1
Associate Degree Core	24
ACT 201 Practical Accounting Procedures	4
IS 105 Presentation/Multimedia Software	1
IS 107 Beginning Desktop Publishing	1
OIS 161 Word Processing I	4
OIS 183 Business Administrative Procedures	4
OIS 185 Introductory Software Applications	4

OIS 190 Professional Development	3
OIS 244 Applied Office Communication	3
Information Processing Core	15
IS 207 Intermediate Desktop Publishing	1
OIS 261 Word Processing II	3
OIS 263 Business Document Editing	4
OIS 285 Advanced Software Applications and Integration	3
OIS 293 Integrated Office Lab	4
Health Information Core	21
OIS 171 Medical Terminology	4
OIS 172 Diagnostic/Therapeutic Terminology	4
OIS 266 Medical Transcription	3
OIS 270 Medical Record Procedures	4
OIS 271 Medical Office Procedures	3
OIS 273 Medical Coding	3
10	<i>*Liberal studies electives must be taken outside the College of Business.</i>

CERTIFICATE PROGRAM

Office Services Certificate

This certificate program provides a focused educational experience for office support personnel, including introductory skills for employment in an office environment. Career opportunities in the office support field are available in public and private companies for positions such as office clerk, transcriptionists, keyboarding specialists and secretaries.

Total Credits Required for Certificate	32
Liberal Studies	4
EN 111 College Composition I	4
Health Promotion	1
HP 200 Physical Well Being	1
Technical Concentration	27
IS 105 Presentation/Multimedia Software	1
IS 107 Beginning Desktop Publishing	1
OIS 161 Word Processing I	4
OIS 183 Business Administrative Procedures	4
OIS 185 Introductory Software Applications	4
OIS 190 Professional Development	3
OIS 244 Applied Office Communication	3
OIS 261 Word Processing II	3
OIS 263 Business Document Editing	4

MINOR PROGRAMS

Accounting Minor

Total Credits Required for Minor	20
ACT 230 Principles of Accounting I	3
ACT 240 Principles of Accounting II	3

Electives*	14
<i>Choose from the following:</i>	
ACT 301 Financial Accounting I (4 cr.)	
ACT 302 Financial Accounting II (4 cr.)	
ACT 311 Cost Accounting (4 cr.)	
ACT 321 Federal Income Taxation (4 cr.)	
FIN 354 Money and Capital Markets (4 cr.)	
ACT 403 Accounting III (4 cr.)	
ACT 412 Advanced Cost Accounting (3 cr.)	
FIN 420 Financial Statement Analysis (3 cr.)	
ACT 422 Advanced Federal Taxation (3 cr.)	
FIN 424 Personal Financial Planning (3 cr.)	
ACT 431 Accounting Information Systems (3 cr.)	
ACT 441 Auditing (4 cr.)	
ACT 482 Accounting for Non-Profit Enterprises (3 cr.)	

*Or other courses approved by the Associate Dean of the College of Business.

Business Administration Minor

Total Credits Required for Minor	20
ACT 230 Principles of Accounting I	3
ACT 240 Principles of Accounting II	3
MGT 240 Organizational Behavior and Management	3
MKT 230 Introduction to Marketing	3
FIN 351 Management of Financial Resources	3

Electives*	5
Choose any ACT, CIS, IS, FIN, MGT, MKT or OIS courses except ACT 201, ACT 202, MGT 240, MKT 230 and FIN 351.	

*Or other courses approved by the Associate Dean of the College of Business.

Computer Information Systems Minor

Total Credits Required for Minor	20
CIS/CS/IS Electives	20

A program of CIS, CS or IS courses must be approved by both the major and minor advisers. A copy of the approved minor is then sent to the Degree Audits Office. Modifications in the program may be made only with the approval of both the minor and major advisers.

Finance Minor

Total Credits Required for Minor	20
ACT 230 Principles of Accounting I	3
FIN 351 Management of Financial Resources	3
FIN 354 Money and Capital Markets	4

Electives*	10
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Choose from the following:

ACT 240 Principles of Accounting II (3 cr.)	
ACT 321 Federal Income Taxation (4 cr.)	
FIN 352 Financial Management (3 cr.)	
ACT 420 Financial Statement Analysis (3 cr.)	
FIN 424 Personal Financial Management (3 cr.)	
FIN 458 International Financial Management (3 cr.)	
FIN 461 Management of Financial Institutions (3 cr.)	
FIN 462 Investment Analysis (4cr.)	
FIN 463 Portfolio Management (3 cr.)	
FIN 355 Principles of Insurance (3 cr.)	
FIN 450 Estate Planning (3 cr.)	
FIN 460 Employee Benefits (3 cr.)	
ACT 482 Accounting Non-Profit Enterprises (3 cr.)	

*Or other courses approved by the Associate Dean of the College of Business.

Labor Relations Minor

Total Credits Required for Minor	20
MGT 240 Organizational Behavior and Management	3
MGT 421 Labor Law	3
MGT 343 Human Resource Management	3
MGT 424 Collective Bargaining	3

Electives*	8
<i>Choose from the following:</i>	
MGT 419 Seminar in Human Resource Management (4 cr.)	
MGT 412 Compensation Administration (3 cr.)	
MGT 221 Business Law I: Legal Environment of Business (3 cr.)	
EC 415 Labor Economics (4 cr.)	
PS 332 Administrative Law (4 cr.)	
MGT 417 Organizational Theory (3 cr.)	
HS 337 or EC 337 American Economic History (4 cr.)	
ACT 202 Accounting Concepts for Management (4 cr.)	

*Or other courses approved by the Associate Dean of the College of Business.

Management Minor

Total Credits Required for Minor	20
MGT 240 Organizational Behavior and Management	3
MGT 343 Human Resource Management	3
MGT 417 Organizational Theory	3

Electives*	11
<i>Choose from the following:</i>	
ACT 230 Principles of Accounting I (3 cr.)	
ACT 240 Principles of Accounting II (3 cr.)	
MGT 225 Operations Management (3 cr.)	
MGT 326 Deterministic Models in Business (3 cr.)	
MGT 327 Random Models In Business (3 cr.)	
MGT 360 Controversial Issues in Marketing and Management (3 cr.)	
MGT 412 Compensation Administration (3 cr.)	
MGT 414 Small Enterprise Management (3 cr.)	
MGT 419 Seminar in Human Resource Management (3 cr.)	
MGT 422 Business and Government Policy (3 cr.)	
MGT 475 International Business (3 cr.)	
MGT 495 Special Topics in Management (1-3 cr.)	

*Or other courses approved by the Associate Dean of the College of Business.

Marketing Minor

Total Credits Required for Minor	20
MKT 230 Introduction to Marketing	3
MKT 230R Introduction to Marketing Recitation	1
MKT 335 Consumer Behavior Analysis	3
MGT 240 Organizational Behavior and Management	3
MGT 240R Introduction to Management Recitation	1
Electives*	9
<i>Choose from the following:</i>	
MGT 414 Small Enterprise Management (3 cr.)	
MGT 475 International Business (3 cr.)	
MKT 310 Marketing for Entrepreneurship (3 cr.)	
MKT 331 Retail Administration (3 cr.)	
MKT 337 Marketing Channels (3 cr.)	
MKT 360 Controversial Issues in Marketing and Management (3 cr.)	
MKT 410 Sales Management (3 cr.)	
MKT 411 Personal Selling (3 cr.)	
MKT 430 Services Marketing (3 cr.)	
MKT 432 Advertising and Sales Promotion (3 cr.)	
MKT 466 International Marketing (3 cr.)	
MKT 495 Special Topics in Marketing (1-3 cr.)	

**Or other courses approved by the Associate Dean of the College of Business.*

Office Services Minor

Total Credits Required for Minor	24
OIS 161 Word Processing I	4
OIS 183 Business Administrative Procedures	4
OIS 185 Introductory Software Applications	4
OIS 263 Business Document Editing	4
Electives*	8
<i>Choose from the following:</i>	
IS 105 Presentation/Multimedia Software (1 cr.)	
IS 107 Beginning Desktop Publishing (1 cr.)	
IS 120 Computer Concepts (2 cr.)	
IS 207 Advanced Desktop Publishing (1 cr.)	
IS 208 Web Page Development (1 cr.)	
OIS 121 Introduction to Business (4 cr.)	
MGT 344 Managerial Communications (3 cr.)	

**Or other courses approved by the Associate Dean of the College of Business.*

CHEMISTRY

DEPARTMENT OFFICE

3301 New Science Facility

Phone: 906-227-2911

Fax: 906-227-1066

Web Page: www.nmu.edu/departments/chemistry

Interim Department Head: Suzanne E. Williams •
swilliam@nmu.edu



Chemistry at NMU

The Chemistry Department offers programs leading to either the bachelor of arts degree or the bachelor of science degree in biochemistry, chemistry, forensic biochemistry, secondary education chemistry and water science, as well as graduate-level programs. The department also supports courses for students in other areas needing chemistry cognates and electives. The program for majors at the undergraduate level is designed for students planning professional careers in chemistry and related fields, and in the teaching of chemistry. There are several program options available at the advanced undergraduate level depending upon the career interests of the student.

Northern's Chemistry Department is accredited by the American Chemical Society. ACS approval and periodic reviews of the department's capability to offer complete programs to prepare students for professional work in the chemistry field attests to the continuing academic soundness of the undergraduate program and to its ability to serve the student population's diverse needs and interests.

The Chemistry Department also provides advisement for students interested in pre-pharmacy. See the "Pre-professional Programs" section of this bulletin.

Student Organizations

- American Chemical Society Student Affiliates
- Chemistry Club/Moles "R" Us
- Student Michigan Education Association

Department/Program Policies

Students enrolled in a chemistry laboratory must pay the cost of replacement for glassware or equipment broken in excess of one dollar. Records of student breakage are maintained in the chemistry stockroom, and students are notified of any amount due after the last laboratory meeting. The breakage fee is not applicable to CH 490 or CH 491.

Only those chemistry courses passed with a grade of "C-" or better apply to the biochemistry, chemistry and Chemistry ACS Certified majors.

Students majoring in secondary education chemistry or minoring in chemistry education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minor and required cognates combined.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Biochemistry Major

This major prepares students for entry into graduate programs in biochemistry and related disciplines. The program serves those interested in biochemical research or forensic science as a career or in pursuing pre-professional programs in medicine or dentistry. The biochemistry curriculum includes the credit-hour equivalent of a major plus a minor; therefore, no minor is required.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	78-79
Chemistry	
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 342 Physical Chemistry II	4
CH 450 Introductory Biochemistry	4

CH 452 Intermediary Metabolism	4
CH 454 Biochemical Techniques	4
Biology	
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 303 General Microbiology <i>or</i>	4-5
BI 313 Cell Biology (4 cr.) <i>or</i>	
BI 431 Plant Physiology (4 cr.)	
BI 312 Genetics	4
BI 418 Molecular Biology	4
Mathematics	
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
Physics	
PH 220 Introductory Physics I [III] <i>or</i>	5
PH 201 College Physics I [III]	
PH 221 Introductory Physics II [III] <i>or</i>	5
PH 202 College Physics II [III]	
Biochemistry Electives	
<i>Choose from the following:</i>	
AIS 435 Electronic Information Resources (2 cr.)	9
BI 203 Medical Microbiology (5 cr.)	
BI 210 Principles of Ecology (4 cr.)	
BI 303 General Microbiology (5 cr.)	
BI 313 Cell Biology (4 cr.)	
BI 405 Immunology (3 cr.)	
BI 411 Limnology (4 cr.)	
BI 413 Biochemistry of Development (4 cr.)	
BI 425 Endocrinology (3 cr.)	
BI 431 Plant Physiology (4 cr.)	
BI 495 Special Topics in Biology (1-4 cr.)	
BI 498 Directed Studies in Biology (1-4 cr.)	
CH 341 Physical Chemistry I* (4 cr.)	
CH 415 Inorganic Chemistry (4 cr.)	
CH 430 Environmental Chemistry (5 cr.)	
CH 435 Gas and Liquid Chromatography (2 cr.)	
CH 436 Modern Spectrometry (3 cr.)	
CH 437 Atomic Absorption Spectrometry (1 cr.)	
CH 456 Protein Structure and Function (3 cr.)	
CH 460 Nuclear Chemistry (4 cr.)	
CH 490 Senior Research and Seminar I (2-4 cr.)	
CH 491 Senior Research and Seminar II (2-4 cr.)	
CH 495 Special Topics in Chemistry (1-4 cr.)	
CS 120 Introduction to Computing (4 cr.) [V]	
BI 412 Biometrics (4 cr.) <i>or</i>	
MA 171 Introduction to Probability and Statistics (4 cr.) [V]	
MA 211 Introduction to Matrix Theory and Linear Algebra (3 cr.)	
MA 361 Differential Equations (3 cr.)	
MA 475 Intermediate Statistics (4 cr.)	
PH 322 Modern Physics (4 cr.)	

*Students wishing to pursue graduate studies in biochemistry or industrial careers should take CH 341.

Chemistry Major (ACS Certified)

This major prepares students who plan to pursue graduate-level work in chemistry or to work in the chemical industry. Students who successfully complete this program will meet at least the minimum standards of the Committee on Professional Training of the American Chemical Society. Students in this major may satisfy the minor subject requirement by completing the sequence of courses listed as an academic minor in another department or completing the group science minor.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	49
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 215 Chemistry of the Elements	4
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 341 Physical Chemistry I	4
CH 342 Physical Chemistry II	4
CH 415 Inorganic Chemistry	4
CH 435 Gas and Liquid Chromatography	2
CH 436 Modern Spectrometry	3
CH 437 Atomic Absorption Spectrometry	1
CH 450 Introductory Biochemistry	4
Other Required Courses	19
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
PH 220 Introductory Physics I [III] <i>or</i>	5
PH 201 College Physics I [III]	
PH 221 Introductory Physics II [III] <i>or</i>	5
PH 202 College Physics II [III]	

Minor **3-20**

The group science minor uses the other required courses and requires three additional credits; see page 74.

Chemistry Major

This major prepares students for further work in areas outside pure chemistry such as forensic science, the biological sciences, medicine, dentistry, pharmacy, engineering, material science, pollution control or ecology. Students in this major may satisfy the minor subject requirement by completing the sequence of courses listed as an academic minor in another department or completing the group science minor.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	41
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 341 Physical Chemistry I	4
CH 342 Physical Chemistry II	4
CH 415 Inorganic Chemistry	4
Chemistry Electives	6
<i>Must be at the 400 level, including at least one of the following:</i>	
CH 435 Gas and Liquid Chromatography (2 cr.)	
CH 436 Modern Spectrometry (3 cr.)	
CH 437 Atomic Absorption Spectrometry (1 cr.)	
Other Required Courses	19
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
PH 220 Introductory Physics I [III] <i>or</i> PH 201 College Physics I [III]	5
PH 221 Introductory Physics II [III] <i>or</i> PH 202 College Physics II [III]	5
Minor	3-20
<i>The group science minor uses the other required courses and requires three additional credits; see page 74.</i>	

Forensic Biochemistry Major

This major is designed to prepare students for a career in the field of forensic science. It provides the science background required for working as a forensic investigator in a crime lab. In addition, it prepares students for entry into a graduate program in forensic science. The forensic biochemistry curriculum includes courses from multiple departments and is the credit-hour equivalent of a major plus a minor, therefore no additional minor is required. Students who are interested in pursuing this degree should have a strong background in science, including two years of high school algebra and one year of high school chemistry. The capstone course for this major, CH 440, is offered every other year, therefore students should consult with their adviser early in their program to ensure that they are prepared to take CH 440 when it is offered.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	33
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 435 Gas and Liquid Chromatography	2
CH 440 Forensic Chemistry	4
CH 450 Introductory Biochemistry	4
Other Required Courses	48
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 203 Medical Microbiology <i>or</i> BI 303 General Microbiology	5
BI 312 Genetics	4
BI 418 Molecular Biology	4
CJ 110 Introduction to Criminal Justice	4
CJ 214 Investigative Process I	4
MA 161 Calculus I [III]	5
MA 171 Statistics [V]	4
PH 220 Introductory Physics I [III] <i>or</i> PH 201 College Physics I [III]	5
PH 221 Introductory Physics II [III] <i>or</i> PH 202 College Physics II [III]	5
Electives	17
<i>Choose from the following:</i>	
CH 215 Chemistry of the Elements (4 cr.)	
CH 341 Physical Chemistry I (4 cr.)	
CH 342 Physical Chemistry II (4 cr.)	
CH 415 Inorganic Chemistry (4 cr.)	
CH 436 Modern Spectroscopy (3 cr.)	
CH 437 Atomic Absorption Spectrometry (1 cr.)	
CH 454 Biochemical Techniques (4 cr.)	
CH 490/1 Senior Research and Seminar I & II (2-4 cr.)	
CH 493 Forensic Laboratory Internship (1-4 cr.)	
CJ 414 The Investigative Process II (4 cr.)	
MA 163 Calculus II (4 cr.)	

Note: Students interested in pursuing graduate studies in biochemistry or chemistry should take MA 163, CH 342, CH 452 and CH 454 or MA 163, CH 341, CH 342 and CH 415, respectively.

Secondary Education Chemistry Major

Completion of the chemistry courses as well as the professional education sequence lead to certification as a secondary teacher of chemistry. Students in this program must select an academic minor in another department. A minor in physics education is recommended. Advising for this major is provided by Dr. Mitchell D. Klett in the School of Education.

Total Credits Required for Degree	138-152
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 341 Physical Chemistry I	4
CH 342 Physical Chemistry II	4
CH 450 Introductory Biochemistry	4
Other Required Courses	27
PH 220 Introductory Physics I [III] <i>or</i> PH 201 College Physics I [III]	5
PH 221 Introductory Physics II [III] <i>or</i> PH 202 College Physics II [III]	5
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
BI 111 Introductory Biology: Principles [III]	4
GC 246 Earth Science <i>or</i> GC 255 Physical Geography [III] <i>or</i> GC 385 Weather and Climate	4
Teaching Minor, Minimum*	10-24
Professional Education	37
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
MSED 340 Fundamental Concepts in Science	4
MSED 350 Methods and Materials in the Teaching of Science Education	4

*Students who minor in Physics Education can complete the minor with an additional 10 credit hours of physics.

Water Science Major

This major prepares students who are planning to pursue an advanced degree in oceanography, limnology, water chemistry, aquatic biology or environmental science. It also prepares students for state, federal and industrial positions related to water pollution and water quality. Students can select an adviser from either the chemistry or biology department. The water science major includes the credit-hour equivalent of a major plus a minor.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	60-63
BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 303 General Microbiology	5
BI 411 Limnology	4
BI 412 Biometrics	4
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry (5 cr.) <i>or</i> CH 321 Organic Chemistry I (4 cr.) <i>and</i> CH 322 Organic Chemistry II (4 cr.)	5-8
CH 241 Chemical Equilibrium	3
CH 242 Quantitative Analysis	2
CH 430 Environmental Chemistry	5
PH 220 Introductory Physics I [III] <i>or</i> PH 201 College Physics I [III]	5
PH 221 Introductory Physics II [III] <i>or</i> PH 202 College Physics II [III]	5
Other Required Courses	16
<i>Choose from the following:</i>	
BI 310 Ecology Theory and Methods (4 cr.)	
BI 324 Invertebrate Zoology (4 cr.)	
BI 423 Parasitology (3 cr.)	
BI 441 Fisheries Management (4 cr.)	
BI 465 Aquatic Insect Ecology (4 cr.)	
BI 492 Research in Water Science (2 cr.) <i>or</i> CH 492 Research in Water Science (2 cr.) <i>or</i> GC 492 Research in Water Science (2 cr.)	
CH 215 Chemistry of the Elements (4 cr.)	
CH 435 Gas and Liquid Chromatography (2 cr.)	
CS 120 Computer Science I (4 cr.) [V]	
GC 225 Introduction to Maps (2 cr.)	
GC 255 Physical Geology (4 cr.) [III]	
GC 320 Environmental Policy and Regulation (4 cr.)	
GC 390 Oceanography (2 cr.)	
GC 465 Hydrology (4 cr.)	

MINOR PROGRAMS

Chemistry Minor

Total Credits Required for Minor	22
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
Chemistry Electives (200 level or above)	12

Chemistry Education Minor

Total Credits Required for Minor	22-30
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CH 220 Introductory Organic Chemistry	5
CH 215 Chemistry of the Elements (4 cr.) <i>or</i> CH 241 Chemical Equilibrium (2 cr.) <i>and</i> CH 242 Quantitative Analysis (2 cr.)	4-5
Chemistry Electives (200 level and above)	2-3
MSED 340 Fundamental Concepts in Science*	4
MSED 350 Methods and Materials in Teaching Science Education*	4

**Not required if major is biology education, earth science education, physics education or integrated science education.*

Group Science Minor

This minor is available only to students with majors in chemistry or Chemistry ACS Certified.

Total Credits Required for Minor	22
MA 161 Calculus I	5
MA 163 Calculus II	4
PH 220 Introductory Physics I	5
PH 221 Introductory Physics II	5
MA or PH Elective (300 level and above)	3

CLINICAL LABORATORY SCIENCES

DEPARTMENT OFFICE

3515 West Science

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Clinical Laboratory Sciences at NMU

The Clinical Laboratory Sciences Department has a strong commitment to the career ladder approach to higher education. All programs and degrees are designed to be transferable to higher-level degrees. All programs are based heavily in the sciences with an application to clinical pathology. Depending on program selection, graduates find employment in hospital laboratories, clinics, industry, microbiology, biotechnology, forensics and research.

The clinical laboratory science field is made up of professionals who rely on their knowledge of basic science and laboratory skills to assume a variety of responsibilities in various laboratory and clinical settings. Graduates of the clinical laboratory sciences curricula must possess appropriate knowledge, skills and attributes to become competent practitioners who are readily adaptable to changing technologies. Advancement opportunities exist for the graduate as specialists, directors, managers and consultants with experience and/or further education.

The clinical laboratory sciences curriculum includes 12 programs: bachelor's degrees include clinical laboratory scientist, clinical laboratory scientist/microbiology concentration, diagnostic genetics, clinical systems analyst, cytotechnology, histotechnology and science technologist. Associate in applied science degrees include clinical laboratory technician, histotechnician and science technician; and certificate programs include clinical assistant and surgical technology. The department also offers a minor program in clinical laboratory techniques.

The university maintains CLS affiliations with a variety of hospitals in Michigan, Wisconsin and Minnesota. A list of the affiliations is available on the department's Web site.

The clinical laboratory science, clinical laboratory technician, diagnostic genetics, histotechnology, clinical assistant and histotechnician programs are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). The cytotechnology program is accredited by the American Society of Cytology (ASC). The surgical technology program is accredited by the Commission on Accreditation of Allied Health Education (CAAHE).

Department/Program Policies

Clinical Systems Analyst, Cytotechnology, Histotechnologist, Histotechnician, Science Technologist and Technician, Clinical Laboratory Technician, Clinical Assistant or Clinical Laboratory Techniques minor.

Students in these majors and minor must maintain a 2.00 grade point average in the major/minor and an NMU cumulative grade point average of 2.00. Students must receive no less than a "C-" in any CLS course for the clinical laboratory technician and clinical assistant program. Based on the chosen major, upon graduation, students are qualified to take a national certification exam in either cytotechnology, histotechnology, histotechnician, CLT or phlebotomy. Additional special criteria and policies for internships are further described in the *CLS Policy Manual*.

Clinical Laboratory Scientist and Clinical Laboratory Scientist/Microbiology

In order to be granted a bachelor's degree as a clinical laboratory scientist, a student must maintain an NMU cumulative grade point average of 2.60 and a 2.50 grade point average in the major. Students must receive no less than a "C-" in any CLS course. Students are eligible to take national certification examinations for clinical laboratory scientists or the microbiology categorical exam upon program completion. Criteria for placement into the practicum can be found under the appropriate course descriptions.

Diagnostic Genetics

In order to be granted a bachelor's degree in diagnostic genetics, a student must have an NMU cumulative grade point average of 2.60, a grade point average of 2.60 in the major, meet specific course grade requirements, and receive no less than a "C" in any course of the major. Students are then qualified to take the national certification exams for cytogenetics and molecular biology. Criteria for placement into the practicum includes a minimum 2.80 GPA in the major. Other requirements can be found under the appropriate course descriptions.

Surgical Technology

Students in baccalaureate degree programs may apply up to six credits of cosmetology (COS), practical nursing (PN) and surgical technology (ST) courses combined toward graduation unless otherwise prohibited. Students in associate degree programs may apply three credits of these courses toward graduation, and those in certificate programs other than cosmetology, practical nursing and surgical technology may apply two credits of these courses combined toward graduation unless otherwise prohibited.

Admission to the Surgical Technology Clinical Program

Admissions to the surgical technology clinical sequence of courses is limited. The Admissions Committee reserves the right to select students to be admitted. Students who have the highest grade point average and pre-admission test scores (if required) will be admitted first until the class is filled. Not all students who have met the minimum standards will be admitted if the space is not available.

To be considered for admission into the surgical technology clinical program a student must meet the following qualifications:

1. Must have met all NMU admission requirements and be in good standing.
2. Must have taken the Pre-Surgical Technology Assessment test and achieved a passing score in all of the subsets of the test if required by the department.
3. Must have a minimum cumulative grade point average of 2.00 (C) in all the prerequisite college courses required in the program with no grade below "C." In addition, students must have a cumulative NMU GPA of 2.00.
4. Must have successfully passed all required nursing/surgical technology courses after a maximum of two tries.

Surgical technology students will be notified of their acceptance into the clinical sequence by December 23.

Retention in the Surgical Technology Sequence

For a student to remain in the surgical technology sequence he or she must meet the following conditions:

1. Maintain a minimum cumulative grade point average of 2.00 in all surgical technology courses with no course below a "C", and maintain a cumulative Northern Michigan University grade point average of 2.00.
2. Adhere to the university's *Student Code* and *Surgical Technology Student Policies*.
3. Demonstrate a pattern of safe clinical practice commensurate with his or her educational experience to date.

Surgical Technology Readmission Criteria

Surgical technology courses are sequential, and there is limited space in some courses. When a student wishes to be readmitted

into the surgical technology sequence of courses after having a withdrawal or failure in a previously enrolled course, the student must apply for readmission to the department coordinator.

Students who have failed any surgical technology courses more than once are ineligible for readmission.

Additional Policies

For further information on policies, essential functions, application procedures, specific affiliation sites, hospital placement eligibility, costs, certification requirements, and job markets, see the *CLS Policy Manual* (available at the Northern Michigan University Bookstore) or the *Surgical Technology Student Handbook* (available in the Clinical Laboratory Sciences Department office). The Clinical Laboratory Sciences Department reserves the right to withdraw any student whose health, conduct, scholastic standing or clinical practice is such that it is inadvisable for the student to remain in the department. In any of the programs offered by this department, clinical placement for training cannot be guaranteed. In addition to the academic placement policies, students must be recommended by the departmental faculty. Any negative recommendations may override an otherwise acceptable academic record.

Students majoring in department programs may be required to have certain immunizations. Further information is available in the department office and appropriate program handbooks.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Clinical Laboratory Science Major

This major prepares graduates to perform a variety of laboratory assays on human and other types of specimens in clinical, research, commercial (biotechnology, pharmaceutical, etc.) and forensic laboratories to provide diagnostic data and information necessary to support health care, ensure quality control, facilitate product development and solve problems.

The program incorporates didactic and clinical education throughout the four-year curriculum. Students gain marketable skills after two years in the program through CLT certification.

Upon completion of the degree, students are eligible to take one of the national certification tests: CLS/MT Generalist or the Microbiology Categorical. The sophomore and senior practica provide an opportunity for students to experience two different clinical settings prior to graduation.

Total Credits Required for Degree	131
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	61
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 202 Clinical Chemistry	4
CLS 203 Immunohematology	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 214 Diagnostic Microbiology	3
CLS 250T Clinical Practice	2
CLS 251 Clinical Hematology Practicum	3
CLS 252 Clinical Chemistry Practicum	4
CLS 253 Blood Banking Practicum	3
CLS 254 Clinical Microbiology Practicum	4
CLS 301 Advanced Hematology/Coagulation	3
CLS 302 Advanced Clinical Chemistry	2
CLS 303 Advanced Immunohematology	2
CLS 304 Advanced Clinical Microbiology	2
CLS 420 Clinical Educational Practices	1
CLS 250S Clinical Practice	1
CLS 451 Advanced Hematology Practicum	3
CLS 452 Advanced Clinical Chemistry Practicum	3
CLS 453 Advanced Clinical Immunohematology Practicum	4
CLS 454 Advanced Microbiology Practicum	4
Other Required Courses	44
BI 104 Human Anatomy and Physiology [III]	4
BI 111 Introductory Biology: Principles [III]	4
BI 206 Human Genetics	3
BI 218 Cell and Molecular Biology	4
BI 405 Immunology	3
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
CH 450 Introductory Biochemistry	4
MA 171 Introduction to Probability and Statistics [V]	4
MGT 240 Organizational Behavior and Management	3

Clinical Laboratory Science–Clinical Microbiology Concentration *Microbiology Categorical Certification Option*

This program allows CLT graduates an opportunity to focus on microbiology at the baccalaureate level. Graduates are eligible for national certification in the microbiology category and may be employed in hospitals and clinics as well as in research and industrial laboratories.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Major Core	28
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 202 Clinical Chemistry	4
CLS 203 Immunohematology	3
CLS 213 Clinical Immunology and Serology	1
CLS 250T-253 Clinical Practicum	12
CLS 420 Clinical Educational Practices	1
Major Concentration	26
CLS 204 Clinical Microbiology	2
CLS 214 Diagnostic Microbiology	3
CLS 254 Clinical Microbiology Practicum	4
CLS 304 Advanced Clinical Microbiology	2
CLS 440 Advanced Clinical Bacteriology	8
CLS 441 Advanced Clinical Mycology	2
CLS 442 Advanced Clinical Parasitology	2
CLS 443 Advanced Clinical Mycobacteriology/ Virology	2
CLS 250M Clinical Practice	1
Supportive Courses for Microbiology	14
BI 303 General Microbiology	5
BI 423 Parasitology	3
BI 404 Virology	3
BI 405 Immunology	3
Other Required Courses	34
BI 104 Human Anatomy and Physiology [III]	4
BI 111 Introductory Biology: Principles [III]	4
BI 206 Human Genetics	3
BI 218 Cell and Molecular Biology	4
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
MA 171 Introduction to Probability and Statistics [V]	4

Clinical Systems Analyst Major

This program prepares graduates to work in a clinical laboratory setting, in a hospital information systems department or as a laboratory information systems consultant. Students receive training and first become certified laboratory professionals at the clinical laboratory technical level. The clinical systems analyst major is augmented with a comprehensive background in computer information systems. There is a pressing need nationwide for skilled computer information systems graduates who understand the unique requirements of a clinical laboratory.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	66-69

CLS Concentration	39-40
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 202 Clinical Chemistry	4
CLS 203 Immunohematology	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 214 Diagnostic Microbiology	3
CLS 250-254 CLT Clinical Practicum	16
CLS 420 Clinical Educational Practices	1

CLS Electives	2
<i>Choose from the following:</i>	
CLS 301 Advanced Clinical Hematology Coagulation (3 cr.)	
CLS 302 Advanced Clinical Chemistry (2 cr.)	
CLS 303 Advanced Immunohematology (2 cr.)	
CLS 304 Advanced Clinical Microbiology (2 cr.)	
CLS 391 Laboratory Experience (1-3 cr.)	
CLS 498 Directed Study (1-4 cr.)	

CIS Concentration	28-30
IS 120 Computer Concepts [V]	2
CIS 155 Software Development with Databases	4
CIS 220 Network Concepts	2
CIS 250 Systems Development I	4

CIS Elective	2-4
<i>Choose one course from the following:</i>	
CIS 230 Novell Operating Systems (2 cr.)	
CIS 234 Microsoft Network Operating Systems (2 cr.)	
CS 302 Unix System Administration (4 cr.)	
CIS 255 Systems Development II	4
CIS 355 Web Applications Programming	3
CIS 415 Systems Development Project	3
CIS 464 Database Management	3
CIS 440 Management Information Systems (3 cr.) <i>or</i>	1-3
CIS 491 Internship in Computer Information Systems (1-4 cr.)	

Other Required Courses	29
BI 104 Human Anatomy and Physiology [III]	4
CH 105 Chemical Principles (or higher) [III]	8
CS 120 Computer Science I [V]	4
CS 122 Computer Science II	4
ET 281 Computer System Servicing	3
MA 171 Probability and Statistics* [V]	4

*Math placement scores may require MA 105 or equivalent to be taken prior to this course.

Cytotechnology Major

This major prepares students with the basic science background needed to meet admission requirements of clinical programs approved by the ASC or NAACLS. Cytology is the study of the structure and the function of cells. Cytotechnologists prepare cellular samples for study under the microscope and assist in the diagnosis of disease by the examination of these samples. Cytotechnologists are trained clinical laboratory science

professionals who work with pathologists to detect microscopic changes in body cells that may be important in the early diagnosis of cancer.

The first three years of the curriculum are at the university while the fourth year is completed through an accredited cytotechnology practicum. The university is affiliated with hospitals in Wisconsin and Michigan; however, students may apply to any accredited school in the United States. If students meet the hospital's standards and are accepted, they register for the cytotechnology practicum courses at NMU and pursue a 12-month program under the direction of the hospital.

Total Credits Required for Degree	124
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Liberal Studies	30-40
Health Promotion	2

Required Courses in Major	44
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 250C Clinical Practice	2
CLS 420 Clinical Educational Practices	1
CLS 480 Cytology Orientation	1
CLS 481 Tissue Cytology I	8
CLS 482 Tissue Cytology II	8
CLS 483 Tissue Cytology III	8
CLS 484 Applied Clinical Practicum	5
CLS 485 Advanced Cytology Techniques	2

Other Required Courses	41
BI 111 Introductory Biology: Principles [III]	4
BI 201 Human Anatomy	3
BI 206 Human Genetics	3
BI 218 Cell and Molecular Biology	4
BI 313 Cell Biology	4
BI 426 Human Histology	4
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introduction to Organic Chemistry	5
MA 171 Introduction to Probability and Statistics [V]	4

Biology Elective	2-5
<i>Choose from the following:</i>	
BI 202 Human Physiology (5 cr.)	
BI 405 Immunology (3 cr.)	
BI 414 Electron Microscopy (3 cr.)	
BI 416 Experimental Cytogenetics (2-3 cr.)	
BI 423 Parasitology (3 cr.)	

Electives	8-11
<i>Choose from the following:</i>	
Any mathematics course above 100 excluding MA 171	
Any Physics course 200 level or above	
CH 450 Introductory Biochemistry (4 cr.)	

HL 101 Medical Terminology (1 cr.)
 CIS 110 Principles of Computer Information Systems [V] or
 IS electives [V] (1-4 cr.)
 Any CLS course (4 cr.)

Diagnostic Genetics Major with Two Tracks

The program offers a cytogenetics or molecular biology track. These tracks require the same course work at NMU but differ in the senior practicum. Diagnostic genetics focuses on the identification of abnormalities of chromosomes or regions of DNA associated with pathology and disease. This field is growing rapidly and is driven in part by discoveries of genes associated with inherited disorders that are reported by the human genome project, and in part by advances in biotechnology. The small-group, high-tech laboratory environments at Northern prepare students to function in clinical, research and commercial work settings. Students participate in two clinical practicum experiences—one at the sophomore level and another at the senior level. The senior practicum is conducted at Mayo Clinic in Rochester, Minnesota.

Total Credits Required for Degree	126
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	58
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 204 Clinical Microbiology (2 cr.) <i>and</i> CLS 214 Diagnostic Microbiology (3 cr.) <i>or</i> BI 203 Medical Microbiology (5 cr.) <i>or</i> BI 303 General Microbiology (5 cr.)	5
CLS 420 Clinical Education Practices	1
BI 218 Cell and Molecular Biology	4
BI 312 Genetics	4
BI 313 Cell Biology	4
BI 416 Cytogenetics	2
BI 418 Molecular Biology	4
CH 454 Biochemical Techniques	4
CLS Electives	3
<i>Choose from the following:</i>	
CLS 200 Urine and Body Fluid Analysis (1 cr.)	
CLS 202 Clinical Chemistry (4 cr.)	
CLS 203 Immunohematology (3 cr.)	
CLS 213 Clinical Immunology and Serology (1 cr.)	
CLS 391 Laboratory Experience (1-3 cr.)	
*CLS Practicum (5 weeks)	5
<i>Choose 250T plus from the following to correspond with prerequisite courses chosen above: CLS 251, CLS 252, CLS 253, CLS 254, CLS 391</i>	

CLS Senior Practicum (6 months) **16**
Choose cytogenetics practicum or molecular biology practicum below.

Cytogenetics Practicum

CLS 250G Clinical Practice	2
CLS 460 Specimen Processing and Culture	4
CLS 461 Microscopic Analysis	4
CLS 462 FISH Technology	3
CLS 463 CG Specialized Tech/Projects	3

Molecular Biology Practicum

CLS 250G Clinical Practice	2
CLS 470 DNA Purification	2
CLS 471 Southern Blot Analysis	5
CLS 472 PCR Analysis	5
CLS 473 MB Specialized Tech/Projects	2

Other Required Courses **33-35**

BI 111 Introductory Biology: Principles [III]	4
BI 104 Human Anatomy and Physiology [III] <i>or</i> BI 201 Human Anatomy	3-4
BI 404 Virology <i>or</i> BI 419 Biology of Cancer	3-4
BI 405 Immunology	3
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
CH 450 Introductory Biochemistry	4
MA 171 Introduction to Probability and Statistics [V]	4

Diagnostic Genetics Electives **3-5**

**Note: Students may substitute any clinical laboratory science practicum (above 200) in place of the CLS 2XX series.*

Histotechnologist Major

This program prepares students with the basic science background needed to meet the requirements for admission to clinical programs approved by the ASC or NAACLS. Histology is the study of tissues. Histotechnologists perform all functions of the histotechnician plus they identify tissue structures, cell component and staining characteristics, relate these to physiologic functions, implement and evaluate new techniques and procedures, make quality control judgments and apply principles of management and education methodology when appropriate. The first three years of the curriculum are at the university, while the fourth year is completed through an accredited histotechnology practicum. The university is affiliated with hospitals in Wisconsin and Michigan; however, students may apply to any accredited school in the United States. If students meet the hospital's standards and are accepted, they register for the histotechnology practicum courses at NMU and pursue a twelve-month program under the direction of the hospital.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	42
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 250H Clinical Practice	2
CLS 380 Histotechnique I	7
CLS 381 Histotechnique II	7
CLS 382 Histotechnique III	3
CLS 383 Histochemistry/Pathology	8
CLS 384 Advanced Histology	5
CLS 420 Clinical Educational Practices	1
Other Required Courses	54
BI 111 Introductory Biology: Principles [III]	4
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
BI 206 Human Genetics	3
BI 218 Cell and Molecular Biology	4
BI 313 Cell Biology	4
BI 405 Immunology	3
BI 426 Human Histology	4
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
CH 450 Introductory Biochemistry	4
HL 101 Medical Terminology	1
MA 171 Introduction to Probability and Statistics [V]	4

Science Technologist Major

This major prepares graduates to be premier laboratorians who are employable in a variety of laboratory settings (clinical, commercial, research, biotechnology, forensic). Students are exposed to a wide variety of methods, principles, instruments, technical skills and laboratory problems. The curriculum is built upon a firm foundation in clinical techniques, but students have options in course selection to pursue one of three areas: clinical certification, biotechnology or forensics. Students who have first completed an associate degree program in clinical lab technician, histotechnician or science technician will find that much of their course work may be applied to the science technologist degree.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	39
CLS 302 Advanced Clinical Chemistry	2
CLS 391 Laboratory Experience	1-4
CLS 420 Clinical Educational Practices	1

CLS Electives 15-19

Choose from the following:

CLS 100 Obtaining a Blood Specimen (1 cr.)	
CLS 109 Introduction to Diagnostic Sciences (1 cr.)	
CLS 190 Microscopy and Laboratory Techniques (1 cr.)	
CLS 200 Urine and Body Fluid Analysis (1 cr.)	
CLS 201 Clinical Hematology/Coagulation (3 cr.)	
CLS 202 Clinical Chemistry (4 cr.)	
CLS 203 Immunohematology (3 cr.)	
CLS 204 Clinical Microbiology (2 cr.)	
CLS 213 Clinical Immunology and Serology (1 cr.)	
CLS 214 Diagnostic Microbiology (3 cr.)	
CLS 301 Advanced Hematology/Coagulation (3 cr.)	
CLS 303 Advanced Immunohematology (2 cr.)	
CLS 304 Advanced Clinical Microbiology (2 cr.)	

Clinical Laboratory Technology Emphasis* 16

Must have taken the following courses: CLS 100, CLS 109, CLS 190, CLS 200, CLS 201, CLS 202, CLS 203, CLS 204, CLS 213 and CLS 214 or equivalent.

CLS 250T Clinical Practice	2
CLS 251 Clinical Hematology Practicum	3
CLS 252 Clinical Chemistry Practicum	4
CLS 253 Blood Banking Practicum	3
CLS 254 Clinical Microbiology Practicum	4

DNA/Forensic Emphasis 16

BI 418 Molecular Biology	4
CJ 110 Introduction to Criminal Justice	4

Criminal Justice Electives 8

Choose from the following

CJ 213 The Judicial Function (4 cr.)	
CJ 214 The Investigative Process I (4 cr.)	
CJ 414 The Investigative Process II (4 cr.)	

Biotechnology Emphasis 16

BI 313 Cell Biology	4
BI 418 Molecular Biology	4
CH 450 Introductory Biochemistry	4
CH 454 Biochemical Techniques	4

Other Required Courses 48-49

BI 111 Introduction to Biology: Principles [III]	4
BI 104 Human Anatomy and Physiology [III]	4
BI 206 Human Genetics <i>or</i>	3-4
BI 312 Genetics	
BI 218 Cell and Molecular Biology	4
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 220 Introductory Organic Chemistry	5
MA 171 Introduction to Probability and Statistics [V]	4
PH 201 College Physics I [III]	5
PH 202 College Physics II [III]	5
CH 450 Introduction to Biochemistry	4

Science Technologist Electives** 14-15

Recommend that electives be chosen from the following courses:

BI 303 General Microbiology (3 cr.)	
BI 404 Virology (3 cr.)	
BI 405 Immunology (3 cr.)	
BI 414 Electron Microscopy (4 cr.)	
BI 416 Experimental Cytogenetics (3 cr.)	

- BI 426 Human Histology (3 cr.)
- MGT 240 Organizational Behavior and Management (3 cr.)
- CIS 110 Principles of Computer Information Systems (4 cr.) [V]
- CH 241 Chemical Equilibrium (3 cr.)
- CH 242 Quantitative Analysis (2 cr.)
- CLS Electives

**Any clinical laboratory technology certification at the associate level or above is acceptable.*

***Other electives may be chosen depending on student interest. Students interested in graduate education should choose additional courses in organic chemistry, physical chemistry, calculus and cell biology. Students may also consider a major in biology/physiology or biochemistry if graduate education is the goal.*

ASSOCIATE DEGREE PROGRAMS

Clinical Laboratory Technician *Associate of Applied Science*

This program develops proficiency in the performance of a variety of tests as well as an understanding of the interrelationships of laboratory data and physiological processes. Clinical laboratory technicians perform routine laboratory tests under supervision to provide diagnostic data in clinical and biomedical industries. The first three semesters of the program consist of liberal arts, science and clinical laboratory science courses taken on campus. During the last six months of the second year, students are placed in an affiliated hospital to complete a clinical practicum.

Total Credits Required for Degree	64
Liberal Studies	12
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities or Social Science Elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Required Courses in Major	36
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 202 Clinical Chemistry	4
CLS 203 Immunohematology	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 214 Diagnostic Microbiology	3
CLS 250T Clinical Practice	2
CLS 251 Clinical Hematology Practicum	3
CLS 252 Clinical Chemistry Practicum	4
CLS 253 Blood Banking Practicum	3
CLS 254 Clinical Microbiology Practicum	4
Other Required Courses	12
BI 104 Human Anatomy and Physiology	4
CH 105 Chemical Principles (or higher)	8

General Elective 3

Students who score below a predictive "C" on Northern Michigan University's mathematics placement test for MA 104 are required to take MA 100. Students who score a "C" or higher are exempt from the mathematics requirement.

Histotechnician *Associate of Applied Science*

This major provides students with a basic science background needed to meet the requirements for admission to a clinical program accredited by The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Histotechnicians prepare sections of body tissue for examination by a pathologist to diagnose body dysfunction and malignancy. The specimens may be used for diagnostic, research or teaching purposes.

Total Credits Required for Degree	71-89
Liberal Studies	12
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities or Social Science Elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Required Courses in Major	9
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
Practicum	
<i>Choose one of the following:</i>	
6-month practicum or	14
CLS 380 Histotechnique I	7
CLS 381 Histotechnique II	7
12-month practicum:	32
CLS 250H Clinical Practice	2
CLS 380 Histotechnique I	7
CLS 381 Histotechnique II	7
CLS 382 Histotechnique III	3
CLS 383 Histochemistry/Pathology	8
CLS 384 Advanced Histology	5
Other Required Courses	35
MA 104 College Algebra with Applications in the Sciences and Technologies (or above)	4
BI 111 Introductory Biology: Principles	4
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
BI 206 Human Genetics	3
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CH 220 Introduction to Organic Chemistry	5
HL 101 Medical Terminology	1

Science Technician Associate of Applied Science

This program prepares graduates to work in a variety of laboratory settings (biomedical, commercial, etc.). Students are provided with a basic foundation in clinical techniques complemented with science, math and computer courses. The science technician degree may “ladder” into the science technologist degree with no loss of credit.

Total Credits Required for Degree	65
Liberal Studies	12
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities or Social Science Elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Required Courses in Major	23
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 200 Urine and Body Fluid Analysis	1
CLS 201 Clinical Hematology/Coagulation	3
CLS 202 Clinical Chemistry	4
CLS 203 Immunohematology	3
CLS 204 Clinical Microbiology	2
CLS 213 Clinical Immunology and Serology	1
CLS 214 Diagnostic Microbiology	3
BI 104 Human Anatomy and Physiology	4
Other Required Courses	29
BI 111 Introductory Biology: Principles	4
BI 218 Cell and Molecular Biology	4
MA 104 College Algebra with Applications in the Sciences and Technologies (or above)	4
CH Electives (100 level or above)	8
PH Electives (200 level or above)	5
CIS 110 Principles of Computer Information Systems <i>or</i> IS Electives	4

CERTIFICATE PROGRAMS

Clinical Assistant Certificate

Clinical assistants are members of the health care delivery team. They perform a variety of duties under the supervision of a laboratory scientist, nurse or other medical personnel such as specimen procurement and sample processing, basic laboratory testing, patient processing, basic technical nursing procedures and secretarial work. This one-year program includes an introduction to fundamental laboratory, office, and nursing skills. During the second semester, students train in clinical sites within the Marquette area. The first phase of the program allows students to gain proficiency in phlebotomy (obtaining a blood specimen)

and become eligible for phlebotomy certification. The second phase expands into the multi-skilled areas so graduates are eligible for employment in a variety of health care settings.

Total Credits Required for Certificate	33
Liberal Studies	4
EN 111 College Composition I	4
Health Promotion	1
HP 200 Physical Well Being	1
Required Courses in Major	18
CLS 100 Obtaining a Blood Specimen	1
CLS 109 Introduction to Diagnostic Sciences	1
CLS 190 Microscopy and Laboratory Techniques	1
CLS 150 Phlebotomy Practicum	4
CLS 250A Clinical Practice	2
AH 125 Clinical Assistant Skills	3
OIS 101 Keyboarding for Info. Processing	1
OIS 103 Beginning Formatting/Typing	1
OIS 183 Office Procedures	4
Other Required Courses	10
BI 104 Human Anatomy and Physiology	4
HL 242 Emergency Health Care	2
MA 090 Beginning Algebra (if needed)*	4

Elective (if MA 090 not needed)

**If math placement test indicates placement into a higher level math, math is not needed.*

Surgical Technology Certificate

This program prepares graduates to assist the surgeon and other members of the operating room team. Duties may include such tasks as setting up sterile trays and equipment for procedures; scrubbing for procedures with the surgeon; draping patients, passing instruments, and holding retractors; sterilizing instruments and supplies; and maintaining stock inventory. The program consists of theory and practical experience in the operating room setting. Courses must be taken sequentially. Graduates are qualified to take the Liaison Council on Certification for Surgical Technologist (LCC-ST) national examinations.

Total Credits Required for Certificate	39
Required Prerequisite Courses	
Fall Semester	14
BI 104 Human Anatomy and Physiology	4
EN 111 College Composition I	4
ST 104 Introduction to Surgical Technology	1
HP 200 Physical Well Being	1
OIS 171 Medical Terminology	4

Upon receiving notice of acceptance into the surgical technology program the following sequence of classes will be followed:

Winter Semester	13
ST 111 Basic Surgical Concepts/Techniques	5
ST 112 Surgical Technology I	2
ST 113 Surgical Technology I Practicum	6
Summer Semester	12
ST 114 Surgical Technology II	2
ST 115 Surgical Technology II Practicum	10

MINOR PROGRAM

Clinical Laboratory Techniques Minor

Total Credits Required for Minor **20**

20 credits of CLS courses. No more than 4 credits in Directed Studies or CLS 391 may be used.

COMMUNICATION AND PERFORMANCE STUDIES

DEPARTMENT OFFICE

203 Russell Thomas Fine Arts Building

Phone: 906-227-2045

Fax: 906-227-2071

Web Page: www.nmu.edu/caps

Department Head: Donald J. Rybacki • drybacki@nmu.edu

Director of Theatre: James A. Panowski • jpanowsk@nmu.edu



Communication and Performance Studies at NMU

Communication empowers us to remember the past, act in the present and anticipate the future. It is the vehicle by which we manage relationships with others in contexts ranging from “one-to-one” to “one-to-many” using personal, public and mass-mediated channels of communication. The disciplines within the Communication and Performance Studies Department represent a body of knowledge concerning verbal and nonverbal symbols that are spoken, enacted, heard and seen. The department covers seven major areas of study and also serves the needs of students who wish to develop more effective communication skills. While excellent teaching is the department’s first priority, faculty members are also engaged in a variety of professional development activities, including research and creative endeavors, as well as service to the university and community.

Forest Roberts Theatre

The Forest Roberts Theatre is one of the finest university theatres in the nation, boasting computerized lighting control and an upgraded sound system. Theatre majors put what they learn in performance and technical theatre classes into practice onstage and backstage in five major productions per year.

Experimental theatre space in the McClintock Building is home to numerous student-directed productions as well as many performance classes.

Student Organizations

- WUPX student-operated radio station
- Public Eye News (student-run TV news program)
- *The North Wind* student newspaper
- Public Relations Student Society of America (PRSSA)
- Media Alliance for Communication Students (MACS)

Department/Program Policies

All department majors must maintain a 2.50 grade point average in the major and earn at least a “C-” in all major courses that are required for graduation, unless otherwise noted. Department minors must maintain a 2.00 grade point average.

Speech Communication Majors

All speech communication majors are required to complete and pass a senior qualifying examination and to present and receive a passing evaluation for a graduation presentation during the semester in which they intend to graduate.

Details regarding either requirement may be obtained from a student’s departmental adviser or the department head. Students will be contacted at the beginning of their final semester and given instructions for the completion of both requirements, and should register for SP 485.

Theatre Majors

Each semester all theatre majors are required to participate in a jury presentation scheduled and critiqued by the theatre faculty. Juries are evaluated on a “pass/fail” basis; the evaluations are not reflected in students’ academic transcripts. Students who fail two consecutive theatre juries at a given level may be dropped from the major.

Transfer students who wish to major in theatre must receive credit for at least sixteen hours of academic work in the theatre area at NMU unless a waiver is approved by the student’s adviser and department head.

All theatre majors are required to have at least one field studies experience as part of their degree program. Only the New York Field Studies, the Stratford Summer Tour or a comparable substitute approved by theatre faculty will fulfill this requirement.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Electronic Journalism Major

This major is designed for the student seeking a career in the news industry. Students are taught how to research, write, shoot, edit and produce news stories for electronic media (radio, TV and the Internet). Students are also taught leadership and responsibility through study of communication ethics and law. The course work is integrated with "live" student-produced newscasts.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	40
SP 110 Interpersonal Communication	4
EN 206 Survey of Journalism	4
BC 265 Writing and Announcing for Broadcast	4
BC 271 Audio Production	4
BC 272 Studio TV Production	4
BC 365 Broadcast News Writing and Reporting	4
BC 470 Mass Communication Law	4
BC 471 Mass Communication and Society	4
BC 420 Global Communication <i>or</i>	4
BC 415 Intercultural Communication	
BC course 300 or above <i>or</i>	4
SP 432 Environmental Communication	
Minor	20
Any minor except media production and new technology or media studies.	
Other Required Course	4
PS 101 Introduction to Political Science [IV] <i>or</i>	4
PS 105 American Government [IV]	

Entertainment and Sports Promotion Major

This major prepares students for entry-level positions as communication practitioners ranging from being a publicist for an individual artist or entertainer to being a sports information director for a university or professional team, as well as for the pursuit of a graduate education in entertainment or sports management. It teaches students to develop skills and understand the nature of media relations, promotes intellectual inquiry and emphasizes sound, professional ethics.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	41-42
ESPR Core	32
BC 165 Introduction to Mass Communication	4
BC 470 Mass Communication Law	4
SP 110 Interpersonal Communication	4
SP 300 Rhetorical Theory <i>or</i>	4
SP 310 Communication Theory <i>or</i>	
SP 401 Persuasion	
ESPR 160 Introduction to Entertainment and Sports Promotion	4
ESPR 260 Fundamentals of Entertainment and Sports Promotion	4
ESPR 360 Publicity Techniques for Entertainment and Sports Promotion	4
ESPR 431 Campaigns	4
ESPR Electives	9-10
ESPR 463 Field Studies, TH 493 Theatre Field Studies, ESPR 491 Practicum or ESPR 492 Internship	1-2
<i>Choose from the following:</i>	8
BC 310 Sports and Special Events Programming (4 cr.)	
PE 110 Introduction to Physical Education (2 cr.) <i>and</i>	
PE 411 Organization and Administration of Physical Education and Athletics (2 cr.)	
SP 100 Public Address (4 cr.) <i>or</i>	
SP 220 Interviewing (4 cr.)	
TH 132 Acting I (4 cr.) <i>or</i>	
TH 330 Intermediate Acting (w/instructor permission) (4 cr.)	
TH 404 American Musical Theatre (4 cr.)	
TH 456 Theatre Management (4 cr.)	
ESPR 295 Special Topics in Entertainment and Sports Promotion (4 cr.)	
ESPR 495 Special Topics in Entertainment and Sports Promotion (4 cr.)	
Other Graduation Requirements	2-4
BC 325 Communication and Performance in Africa (4 cr.) [VI]	
EN 125 Introduction to Film (4 cr.) [VI]	
MU 125 Music and Society (4 cr.) [VI]	
MU 325 World Music (4 cr.) [VI]	
SO 251 Sports in Society (2 cr.) [IV]	
SP 402 Communication Criticism (4 cr.) [II]	
TH 130 Introduction to Theatre (4 cr.) [VI]	
TH 360 History of Theatre (4 cr.) [VI]	
TH 361 Modern Drama (4 cr.) [VI]	

Computer Use Elective

Choose from the following:

- IS 100 Introduction to Windows, E-mail and the Internet (1 cr.) [V]
- IS 101 Beginning Word Processing (1 cr.) [V]
- IS 201 Advanced Word Processing (1 cr.) [V]
- IS 102 Beginning Spread Sheets (1 cr.) [V]
- IS 202 Intermediate Spread Sheets (1 cr.) [V]
- IS 104 Beginning Database (1 cr.) [V]
- IS 204 Advanced Database (1 cr.) [V]
- IS 105 Presentation/Multimedia Software (1 cr.) [V]
- IS 107 Beginning Desktop Publishing (1 cr.) [V]
- IS 207 Intermediate Desktop Publishing (1 cr.) [V]
- IS 111 Computerized Personal Accounting (1 cr.)
- IS 112 Computerized Small Business Accounting (1 cr.) [V]
- IS 208 Web Page Development (1 cr.) [V]
- IS 209 Statistical Software (1 cr.) [V]
- IS 120 Computer Concepts (2 cr.) [V]
- CIS 110 Principles of Computer Information Systems (4 cr.) [V]

Minor 20

Choose any minor except public relations.

Other Required Course 4

- EN 211E Critical Thinking and Writing (I) *or* 4
- SP 200 Argumentation (If the EN 211 requirement was met prior to declaration of the major.)

Media Production and New Technology Major

This major focuses on a wide variety of production careers such as music recording and corporate video. Students use professionally equipped studios to learn concepts and apply them to create award-winning media content. The department's labs include professional audio and video equipment using the latest digital technology such as Digidesign ProTools, Final Cut Pro and Trinity.

Total Credits Required for Degree 124

Liberal Studies 30-40

Health Promotion 2

Required Courses in Major 42

- SP 110 Interpersonal Communication 4
- BC 165 Introduction to Mass Communication 4
- BC 265 Writing and Announcing for Broadcast 4
- BC 271 Audio Production 4
- BC 272 Studio TV Production 4
- BC 470 Mass Communication Law 4
- BC 473A Advanced Audio Production *or* 4
 - BC 473F Advanced Field Production *or*
 - BC 473W Advanced Writing
- BC 471 Mass Communication and Society *or* 4
 - BC 420 Global Communication
- Broadcasting Electives (300 or above) 8
- BC 491 Practicum *or* 2
 - BC 492 Internship

Minor 20

Any minor except electronic journalism or media studies.

3 Media Studies Major

This is a non-production major that examines media from a theoretical perspective. Topics include mass communication theory, social effects of media and intercultural aspects of mass communication. In addition to analyzing media and media messages, students are also engaged in writing for the mass media. This major is especially helpful for students considering graduate or professional degrees.

Total Credits Required for Degree 124

Liberal Studies 30-40

Health Promotion 2

Required Courses in Major 40

- SP 110 Interpersonal Communication 4
- BC 165 Introduction to Mass Communication 4
- BC 265 Writing and Announcing for the Media 4
- BC 473W Advanced Media Writing 4
- BC 470 Mass Communication Law *or* 4
 - BC 471 Mass Media and Society
- BC 415 Intercultural Communication *or* 4
 - BC 420 Global Communication
- BC 410 The Documentary *or* 4
 - SP 402 Communication Criticism [II]
- BC 325 Communication and Performance in Africa *or* 4
 - SP 404 Communication and the Arts

Electives 8

Choose from the courses listed above (BC 470 or BC 471; BC 415 or BC 420; BC 410 or SP 402; BC 325 or SP 404) that have not yet been taken.

Minor 20

Other Required Course 4

- TH 361 Modern Drama [VI] *or* 4
- EN 125 Introduction to Film [VI]

Public Relations Major

This major is a professional program designed to meet, and in some cases surpass, the Public Relations Society of America's Guidelines for Undergraduate Education. It teaches the kind of research, writing, planning and budgeting skills that students need to succeed in the job market and allows them to employ these skills on behalf of a variety of clients. An extremely active chapter of Public Relations Student Society of America gives students additional opportunities for learning and service.

Total Credits Required for Degree 124

Liberal Studies 30-40

Health Promotion 2

Required Courses in Major 40

Core 36

- BC 165 Introduction to Mass Communication 4
- BC 470 Mass Communication Law 4
- SP 110 Interpersonal Communication 4

SP 300 Rhetorical Theory *or*
 SP 310 Communication Theory
 PR 231 Introduction to Public Relations
 PR 250 Public Relations Research
 PR 330 Public Relations Message Design
 PR 430 Public Relations Case Studies
 PR 431 Campaigns

Theoretical Elective

Choose from the following:

BC 410 The Documentary (4 cr.)
 BC 320 Media Management (4 cr.)
 BC 415 Intercultural Communication (4 cr.)
 BC 420 Global Communication (4 cr.)
 BC 471 Mass Communication and Society (4 cr.)
 BC 495 Special Topics in Broadcasting (4 cr.)
Adviser approved topic.
 EN 404 The English Language (4 cr.)
 SP 401 Persuasion (4 cr.)
 SP 421 Organizational Communication (4 cr.)
 SP 425 Communication Ethics (4 cr.)
 SP 432 Environmental Communication (4 cr.)
 SP 495 Special Topics In Speech Communication (4 cr.)
Adviser approved topic.
 PR 495 Special Topics in Public Relations (4 cr.)

Other Required Course

May be satisfied by courses in the major, minor, liberal studies or general electives. Contact department or see department adviser for more information.

EN 211E Critical Thinking and Writing [I] *or*
 SP 200 Argumentation (If the EN 211 requirement was met prior to declaration of the major.)

Environmental Issues Elective

Choose from the following:

AN 100 Introduction to Cultural Anthropology (4 cr.) [IV]
 AN 210 People, Culture and Nature (4 cr.) [IV]
 BI 210 Principles of Ecology (4 cr.)
 BI 305 Ecology of the Northern Forest (3 cr.) [III]
 ENV 101 Introduction to Environmental Science (4 cr.) [III]
 GC 100 Physical Geography (4 cr.) [III]
 GC 164 Human Geography (4 cr.) [IV]
 GC 320 Environmental Policy and Regulation (4 cr.)
 GC 401 Biogeography (4 cr.)
 GC 470 Environmental Ethics (4 cr.)
 GC 475 Environmental Impact Assessment (4 cr.)
 SP 432 Environmental Communication (4 cr.)

Economic Issues Elective

Choose from the following:

EC 101 The American Economy (4 cr.) [IV]
 EC 201 Microeconomic Principles (4 cr.)
 EC 202 Macroeconomic Principles (4 cr.)
 EC/HS 337 American Economic History (4 cr.) [IV]
 GC 220 Economic Geography (4 cr.)

Computer Use Elective

Choose from the following:

CIS 110 Principles of Computer Information Systems (4 cr.) [V]
 IS 100 Introduction to Windows, E-mail and the Internet (1 cr.) [V]
 IS 101 Beginning Word Processing (1 cr.) [V]
 IS 201 Advanced Word Processing (1 cr.) [V]

4 IS 102 Beginning Spread Sheets (1 cr.) [V]
 IS 105 Presentation/Multimedia Software (1 cr.) [V]
 4 IS 107 Beginning Desktop Publishing (1 cr.) [V]
 4 IS 202 Intermediate Spread Sheets (1 cr.) [V]
 4 IS 104 Beginning Database (1 cr.) [V]
 4 IS 204 Advanced Database (1 cr.) [V]
 4 IS 111 Computerized Personal Accounting (1 cr.)
 4 IS 112 Computerized Small Business Accounting (1 cr.) [V]
 IS 207 Intermediate Desktop Publishing (1 cr.) [V]
 IS 208 Web Page Development (1 cr.) [V]
 IS 120 Computer Concepts (2 cr.) [V]
 OIS 450 Advanced Desktop Publishing (3 cr.)

Minor

20

Choose any minor except speech cluster or entertainment and sports promotion.

Speech Communication Major

This major teaches face-to-face communication skills and critical thinking skills based upon a body of knowledge that is trans-portable and applicable to a variety of career paths.

Performance and theoretical electives afford students the opportunity to tailor their studies to their interests as they prepare for careers ranging from sales to supervision, from the ministry to law. A background in speech communication is an asset to all career-minded individuals who must communicate clearly, forcefully and persuasively.

Total Credits Required for Degree 124

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 44

Core 24

SP 100 Public Address 4
 SP 110 Interpersonal Communication 4
 SP 120 Small Group Process 4
 SP 250 Research in Speech Communication 4

Note: Students may not take more than one course at the 300 or 400 level prior to completing SP 250 with a C- or better.

SP 300 Rhetorical Theory 4
 SP 310 Communication Theory 4
 SP 485 Outcome Assessment 0

Performance Elective 4

SP 200 Argumentation *or* 4

Required if EN 211E is not taken in liberal studies.

SP 203 Advanced Public Address (4 cr.) *or*
 SP 220 Interviewing (4 cr.) *or*
 SP 240 Oral Interpretation of Literature (4 cr.) [III] *or*
 SP 295 Special Topics in Speech (1-4 cr.)

Speech Communication Electives 16

Choose from the following:

BC 415 Intercultural Communication (4 cr.)
 SP 401 Persuasion (4 cr.)
 SP 402 Communication Criticism (4 cr.) [II]
 SP 404 Communication and the Arts (4 cr.)

- SP 405 Negotiating (4 cr.)
- SP 410 Advanced Interpersonal Communication (4 cr.)
- SP 412 Nonverbal Communication (4 cr.)
- SP 421 Organizational Communication (4 cr.)
- SP 425 Communication Ethics (4 cr.)
- SP 432 Environmental Communication (4 cr.)
- SP 495 Special Topics in Speech (4 cr.)

Minor **20**

Theatre Major

The theatre program offers a full range of courses plus extensive applied experiences both on and off stage. Students prepare for professional, community and educational theatre positions. A special audition class has helped ensure 90 percent placement of theatre students over the past decade.

Total Credits Required for Degree **128**

Liberal Studies **30-40**

Health Promotion **2**

Required Courses in Major **48**

Core **27**

TH 131 Stagecraft 4

TH 132 Acting I 4

TH 245 Voice and Diction 4

TH 352 Directing Theory 4

TH 358 Directing Practicum 1

TH 360 History of Theatre [VI] 4

TH 361 Modern Drama [VI] 4

TH 432 Audition 1

TH 493 Field Studies 1

Theatre Electives **6-8**

Choose from the following:

TH 141 Methods of Design Presentation (4 cr.)

TH 232 Stage Costume (3 cr.)

TH 234 Stage Makeup (4 cr.)

TH 241 Scenic Design (3 cr.)

TH 340 Stage Lighting (3 cr.)

TH 341 Stage Properties (4 cr.)

TH 456 Theatre Management (4 cr.)

Theatre Electives 13-15

Minor **20**

MINOR PROGRAMS

Communication and Performance Studies Minor

Only for departmental majors except public relations.

Total Credits Required for Minor **24**

Note: Students may elect a cluster of courses totaling 24 credit hours from two or more departments outside of their major in lieu of a regular minor.

The major adviser must submit a list of courses in the cluster to the Degree Audits Office before the second semester of the student's junior year.

Departments that contribute two or more courses to the cluster minor must sign off on the list.

Electronic Journalism Minor

Total Credits Required for Minor **20**

EN 206 Survey of Journalism 4

BC 265 Writing and Announcing for Broadcast 4

BC 271 Audio Production 4

BC 272 Studio TV Production 4

BC 365 Broadcast News Writing and Reporting 4

Entertainment and Sports Promotion Minor

Because enrollment in ESPR prefix courses is tightly controlled, any student electing this minor must notify the CAPS Department at the time the minor is chosen. Students majoring in public relations may not minor in entertainment and sports promotion. Students majoring in any other departmental program that requires BC 165 and/or SP 110, who elect this minor, should count these courses in their major and bring the total number of hours in the minor to 20 by choosing courses totaling four credit hours from the following: ESPR 295, ESPR 495, BC 325, EN 125, MU 125, MU 325, SO 251, SP 402, TH 130, TH 360 and TH 361.

Total Credits Required for Minor **20**

BC 165 Introduction to Mass Communications *or* 4

SP 110 Interpersonal Communication 4

ESPR 160 Introduction to Entertainment and Sports Promotion 4

ESPR 260 Fundamentals of Entertainment and Sports Promotion 4

ESPR 360 Publicity Techniques for Entertainment 4

and Sports Promotion 4

ESPR 431 Campaigns 4

Media Production and New Technology Minor

Total Credits Required for Minor **20**

BC 165 Introduction to Mass Communication 4

BC 265 Writing and Announcing for Broadcast 4

BC 271 Audio Production 4

BC 272 Studio TV Production 4

BC 473A Advanced Audio Production *or* 4

BC 473F Advanced Field Production *or*

BC 473W Advanced Writing

Media Studies Minor

Students majoring in a departmental program that requires SP 110, who elect this minor, should count SP 110 in their major and replace it in the minor with TH 130.

Total Credits Required for Minor	20
SP 110 Interpersonal Communication	4
BC 165 Introduction to Mass Communication	4
BC 415 Intercultural Communication <i>or</i> BC 420 Global Communication	4
BC 410 The Documentary <i>or</i> SP 402 Communication Criticism	4
BC 325 Communication and Performance in Africa <i>or</i> SP 404 Communication and the Arts	4

Performance Theatre Minor

Total Credits Required for Minor	22
TH 130 Introduction to Theatre	4
TH 131 Stagecraft	4
TH 132 Acting I	4
TH 330 Intermediate Acting	4
TH 491 Practicum in Theatre	2
TH Performance Course Elective	4

Public Relations Minor

Because enrollment in PR prefix courses is tightly controlled, any student electing this minor must notify the CAPS Department at the time the minor is chosen. Students majoring in entertainment and sports promotion may not choose this minor. Students majoring in any other departmental program that requires SP 110, who elect this minor, should count SP 110 in their major and replace it in the minor with one of the theoretical electives listed for the public relations major.

Total Credits Required for Minor	24
SP 110 Interpersonal Communication	4
PR 231 Introduction to Public Relations	4
PR 250 Research in Public Relations	4
PR 330 Public Relations Message Design	4
PR 430 Public Relations Case Studies	4
PR 431 Campaigns	4

Speech Communication Minor

Total Credits Required for Minor	20
SP 100 Public Address	4
SP 110 Interpersonal Communication	4
SP 120 Small Group Process	4
Speech Electives	8
One course must be at the 400 level.	

Technical Theatre Minor

Total Credits Required for Minor	22
TH 130 Introduction to Theatre	4
TH 131 Stagecraft	4
TH 491 Practicum in Theatre	2-4
Theatre Electives	10-12
<i>Choose from the following:</i>	
TH 141 Methods of Design Presentation (4 cr.)	
TH 232 Stage Costume (3 cr.)	
TH 234 Stage Makeup (4 cr.)	
TH 241 Scenic Design (3 cr.)	
TH 340 Stage Lighting (3 cr.)	
TH 341 Stage Properties (4 cr.)	
TH 456 Theatre Management (4 cr.)	

Theatre Minor

Total Credits Required for Minor	22
TH 130 Introduction to Theatre	4
TH 131 Stagecraft	4
TH 132 Acting I	4
TH 360 History of Theatre <i>or</i> TH 361 Modern Drama	4
TH 352 Directing Theory	4
TH 491 Practicum in Theatre	2

Speech Cluster Minor

Only for departmental majors except public relations

Total Credits Required for Minor	24
<i>Note: Students may elect a cluster of courses totalling 24 credit hours from two or more departments outside of their major in lieu of a regular minor. The major adviser must submit a list of courses in the cluster to the Degree Audits Office before the second semester of the student's junior year. Departments that contribute two or more courses to the cluster minor must sign off on the list.</i>	

CRIMINAL JUSTICE

DEPARTMENT OFFICE

110 Walter F. Gries Hall

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Web Page: www.nmu.edu/cj

Department Head: Paul L. Lang • plang@nmu.edu

Criminal Justice at NMU

The Criminal Justice Department provides students with an understanding of the process by which justice is distributed in our society, the function and operation of the criminal justice system (law enforcement, criminal courts and corrections), and the role of individuals in the allocation of justice. The department offers a bachelor's degree in criminal justice, an associate degree in criminal justice and an associate of applied science degree in law enforcement. The department also offers a master's degree in criminal justice.

The curriculum prepares students for a range of careers in law enforcement, adult and juvenile corrections with federal, state or local criminal justice agencies, or for graduate study. The faculty is dedicated to providing a challenging learning experience and to graduating outstanding candidates for entry into their professional careers or graduate school. The department is committed to excellence in teaching, research and community service.

Student Organization

- Criminal Justice Association

Department Facilities

- Forensics laboratory
- NMU Regional Police Academy

Department/Program Policies

Course Prerequisite Notes

CJ 110 Introduction to Criminal Justice is a prerequisite to all of the CJ 200-, 300- and 400-level courses. Students must complete CJ 110 and attain junior status in order to be eligible to enroll in CJ 300- and 400-level courses.

Requirements for Transfer Students

Transfer students who want to major in criminal justice for the bachelor's degree must complete a minimum of 20 credits with the NMU Criminal Justice Department. At least 8 of these credits must be at the 300-level or above. Transfer students who want to enter the associate degree program in criminal justice must complete a minimum of 12 credits with the NMU Criminal Justice Department.

GPA Requirements

All criminal justice courses used for the criminal justice major, the criminal justice minor, or the associate degrees in criminal justice, law enforcement, and corrections must be completed with a grade of "C" or better.

Language Recommendations

Students are encouraged to complete at least one year of study in a foreign language. Language study could be undertaken to satisfy either the formal studies requirement or the requirement for a bachelor of arts degree.

Police Academy

The associate of applied science degree in law enforcement provides students with the opportunity to obtain Michigan Commission on Law Enforcement Standards (MCOLES) certified training through its Regional Police Academy. Michigan Public Act 203, 1965, and Michigan Administrative Code R 28.4101 requires that anyone seeking employment in the state as a police officer must first successfully complete the basic (MCOLES) approved police training curriculum. For information about the academy, including admission requirements, contact the Police Academy by calling 906-227-1408 or by visiting the Web site at <http://publicsafety.nmu.edu/Academy.htm>.

Corrections Officer Certification Program

(Temporarily suspended. No new students will be accepted during the 2006-2007 academic year.)

Internships

The Criminal Justice Department offers students in the bachelor's degree program an opportunity to participate in an internship program during their junior or senior year. This experience provides first-hand knowledge about the criminal justice field and an opportunity to apply knowledge and skills in the classroom to a professional setting. Internships enhance a student's career potential after graduation as well as provide important information regarding career selection.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Criminal Justice Major

This major provides a basic understanding of the criminal justice system and its components. Students additionally complete a number of advanced criminal justice electives selected to address their individual interests and professional goals.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	42
Criminal Justice Core	22
CJ 110 Introduction to Criminal Justice	4
CJ 212 The Law Enforcement Function <i>or</i> CJ 220 The Corrections Function	4
CJ 213 The Judicial Function	4
CJ 263 Criminology	4
CJ 315 Criminal Procedure	4
CJ 490 Professional Development and Assessment	2
Criminal Justice Electives*	20
<i>Choose from the following. At least 16 credits must be at the 300 level or above.</i>	
CJ 214 Investigative Process I (4 cr.)	
CJ 221 Roles of the Corrections Client (4 cr.)	
CJ 227 Correctional Institutions (4 cr.)	
CJ 245 Legal Issues in Corrections (4 cr.)	
CJ 250 Investigative Interviewing and Interrogation (4 cr.)	
CJ 255 Drugs, Crime and the Justice System (4 cr.)	
CJ 275 Legal Aspects of Retail Security (4 cr.)	
CJ 276 Retail Loss Prevention Management (4 cr.)	
CJ 280 Criminal Law (4 cr.)	
CJ 295 Special Topics in Criminal Justice (1-4 cr.)	
CJ 302 Community Relations and Crime Prevention (4 cr.)	
CJ 323 Community-Based Corrections (4 cr.)	
CJ 360 Case Studies in Crime (4 cr.)	
CJ 412 Crisis Intervention and Stress Analysis (4 cr.)	
CJ 414 Investigative Process II (4 cr.)	
CJ 420 Forensic Psychology (4 cr.)	
CJ 426 International Crime and Comparative Criminal Justice Systems (4 cr.)	
CJ 435 Domestic and International Terrorism (4 cr.)	
CJ 440 Discretionary Justice (4 cr.)	
CJ 465 Problem Solving in Criminal Justice (4 cr.)	
CJ 470 Liability Law in Criminal Justice (4 cr.)	
CJ 480 Cybercrime (4 cr.)	
CJ 495 Special Topics** (1-4 cr.)	
CJ 497 Teaching/Research Apprenticeship*** (1-4 cr.)	
CJ 498 Directed Study *** (1-4 cr.)	

Minor

20

**Other approved CJ course work (e.g., transfer credit or newly approved CJ courses) at the 200-400 level, not listed, may be used to satisfy the requirements in the CJ elective area.*

***No more than 8 credits of CJ 495 may be counted toward the major.*

****No more than 4 credits of CJ 497 and/or CJ 498 may be counted toward the criminal justice major.*

CJ 191, CJ 298 and CJ 299 do not apply toward the bachelor's degree program.

ASSOCIATE DEGREE PROGRAMS

Criminal Justice Associate of Science Degree

This degree is designed for a smooth transition into the bachelor's degree program for students who choose to continue their education after receiving the associate degree.

Total Credits Required for Degree	67
Liberal Studies	32
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities Electives	8
<i>Must be from more than one discipline.</i>	
Natural Sciences/Mathematics Electives	8
<i>Must be from more than one discipline and one course must be a laboratory science.</i>	
Social Sciences Electives	8
<i>Must be from more than one discipline.</i>	
Health Promotion	1
HP 200 Physical Well Being	1
Criminal Justice Required Courses	8
CJ 110 Introduction to Criminal Justice	4
CJ 212 The Law Enforcement Function <i>or</i> CJ 220 The Corrections Function	4
Criminal Justice Electives*	16
<i>Choose from the following:</i>	
CJ 191 Training Seminar (1-4 cr.) (Specific Topic)**	
CJ 213 The Judicial Function (4 cr.)	
CJ 214 Investigative Process I (4 cr.)	
CJ 221 Roles of the Corrections Client (4 cr.)	
CJ 227 Correctional Institutions (4 cr.)	
CJ 245 Legal Issues in Corrections (4 cr.)	
CJ 250 Investigative Interviewing and Interrogation (4 cr.)	
CJ 255 Drugs, Crime and the Justice System (4 cr.)	
CJ 263 Criminology (4 cr.)	
CJ 275 Legal Aspects of Retail Security (4 cr.)	
CJ 276 Retail Loss Prevention Management (4 cr.)	
CJ 280 Criminal Law (4 cr.)	
CJ 295 Special Topics in Criminal Justice (1-4 cr.)	
CJ 298 Directed Study** (1-4 cr.)	
CJ 302 Community Relations/Crime Prevention (4 cr.)	
CJ 315 Criminal Procedures (4 cr.)	
CJ 323 Community-Based Corrections (4 cr.)	
CJ 360 Case Studies in Crime (4 cr.)	

General Electives **10**

**Other approved CJ course work (e.g., transfer credit or newly approved CJ courses) at the 200 level, not listed, may be used to satisfy the requirements in the CJ elective area.*

***No more than 4 credits of CJ 191 and/or CJ 298 may be applied toward this degree. CJ 191 and CJ 298 do not apply toward the major in the bachelor's degree.*

**Law Enforcement
Associate of Applied Science Degree**

This degree provides training that will produce well-rounded and competent law enforcement practitioners. This includes, but is not limited to, competence in oral and written communications, an understanding of psychological and social issues relevant to criminal justice, the role of law enforcement in social control and in the larger criminal justice system and an appreciation for the dilemma inherent in policing a free society.

Total Credits Required for Degree **65**

Liberal Studies **24**

EN 111 College Composition I 4
 EN 211 College Composition II 4

Humanities Elective 4
 Natural Sciences/Mathematics Elective 4
 Social Science Electives 8

Health Promotion **1**
 HP 200 Physical Well Being 1

Criminal Justice Required Courses **20**

CJ 110 Introduction to Criminal Justice 4
 CJ 212 Law Enforcement Function 4
 CJ 299 Police Academy** 12

Criminal Justice Electives* **8**

Choose from the following:

- CJ 191 Training Seminar (1-4 cr.) (Specific Topic)***
- CJ 213 Judicial Function (4 cr.)
- CJ 214 Investigative Process I (4 cr.)
- CJ 220 Corrections Function (4 cr.)
- CJ 250 Investigative Interviewing and Interrogation (4 cr.)
- CJ 255 Drugs, Crime and the Justice System (4 cr.)
- CJ 263 Criminology (4 cr.)
- CJ 275 Legal Aspects of Retail Security (4 cr.)
- CJ 276 Retail Loss Prevention Management (4 cr.)
- CJ 280 Criminal Law (4 cr.)
- CJ 295 Special Topics in Criminal Justice (1-4 cr.)
- CJ 298 Directed Study*** (1-4 cr.)
- CJ 302 Community Relations/Crime Prevention (4 cr.)
- CJ 315 Criminal Procedures (4 cr.)
- CJ 323 Community-Based Corrections (4 cr.)
- CJ 360 Case Studies in Crime (4 cr.)

General Electives **12**

**Other approved CJ course work (e.g., transfer credit or newly approved CJ courses) at the 200 level, not listed, may be used to satisfy the requirements in the CJ elective area.*

***Or satisfactory completion of a Michigan Commission on Law Enforcement Standards (MCOLES) approved police academy or equivalent.*

****No more than 4 credits of CJ 191 and/or CJ 298 may be applied toward this degree. CJ 191 and CJ 298 do not apply toward the bachelor's degree major. CJ 299 only applies to this degree. It cannot be applied to any other diploma, certificate, associate's or bachelor's degree at NMU.*

MINOR PROGRAM

Criminal Justice Minor

Total Credits Required for Minor **20**

CJ110 Introduction to Criminal Justice 4
 Criminal Justice Electives* 16

**Criminal justice electives are planned with a criminal justice adviser and an adviser from the student's major department. Students can obtain a copy of the minor form from the Criminal Justice Department secretary or Web site. The student's plan for a minor should be approved no later than the end of the junior year and filed with the Degree Audits Office.*

Any course selected for the criminal justice minor at the 300-400 level will require instructor permission.

CERTIFICATION PROGRAM

Corrections Certification

(Temporarily suspended. No new students will be accepted during the 2006-2007 academic year.)

ECONOMICS

DEPARTMENT OFFICE

208 Cohodas Administrative Center

Phone: 906-227-2220

Fax: 906-227-2229

Web Page: www.nmu.edu/economics

Interim Department Head: Robert Quinn • roquinn@nmu.edu

Economics at NMU

The Economics Department offers courses for majors and minors in economics, courses supporting other majors and courses for general electives and liberal studies requirements. Accordingly, economics courses fall into four types: introductory, basic principles, rigorous theory and applied economics.

The department takes pride in its long-standing tradition of emphasizing the application of theory to relevant and current economic issues. It aims to provide students with a solid understanding of how economics sheds light on the way property rights, social institutions, and market and political processes affect real-world economic activity at all levels, from the local to the global. Although the subject matter can be challenging, many students who have never taken economics courses before are pleasantly surprised with both the power and the wide scope of economic analysis.

The department offers bachelor of arts and bachelor of science degrees in economics and secondary education economics, and minors in economics and economics education. In cooperation with other departments, the Economics Department offers a major in social science and in secondary education social studies.

Department programs are tailored to meet the particular needs and vocational aims of students. Students planning to use the undergraduate major in economics as a foundation for further study in graduate school should minor in mathematics. For careers with the government, mathematics is recommended; for law school, accounting and finance is recommended; and for high school teaching, another social science is recommended. There are many career opportunities for the economics major; correspondingly, there are many alternatives in choosing electives and a minor field of study.

Student Organizations

- Economics Students Association
- Omicron Delta Epsilon Honor Society
- Student Michigan Education Association



Department/Program Policies

All economics majors and minors are urged to become familiar with computers and statistics regardless of career choice.

All majors and minors offered by the department require a 2.00 or higher grade point average for all economic courses. In addition, only courses passed with a "C-" or higher will be counted toward a major. Any exception must be requested by petition to the department.

Students majoring in secondary education economics or minoring in economics education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Economics Major

This major prepares students for graduate work or to enter the field as professional economists. Students also frequently use this major as the basis for entry into professional schools such as law, business and public administration, while others directly enter careers in business or government.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
EC 401 Intermediate Microeconomics	4
EC 402 Intermediate Macroeconomics	4
Economics Electives	16
MA 171 Introduction to Probability and Statistics [V] may be counted as an elective toward the economics major.	
Minor	20

Secondary Education Economics Major

Completion of this major, a teaching minor and the professional education sequence leads to certification as a secondary school teacher in economics.

Total Credits Required for Degree	127-131
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
EC 101 The American Economy [IV]	4
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
EC 320 Money and Banking	4
EC 401 Intermediate Microeconomics	4
EC 337 American Economic History [IV] or EC 402 Intermediate Macroeconomics	
EC Electives	8
Teaching Minor, minimum	20-24

Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
EC 350 Methods and Materials in Teaching Social Studies Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

MINOR PROGRAMS

Economics Minor

Total Credits Required for Minor	20
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
EC Electives	12

Economics Education Minor

Total Credits Required for Minor	20-24
EC 101 The American Economy	4
EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
EC 320 Money and Banking	4
EC 350 Methods and Materials in Teaching Social Studies Education*	4
EC 401 Intermediate Microeconomics	4

**Not required if major is social studies education, geography education, history education or political science education.*

SCHOOL OF EDUCATION

SCHOOL OF EDUCATION OFFICE

179 Whitman Hall

Phone: 906-227-2728

Fax: 906-227-2764

Web Page: www.nmu.edu/education

Associate Dean of Teacher Education and Director: To be named

Director, Teacher Education Field Experience: Rodney H. Clarken • rclarken@nmu.edu

Director, Teacher Education Student Services: Lynne Gerhardt • lgerhardt@nmu.edu

Certification Counselor: Nancy Carter • ncarter@nmu.edu

Education at NMU

The School of Education offers professional studies courses leading to the Michigan Professional or Provisional Teaching Certificate at the elementary and secondary levels as well as courses for continuing professional development through the master's degree. Students must be eligible for admission to the School of Education in order to enroll in education courses.

All NMU education programs are accredited by the National Council for the Accreditation of Teacher Education and approved by the Michigan Department of Education.

Northern's School of Education carries primary responsibility for the following:

- Curriculum for elementary school teachers.
- Curriculum for teachers of children with cognitive impairment.
- Curriculum for teachers of children with emotional impairment. (Temporarily suspended.)
- A sequence of professional courses in education for secondary school teachers.

In cooperation with other departments, the school also sponsors graduate programs for teachers and school service personnel leading to the master of arts in education. These programs are described in the *Graduate Studies Bulletin*.

Most education courses at Northern Michigan University include field experience in K-12 classrooms. A number of education courses meet in public school buildings to expand teaching opportunities. Another learning opportunity is an apprenticeship in special education, which provides students with a chance to refine goals and polish skills.

Student Organizations

- Michigan Student Council for Exceptional Children
- Student Michigan Education Association

Elementary Education Programs

Satisfactory completion of the program in elementary education qualifies a student for a Michigan Elementary Provisional Certificate, which is valid for teaching kindergarten through grade five and major and minor fields in grades six, seven and eight, and self-contained grades six, seven and eight.

Special Education Programs

Satisfactory completion of a program for teaching students with cognitive impairment (CI) or students with emotional impairment (EI) qualifies graduates for an Elementary or Secondary Provisional Certificate and an endorsement to teach children in kindergarten through grade twelve in the specialty area, as well as elementary classrooms in kindergarten through grade five or middle school and secondary grades six through twelve in major or minor area only.

Secondary Education Majors

Students who satisfactorily complete a curriculum for secondary teaching qualify for a Michigan Secondary Provisional Certificate, which is valid for teaching grades seven through twelve in majors and minors only. Some programs, however, are kindergarten through grade twelve.

Post-Degree Teacher Certification

Baccalaureate degree graduates without teaching certification may complete a provisional certification plan of study for teaching at the elementary or secondary level by enrolling in undergraduate courses. If a student has completed courses as an undergraduate that are applicable to a teachable major or minor, the undergraduate credits may be counted toward the state requirement for provisional certification. If additional credit hours are required, they may be obtained through enrollment in undergraduate courses. In addition to the major and minor requirements, the student must complete the State of Michigan requirement in professional education. Provisional certification programs are available in elementary education, secondary education and special education.

Students who qualify for a Michigan Provisional Certificate do not receive another Northern Michigan University degree.

Department/Program Policies

Admission to Teacher Education Program

Admission to Northern Michigan University does not necessarily imply full admission to a teacher education program. Admission to teacher education is determined by the director of teacher education student services or the certification counselor in the School of Education or, on appeal, by the Teacher Selection and Retention Committee.

The complete set of standards (*Teacher Selection and Retention Standards*) to which all students in the teacher education program must adhere is available in the School of Education and can be accessed through the following Web site: www.nmu.edu/education/standards.htm.

Admission requirements to a teacher education program of study are as follows:

- A. First-semester freshmen applicants entering directly out of high school must have:
 - an ACT composite score of 20 or an SAT score of verbal 450 and math 500; and
 - a high school GPA of 2.75 in college preparatory subjects.
- B. All other undergraduate applicants must have:
 - a cumulative GPA of 2.70 in undergraduate-level college credits;
 - at least 24 credits in liberal studies courses outside of their major and minor with a GPA of 2.50; and
 - ACT, SAT or PPST scores as listed below in D.
- C. All post-baccalaureate applicants must have:
 - a cumulative GPA of 2.70 in undergraduate-level college credits; or
 - at least 40 credits in liberal studies courses outside of their major and minor with a GPA of 2.70; and
 - ACT, SAT or PPST scores as listed below in D.
- D. All students, prior to enrolling in education courses, must be able to show competency in the areas of reading, mathematics and writing in one of the following ways:
 - ACT subscores of 21 in English and reading, and 20 in mathematics; or
 - SAT scores of verbal 450 and mathematics 500; or
 - Pre-Professional Skills Test (PPST) scores of reading 174, mathematics 173, and writing 173. If the computer-based PPST is taken, the required scores are reading 321, mathematics 318 and writing 319.

Applicants may be denied admission if they do not meet the above requirements or if they have:

- more than five repeats in college courses;
- a combination of excessive repeats and withdrawals from classes; or
- more than one repeated course in any of the following areas: major, minor, professional education sequence, or the planned program and required cognates combined.

Retention in the Program

To retain eligibility in the professional teacher education program, a student must do the following:

- A. Maintain an overall GPA of 2.70 or above.
- B. Maintain a GPA of 2.70 or greater with no grade below

“C” in the professional education sequence, the major and/or minor(s), and the planned program and required cognates combined.

- C. Have no more than five total repeats, with no more than one repeat in each of the following:
 - major(s)
 - minor(s)
 - professional teacher education sequence courses
 - the planned program and required cognates combined
- D. Maintain minimum standards of behavior as outlined in the *Teacher Selection and Retention Standards*.

Appeals

Students who are denied admission or are academically dismissed from the program may appeal the decision to the Teacher Selection and Retention Committee by contacting the committee's chairperson or the director of teacher education student services. Hearing procedures are stated in the document titled “Academic Dismissal from the Teacher Education Program,” available in the School of Education.

Limitations on Acceptance of Transfer Courses and Validity of Courses

Students are expected to take their professional education sequence courses at Northern Michigan University. Guidelines for specific courses are as follows:

- A. **ED 201 Introduction to Education**
 - Transfer credit will be accepted but given only a satisfactory or unsatisfactory grade designation. An “S” grade will be assigned when the grade earned is “C” or greater, and a “U” grade will be assigned when the grade earned is below “C.”
- B. **Methods-level courses:** a minimum of 20 credits of methods-level courses must be taken at NMU, including the following:

Elementary Education

- ED 311 (3 credits)
- ED 316 (3 credits)
- ED 420 (11 credits)
- ED 450 (1 credit)

Secondary Education

- ED 319 (3 credits)
- ED 349 (2 credits)
- 350 (3-4 credits)
- ED 430 (11 credits)
- ED 450 (1 credit)

Special Education

- ED 311 (3 credits)
- ED 316 (3 credits)
- ED 401 or ED 408 (4 credits)
- ED 406 or ED 409 (2 credits)

Elementary Base (Special Education)

ED 423A (5 credits)

ED 423B or ED 423C (6 credits)

ED 450 (1 credit)

Secondary Base (Special Education)

ED 424A or ED 424B (11 credits)

ED 450 (1 credit)

All education courses are invalid after six years. MA 150 Mathematics for the Elementary Teacher I, MA 151 Mathematics for the Elementary Teacher II, and MA 353 Methods and Materials in Teaching Elementary School Mathematics Education are also invalid after six years.

These requirements apply to all provisional certification programs of study. Exceptions to the requirements may be made by the director of teacher education student services or the certification counselor in consultation with the appropriate faculty member.

Repeats of all education courses must be taken at NMU.

Eligibility for Student Teaching Placement

Students should plan to do their student teaching when they have completed all prerequisite course work. Students should notify the student teaching office of their intent to do student teaching two semesters in advance and must submit a complete student teaching application one semester in advance. Forms, policies, procedures and other information are available in the Field Experience Office.

Student teaching placements are made by the university. Students are not to contact school personnel to arrange student teaching placements.

Occasionally the university finds it difficult to secure a student teaching assignment. Although the university may request an assignment, school districts are under no obligation to accept a student teacher. Reasons such as a poor academic record or a lack of a suitable supervising teacher are responses typically given by districts when not offering a student teaching placement. Students should be aware of this possibility as they progress toward a degree in teacher education.

Eligibility for Recommendation for Certification

To be eligible to be recommended for certification, students must satisfy the following requirements:

- A. Comply with all of the previously stated admission and retention requirements.
- B. Complete the baccalaureate degree in accordance with the above criteria and any additional criteria as established by other academic departments, where applicable.
- C. Satisfactorily complete the student teaching assignment

with a recommendation for certification by the supervising teacher and the university supervisor.

- D. Satisfactorily complete all MTTC subject area competency tests as required by Public Act 451 as amended (major, minor(s), and elementary education where applicable).
- E. Beginning July 1, 2004, in order to be certified, new teachers must possess a valid certificate of course completion for first aid training that includes cardiopulmonary resuscitation (CPR). This training must be from the American Red Cross or the American Heart Association.

Other Requirements

All education majors must complete EN 111 College Composition I and EN 211 College Composition II (or equivalent) with a grade of "C" or better.

Students who do not meet requirements for continuous enrollment (e.g., those who drop out for one or more semesters or withdraw from all courses in which they are enrolled) are required to re-apply for admission to the level of the teacher education program that they were enrolled in at the time of their departure.

Students may be required to complete other tests or evaluation procedures for admission to any phase of the teacher education program, for removal of any suspension from the program, or for teacher certification.

Title II Requirements

NMU complies with all federal and state Title II requirements. NMU's teacher education program has a 100 percent pass rate on MTTC subject-area tests for students who complete the program, and is nationally accredited. More information can be found at www.nmu.edu/education/titleII.

Information for Elementary Education Majors

Academic advising for students in the elementary education program takes place through the School of Education, once students have been admitted into the teacher education program. Students are required to adhere to state standards that do not necessarily apply to students outside the program. We strongly encourage students to maintain contact with their advisers and to be familiar with the *Teacher Selection and Retention Standards* that they receive upon admission to the program. Detailed planning sheets for the various major/minor options are available in the Teacher Education Student Services Office.

Social Studies Component

All students in the elementary education curriculum must complete a 16-credit-hour social studies requirement. Any AN, EC,

HS, PS or SO prefixed course fulfills this requirement, as well as ENV 101, FR 310, GC 100, GC 164, GC 300, NAS 204, PL 270 and SN 314. These credits can be double counted with other program requirements.

Major/Minors Program Guidelines

A major or two minors are required. Majors are available only in the five core content subject areas listed below. If two minors are chosen, one of the minors must be selected from the five core content subject areas.

Core Content Subject Areas for Majors and Minors

1. **Language Arts (group):** contains English, journalism, speech and reading courses.
2. **English (straight):** contains literature, writing and grammar courses.
3. **Integrated Science (group):** contains biology, earth/space science and physical science courses.
4. **Social Studies (group):** contains economics, geography, history and political science courses.
5. **Mathematics (straight):** contains math and computer science courses.

Minor Subject Areas

- French
- Geography
- German
- History
- Physical Education
- Reading
- Spanish

Minors that overlap in content (e.g., English, reading and language arts) are prohibited.

Information for Secondary Education Majors

The School of Education contributes professional studies courses in education to the secondary education curricula. Information about entrance, test and certification requirements is available from the Teacher Education Student Services Office.

Prospective secondary school teachers are advised on course selection and other academic matters by faculty members of the department or area in which students plan to major.

Approved Secondary Education Majors and Minors

Majors

- Art and Design
- Biology
- Business (under revision; not available 2006-2007)
- Chemistry
- Earth Science

- Economics
- English
- French
- Geography
- Health
- History
- Industrial Technology
- Integrated Science
- Mathematics
- Music
- Physical Education
- Physics
- Political Science
- Social Studies
- Special Education
- Spanish

Minors

- Biology
- Chemistry
- Earth Science
- Economics
- English
- French
- Geography
- German
- Health
- History
- Journalism (pending state approval)
- Mathematics
- Physical Education
- Physics
- Political Science
- Spanish

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

English Major-Elementary Education

Total Credits Required for Degree	136-141
Liberal Studies	30-40
Health Promotion	2
Core	30
EN 309 The Teaching of Writing	4
EN 112 Mythology [II]	4
EN 282 Introduction to Literature	4
EN 200 Basic English Grammar and Usage for Teachers	2
ED 306 Children's Literature	3
EN 404 The English Language	4
English Electives	9
Professional Education	25
ED 201 Introduction to Education	2
ED 230 Teaching and Learning in the Elementary Classroom	4
ED 301 Dimensions of American Education	2
ED 318 Elementary Reading Instruction II	3
ED 361 Special Education and the General Classroom Teacher	2
ED 420 Teaching in the Elementary School	11
ED 450 Seminar in Teaching	1
Required Cognates	25
MSED 250 Physical Science for Educators	4
MSED 251 Life Science for Educators	4
MSED 252 Earth Science for Educators	4
MA 150 Mathematics for the Elementary School Teacher I	4
MA 151 Mathematics for the Elementary School Teacher II	4
MA 353 Methods and Materials in Teaching Elementary School Mathematics	3
ED 483 Educational Media and Technology	2
Planned Program	22
ED 310 Social Studies Methods and Materials for Elementary Teachers	3
ED 312 Science Methods and Materials for Elementary Teachers	3
ED 311 Language Arts Methods and Materials for Elementary Teachers	3
ED 316 Elementary Reading Instruction I	3
HL 150 Health Education for the Elementary School Teacher	2
MU 149A Music in the Elementary School I	2
AD 310 Art for the Elementary Classroom Teacher	2
ED 307 Integrating the Arts into the Elementary Curriculum	2
PE 224 Developmental Physical Education for Elementary Teachers	2
Other Required Course	4
HS 126 The United States to 1865 [IV]	4

Integrated Science Major-Elementary Education

Total Credits Required for Degree	129-133
Liberal Studies	30-40
Health Promotion	2
Core	36
MSED 250 Physical Science for Educators	4
MSED 251 Life Science for Educators	4
MSED 252 Earth Science for Educators	4
Biology Electives	8
<i>Choose from the following:</i>	
BI 100 Biological Science (4 cr.) [III]	
BI 104 Human Anatomy and Physiology (4 cr.) [III]	
BI 111 Introductory Biology: Principles (4 cr.) [III]	
BI 112 Introductory Biology: Diversity (4 cr.) [III]	
Physical Science Electives	8
<i>Choose 1 of the following chemistry courses:</i>	
CH 105 Chemical Principles (4 cr.) [III]	
CH 107 Introductory Chemistry I (4 cr.) [III]	
CH 111 General Chemistry I (5 cr.) [III]	
<i>Choose 1 of the following physics courses:</i>	
PH 201 College Physics I (5 cr.) [III]	
PH 220 Introductory Physics I (5 cr.) [III]	
Earth/Space Science Electives	8
<i>Choose from the following:</i>	
AS 103 Observational and Solar System Astronomy (4 cr.) [III]	
ENV 101 Introduction to Environmental Science (4 cr.) [III]	
GC 255 Physical Geology (4 cr.) [III]	
GC 385 Weather and Climate (4 cr.)	
GC 465 Hydrology (4 cr.)	
Professional Education	25
ED 201 Introduction to Education	2
ED 230 Teaching and Learning in the Elementary Classroom	4
ED 301 Dimensions of American Education	2
ED 318 Elementary Reading Instruction II	3
ED 361 Special Education and the General Classroom Teacher	2
ED 420 Teaching in the Elementary School	11
ED 450 Seminar in Teaching	1
Required Cognates	13
MA 150 Mathematics for the Elementary School Teacher I	4
MA 151 Mathematics for the Elementary School Teacher II	4
MA 353 Methods and Materials in Teaching Elementary School Mathematics	3
ED 483 Educational Media and Technology	2
Planned Program	25
ED 310 Social Studies Methods and Materials for Elementary Teachers	3
ED 312 Science Methods and Materials for Elementary Teachers	3
ED 311 Language Arts Methods and Materials for Elementary Teachers	3
ED 316 Elementary Reading Instruction I	3
HL 150 Health Education for the Elementary School Teacher	2
MU 149A Music in the Elementary School I	2
AD 310 Art for the Elementary Classroom Teacher	2
ED 307 Integrating the Arts into the Elementary Curriculum	2
PE 224 Developmental Physical Education for Elementary Teachers	2
Other Required Course	4
HS 126 The United States to 1865 [IV]	4

Language Arts Major-Elementary Education

Total Credits Required for Degree	135-140
Liberal Studies	30-40
Health Promotion	2
Core	36
ED 306 Children's Literature	3
EN 309 The Teaching of Writing	4
EN 200 Basic English Grammar and Usage for Teachers	2
SP 100 Public Address	4
SP 110 Interpersonal Communication	4
EN 206 Survey of Journalism	4
ED 311 Language Arts Methods and Materials for Elementary Teachers	3
ED 316 Elementary Reading Instruction I	3
SP 240 Oral Interpretation of Literature [III] <i>or</i> SP 402 Communication Criticism [III]	4
English Electives	5
Professional Education	25
ED 201 Introduction to Education	2
ED 230 Teaching and Learning in the Elementary Classroom	4
ED 301 Dimensions of American Education	2
ED 318 Elementary Reading Instruction II	3
ED 361 Special Education and the General Classroom Teacher	2
ED 420 Teaching in the Elementary School	11
ED 450 Seminar in Teaching	1
Required Cognates	14
MSED 250 Physical Science for Educators	4
MSED 251 Life Science for Educators	4
MSED 252 Earth Science for Educators	4
ED 483 Educational Media and Technology	2
Planned Program	27
ED 310 Social Studies Methods and Materials for Elementary Teachers	3
ED 312 Science Methods and Materials for Elementary Teachers	3
MA 150 Mathematics for the Elementary School Teacher I	4
MA 151 Mathematics for the Elementary School Teacher II	4
MA 353 Methods and Materials in Teaching Elementary School Mathematics	3
HL 150 Health Education for the Elementary School Teacher	2
MU 149A Music in the Elementary School I	2
AD 310 Art for the Elementary Classroom Teacher	2
ED 307 Integrating the Arts into the Elementary Curriculum	2
PE 224 Developmental Physical Education for Elementary Teachers	2
Other Required Course	4
HS 126 The United States to 1865 [IV]	4

Mathematics Major-Elementary Education

Total Credits Required for Degree	132-135
Liberal Studies	30-40
Health Promotion	2
Core	33
MA 103 Finite Mathematics [III]	4
MA 150 Mathematics for the Elementary School Teacher I	4
MA 151 Mathematics for the Elementary School Teacher II	4
MA 250 Algebraic Structures for the Elementary School Teacher	4

MA 251 Probability and Statistics for the Elementary School Teacher	4
MA 271 Calculus with Applications	4
MA 351 Models and Problem Solving for the Elementary School Teacher	4
MA 353 Methods and Materials in Teaching Elementary School Mathematics	3
MA 354 Methods and Materials in Teaching Junior High School Mathematics	2
Professional Education	25
ED 201 Introduction to Education	2
ED 230 Teaching and Learning in the Elementary Classroom	4
ED 301 Dimensions of American Education	2
ED 318 Elementary Reading Instruction II	3
ED 361 Special Education and the General Classroom Teacher	2
ED 420 Teaching in the Elementary School	11
ED 450 Seminar in Teaching	1
Required Cognates	14
MSED 250 Physical Science for Educators	4
MSED 251 Life Science for Educators	4
MSED 252 Earth Science for Educators	4
ED 483 Educational Media and Technology	2
Planned Program	25
ED 310 Social Studies Methods and Materials for Elementary Teachers	3
ED 312 Science Methods and Materials for Elementary Teachers	3
ED 306 Children's Literature	3
ED 311 Language Arts Methods and Materials for Elementary Teachers	3
ED 316 Elementary Reading Instruction I	3
HL 150 Health Education for the Elementary School Teacher	2
MU 149A Music in the Elementary School I	2
AD 310 Art for the Elementary Classroom Teacher	2
ED 307 Integrating the Arts into the Elementary Curriculum	2
PE 224 Developmental Physical Education for Elementary School Teachers	2
Other Required Courses	8
HS 126 The United States to 1865 [IV]	4
CS 255 Computing for the Elementary School Teacher [V]	4

Social Studies Major-Elementary Education

Total Credits Required for Degree	129-133
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	36
Economics Electives	8
Choose from the following:	
EC 101 The American Economy (4 cr.) [IV]	
EC 201 Microeconomic Principles (4 cr.)	
EC 202 Macroeconomic Principles (4 cr.)	
Geography Electives	8
Choose from the following:	
ENV 101 Introduction to Environmental Science (4 cr.) [III] <i>or</i> GC 100 Physical Geography (4 cr.) [III]	
GC 164 Cultural Geography (4 cr.) [IV]	

History Electives*Choose from the following:*

- HS 101 History of Western Civilization to 1600 (4 cr.) [III] or
 HS 102 History of Western Civilization Since 1600 (4 cr.) [III]
 HS 126 The United States to 1865 (4 cr.) [IV]

Political Science Electives*Choose from the following:*

- PS 101 Introduction to Political Science (4 cr.) [IV]
 PS 105 American Government (4 cr.) [IV]
 PS 203 Comparative Government and Politics (4 cr.)
 PS 309 State and Local Government (4 cr.)

EC/GC/HS/PS Electives

*Choose a 300-level course if PS 309 is not taken above.***Professional Education**

- ED 201 Introduction to Education 2
 ED 230 Teaching and Learning in the Elementary Classroom 4
 ED 301 Dimensions of American Education 2
 ED 318 Elementary Reading Instruction II 3
 ED 361 Special Education and the General Classroom Teacher 2
 ED 420 Teaching in the Elementary School 11
 ED 450 Seminar in Teaching 1

Required Cognates

- MSED 250 Physical Science for Educators 4
 MSED 251 Life Science for Educators 4
 MSED 252 Earth Science for Educators 4
 MA 150 Mathematics for the Elementary School Teacher I 4
 MA 151 Mathematics for the Elementary School Teacher II 4
 MA 353 Methods and Materials in the Teaching of Elementary School Mathematics 3
 ED 483 Educational Media and Technology 2

Planned Program

- ED 310 Social Studies Methods and Materials for Elementary Teachers 3
 ED 312 Science Methods and Materials for Elementary Teachers 3
 ED 306 Children's Literature 3
 ED 311 Language Arts Methods and Materials for Elementary Teachers 3
 ED 316 Elementary Reading Instruction I 3
 HL 150 Health Education for the Elementary School Teacher 2
 MU 149A Music in the Elementary School I 2
 AD 310 Art for the Elementary Classroom Teacher 2
 ED 307 Integrating the Arts into the Elementary Curriculum 2
 PE 224 Developmental Physical Education for Elementary Teachers 2

Two Minors-Elementary Education**Total Credits Required for Degree 128-157****Liberal Studies 30-40****Health Promotion 2****Two Minors 40-56****Professional Education**

- ED 201 Introduction to Education 2
 ED 230 Teaching and Learning in the Elementary Classroom 4
 ED 301 Dimensions of American Education 2
 ED 318 Elementary Reading Instruction II 3
 ED 361 Special Education and the General Classroom Teacher 2

- 8 ED 420 Teaching in the Elementary School 11
 ED 450 Seminar in Teaching 1

Required Cognates**17-40**

- MA 150 Mathematics for the Elementary School Teacher I 4
 MA 151 Mathematics for the Elementary School Teacher II 4
 MA 353 Methods and Materials in Teaching Elementary School Mathematics 3
 MSED 250 Physical Science for Educators 4
 MSED 251 Life Science for Educators 4
 MSED 252 Earth Science for Educators 4
 ED 306 Children's Literature 3
 MU 149A Music in the Elementary School I 2
 AD 310 Art Elementary Classroom Teacher 2
 ED 307 Integrating the Arts into the Elementary Curriculum 2
 PE 224 Developmental Physical Education for Elementary Teachers 2
 ED 483 Educational Media and Technology 2

Planned Program**14**

- ED 310 Social Studies Methods and Materials for Elementary Teachers 3
 ED 312 Science Methods and Materials for Elementary Teachers 3
 ED 311 Language Arts Methods and Materials for Elementary Teachers 3
 ED 316 Elementary Reading Instruction I 3
 HL 150 Health Education for the Elementary School Teacher 2

Other Required Course

- HS 126 The United States to 1865 [IV] 4

ELEMENTARY EDUCATION MINORS**English Minor-Elementary Education****Total Credits Required for Minor 20**

- EN 112 Mythology [II] 4
 EN 200 Basic English Grammar and Usage for Teachers 2
 EN 282 Introduction to Literature 4
 EN 309 The Teaching of Writing 4
 EN 404 The English Language 4
 English Electives 2

French Minor-Elementary Education**Total Credits Required for Minor 24**

- FR 201 Intermediate French I [V] 4
 FR 202 Intermediate French II [V] 4
 FR 300 Reading and Writing 4
 FR 305 Conversational French [V] 4
 FR 400 Advanced French Composition and Grammar 4
 LG 350 Methods and Materials in Teaching Language Education 4

Geography Minor-Elementary Education**Total Credits Required for Minor 22**

- ENV 101 Introduction to Environmental Science [III] 4
 GC 100 Physical Geography [III] 4
 GC 164 Cultural Geography [III] 4
 GC 200 North America 4

GC 225 Introduction to Maps 2
 GC 435 Geography of Michigan 4

German Minor-Elementary Education

Total Credits Required for Minor 24
 GR 201 Intermediate German I [V] 4
 GR 202 Intermediate German II [V] 4
 GR 300 Reading and Writing 4
 GR 305 Conversational German [V] 4
 GR 400 Advanced Composition and Grammar 4
 LG 350 Methods and Materials in Teaching Language Education 4

History Minor-Elementary Education

Total Credits Required for Minor 20
 HS 104 The Third World in Historical Perspective [IV] 4
 HS 126 The United States to 1865 [IV] 4
 HS 127 The United States Since 1865 [IV] 4
 HS 200 Historical Thinking and Writing 4
 HS 101 History of Western Civilization to 1500 [II] *or* 4
 HS 102 History of Western Civilization Since 1500 [II]

Integrated Science Minor-Elementary Education

Total Credits Required for Minor 24-25
 MSED 250 Physical Science for Educators 4
 MSED 251 Life Science for Educators 4
 MSED 252 Earth Science for Educators 4
Biology Electives 4
Choose from the following:
 BI 100 Biological Science (4 cr.) [III]
 BI 104 Human Anatomy and Physiology (4 cr.) [III]
 BI 111 Introductory Biology: Principles (4 cr.) [III]
 BI 112 Introductory Biology: Diversity (4 cr.) [III]
Physical Science Electives 4-5
Choose from the following:
 CH 105 Chemical Principles (4 cr.) [III]
 CH 107 Introductory Chemistry I (4 cr.) [III]
 CH 111 General Chemistry I (5 cr.) [III]
 PH 201 College Physics I (5 cr.) [III] *or*
 PH 220 Introductory Physics I (5 cr.) [III]

Earth/Space Science Electives 4
Choose from the following:
 AS 103 Observational and Solar System Astronomy (4 cr.) [III]
 ENV 101 Introduction to Environmental Science (4 cr.) [III]
 GC 255 Physical Geology (4 cr.) [III]
 GC 385 Weather and Climate (4 cr.)

Language Arts Minor-Elementary Education

Total Credits Required for Minor 24
 ED 306 Children's Literature 3
 EN 200 Basic English Grammar and Usage for Teachers 2
 EN 206 Survey of Journalism 4

EN 309 The Teaching of Writing 4
 English Electives 3
 SP 100 Public Address 4
 SP 110 Interpersonal Communication 4

Mathematics Minor-Elementary Education

Total Credits Required for Minor 27
 MA 150 Mathematics for the Elementary School Teacher I 4
 MA 151 Mathematics for the Elementary School Teacher II 4
 MA 250 Algebraic Structures for the Elementary School Teacher 4
 MA 251 Probability and Statistics for the Elementary School Teacher 4
 MA 351 Models and Problem Solving for the Elementary School Teacher 4
 MA 353 Methods and Materials in Teaching Elementary School Mathematics 3
 CS 255 Computing for the Elementary School Teacher [V] 4

Physical Education Minor-Elementary Education

Total Credits Required for Minor 22
 PE 110 Introduction to Physical Education 2
 PE 203 Dance for Children *or* 1
 PE 211 Dance Survey
 PE 224 Developmental Physical Education for Elementary Teachers 2
 PE 310 Measurement and Evaluation in Physical Education 3
 PE 315 Physiology of Exercise 4
 PE 346 Adapted Physical Education 2
 PE 350 Methods and Materials in Teaching Physical Education 3
 HL 242 Emergency Health Care 2
Activity Courses 3
Choose from the following
 PE 100 Rhythmic Movement Fundamentals (.5 cr.)
 PE 101 Volleyball (.5 cr.)
 PE 103 Tumbling Activities (.5 cr.)
 PE 199 Team Sports (.5 cr.)
 PE 200 Track and Field (.5 cr.)
 HP 231B Skiing-Cross County *or* HP 216 Skating-Beginning (1 cr.)
 HP 218 Folk Dance (1 cr.)
 HP 226 Modern Dance-Beginning (1 cr.)

Reading Minor-Elementary Education

Total Credits Required for Minor 22
 EN 200 Basic English Grammar and Usage for Teachers 2
 EN 309 The Teaching of Writing 4
 ED 306 Children's Literature 3
 ED 111 Language Arts Methods and Materials for Elementary Teachers 3
 ED 316 Elementary Reading Instruction I 3
 ED 318 Elementary Reading Instruction II 3
 ED 462 Literature for Young Adults 3
 ED 491 Seminar in Education: Reading 1

Social Studies Minor-Elementary Education

Total Credits Required for Minor* 32

Economics Electives 8

Choose from the following:

EC 101 The American Economy (4 cr.) [IV]

EC 201 Microeconomic Principles (4 cr.)

EC 202 Macroeconomic Principles (4 cr.)

Geography Electives 8

Choose from the following:

ENV 101 Introduction to Environmental Science (4 cr.) [III] or

GC 100 Physical Geography (4 cr.) [III]

GC 164 Human Geography (4 cr.) [IV]

History Electives 8

Choose from the following:

HS 101 History of Western Civilization to 1600 (4 cr.) [II] or

HS 102 History of Western Civilization Since 1600 (4 cr.) [II]

HS 126 The United States to 1865 (4 cr.) [IV]

Political Science 8

Choose from the following:

PS 101 Introduction to Political Science (4 cr.) [IV]

PS 105 American Government (4 cr.) [IV]

PS 203 Comparative Government and Politics (4 cr.)

PS 309 State and Local Government (4 cr.)

**This minor may be met by transfer students with 6 credit hours in each area for a total of 24 credit hours.*

Spanish Minor-Elementary Education

Total Credits Required for Minor 24

SN 300 Reading and Writing 4

SN 305 Conversational Spanish [V] 4

SN 310 Introduction to Spanish Civilization and Culture 4

SN 312 Introduction to Spanish America 4

SN 400 Advanced Spanish Composition and Grammar 4

LG 350 Methods and Materials in Teaching Language Education 4

Special Education Major-Elementary Education

(Enrollment in the emotional impairment track is temporarily suspended. No new students are being accepted.)

Total Credits Required for Degree 143-147

Liberal Studies 30-40

Health Promotion 2

Required Courses in Major* 30

ED 360 Orientation to Special Education 4

ED 402 Teaching Life Skills to Students with Disabilities 2

ED 403 Transition for Students with Disabilities 2

ED 404 Assistive Technology for Students with Disabilities 2

ED 405 Diagnosis and Assessment in Special Education 4

ED 410 Legal Rights and Services 2

Choose one of the following specialty areas: 14

A. Cognitive Impairments

ED 400 Introduction to Cognitive Impairment 4

ED 401 Curriculum and Methods for Teaching Students with Cognitive Impairment 4

SL 150 Introduction to Speech, Language and Hearing Sciences 4

ED 406 Supervised Apprenticeship in Teaching Students with Cognitive Impairment in K-12 Settings 2

B. Emotional Impairment (Temporarily suspended)

ED 407 Introduction to Emotional Impairment 4

ED 408 Curriculum and Methods for Teaching Students with Emotional Impairment 4

ED 411 Violence in Schools 4

ED 409 Supervised Apprenticeship in Teaching Students with Emotional Impairment in K-12 Settings 2

Planned Program 50

ED 201 Introduction to Education 2

ED 230 Teaching and Learning in the Elementary Classroom 4

ED 301 Dimensions in American Education 2

ED 306 Children's Literature 3

ED 310 Social Studies Methods and Materials for Elementary Teachers 3

ED 311 Language Arts Methods and Materials for Elementary Teachers 3

ED 312 Science Methods and Materials for Elementary Teachers 3

ED 316 Elementary Reading Instruction I 3

ED 318 Elementary Reading Instruction II 3

MA 150 Mathematics for the Elementary School Teacher I 4

MA 151 Mathematics for the Elementary School Teacher II 4

MA 353 Methods and Materials in Teaching Elementary School Mathematics 2

MSED 250 Physical Science for Educators 4

MSED 251 Life Science for Educators 4

MSED 252 Earth Science for Educators 4

ED 483 Educational Media and Technology 2

Psychology Requirement 16

PY 100S, L, or H, Psychology as a Natural Science [III] or PY 100G Psychology as a Social Science [IV] 4

PY 203 Applied Behavioral Analysis 4

PY 211 Learning 4

PY 335 Social Psychology 4

Note: Add PY 355 Abnormal Psychology for special education psychology minor. This minor is not approved as a teaching minor.

Professional Education 12

Note: Students who elect to complete majors in both specialty areas must student teach in emotional impairment and cognitive impairment.

ED 423A Teaching in the Elementary School 5

ED 423B Teaching Students with Cognitive Impairment in K-12 Schools or 6

ED 423C Teaching Students with Emotional Impairment in K-12 Schools

ED 450 Seminar in Teaching 1

Other Required Course 4

HS 126 The United States to 1865 [IV] 4

**Social Studies Component*

All students in the elementary education curriculum must complete a 16 credit hour social studies requirement. Any AN, EC, HS, PS or SO prefixed course fulfills this requirement, as well as ENV 101, FR 310, GC 100, GC 164, GC 300, GR 310, NAS 204, PL 270 and SN 314. These credits can be double counted with other program requirements.

Special Education Major-Secondary Education

(Enrollment in the emotional impairment track is temporarily suspended. No new students are being accepted.)

Total Credits Required for Degree	133-158
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	30
ED 360 Orientation to Special Education	4
ED 402 Teaching Life Skills to Students with Disabilities	2
ED 403 Transition for Students with Disabilities	2
ED 404 Assistive Technology for Students with Disabilities	2
ED 405 Diagnosis and Assessment in Special Education	4
ED 410 Legal Rights and Services	2
<i>Choose one of the following specialty areas</i>	14
A. Cognitive Impairments	
ED 400 Introduction to Cognitive Impairment	4
ED 401 Curriculum and Methods for Teaching Students with Cognitive Impairment	4
SL 150 Introduction to Speech, Language and Hearing Sciences	4
ED 406 Supervised Apprenticeship in Teaching Students with Cognitive Impairment in K-12 Settings	2
B. Emotional Impairment (Temporarily suspended)	
ED 407 Introduction to Emotional Impairment	4
ED 408 Curriculum and Methods for Teaching Students with Emotional Impairment	4
ED 411 Violence in Schools	4
ED 409 Supervised Apprenticeship in Teaching Students with Emotional Impairment in K-12 Settings	2
Planned Program	34
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions in American Education	2
ED 311 Language Arts Methods and Materials	3
ED 316 Elementary Reading Instruction I	3
ED 318 Elementary Reading Instruction II	3
ED 319 The Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 483 Educational Media and Technology	2
MA 150 Mathematics for the Elementary School Teacher I	4
MA 151 Mathematics for the Elementary School Teacher II	4
MA 353 Methods and Materials in Teaching Elementary School Mathematics	2
Psychology Requirement	16
PY 100S, L, or H, Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
PY 203 Applied Behavioral Analysis	4
PY 211 Learning	4
PY 335 Social Psychology	4
<i>Note: Add PY 355 for special education psychology minor. This minor is not approved as a teaching minor.</i>	
Teaching Minor, minimum	24

Professional Education

12

Note: Students who elect to complete majors in both specialty areas must student teach in cognitive impairment and emotional impairment.

ED 424A Teaching Students with Cognitive Impairment in K-12 Schools <i>or</i>	11
ED 424B Teaching Students with Emotional Impairment in K-12 Schools <i>or</i>	
ED 425 Teaching Students with Emotional Impairment and/or Cognitive Impairment in K-12 Schools	
ED 450 Seminar in Teaching	1

ENGINEERING TECHNOLOGY

DEPARTMENT OFFICE

School of Technology and Applied Sciences

101 D. J. Jacobetti Center

Phone: 906-227-2135

Fax: 906-227-1549

Web Page: www.nmu.edu/technology

Department Head: To be named

Engineering Technology at NMU

Programs offered by the Engineering Technology Department prepare students for careers in fields such as electronics engineering technology, mechanical engineering technology, industrial technology, technology and applied sciences and industrial technology education. These programs have a foundation in mathematics, physical science, and computer science, as well as an in-depth technical focus.

The department also offers associate degrees in engineering design, electronics technology, industrial electrical technology, and manufacturing as well as a one-year certificate program in computer numerical control. These programs are designed for students who are seeking quick entry into the workforce. In most instances, courses completed toward an associate degree are applicable to a baccalaureate degree.

Student Organizations

- Society of Automotive Engineers
- Student Michigan Education Association

Department Facilities

- Automation Lab
- CAD Lab
- Data Acquisition Lab
- Electronics Lab
- Hydraulics Lab
- Machine Tool Lab
- Materials Testing Lab
- Process Control/PLC Lab

Department/Program Policies

Students must have a minimum grade of "C" and a grade point average of 2.25 for all major courses and minor programs. Students majoring in industrial technology education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minor(s) and required cognates combined.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Electronics Engineering Technology Major

This major provides students with the necessary preparation for positions in industry as engineering technologists. Students choose a concentration in either digital systems or industrial electrical technology. Graduates of the program are employed as field service engineers, application engineers, software engineers and technicians.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Major Courses	28
ET 112 DC Circuit Analysis	4
ET 113 AC Circuit Analysis	4
ET 201 Visual Programming for Technicians	4
ET 210 Discrete Semiconductors	4
ET 211 Digital Electronics	4
ET 212 Advanced Linear Circuits	3
ET 410 Interfacing and Data Acquisition	3
ET 430 Electronics Senior Project	2
Major Concentration	20-21
<i>Choose one concentration from the following:</i>	
Industrial Electrical Technology Concentration	20
ET 250 Industrial Electrical Machinery	4
ET 252 Industrial Motor Controls	4
ET 311 Applied Programmable Controllers	2
ET 360 Process Control Systems	3
IT 180 Introduction to Fluid Power	3
IT 265 Total Productive Maintenance	1
IT 214 Industrial Observation	1
IT 215 General Industrial Safety	2
Digital Systems Concentration	21
ET 320 Advanced Digital Systems	3
ET 420 Microcontroller Applications	3
CIS 430 Data Communication	3

Electives	12
<i>Choose from the following:</i>	
ET 281 Computer Systems Servicing (3 cr.)	
ET 282 Software Systems (3 cr.)	
CIS 220 Network Concepts (2 cr.)	
CIS 230 Novell Network Operating Systems I (2 cr.)	
CIS 234 Microsoft Network Operating Systems I (2 cr.)	
CS 120 Computer Science I (4 cr.) [V]	
CS 122 Computer Science II (4 cr.)	
CS 222 Data Structures (4 cr.) <i>or</i>	
CS 228 Network Programming (3 cr.)	

Other Required Courses	30
CH 105 Chemical Principles [III]	4
DD 105 Schematic/Diagram Drafting	2
EN 211D Technical and Report Writing [I]	4
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4
MA 106 Trigonometry [III]	3
MA 171 Introduction to Probability and Statistics [V]	4
MA 271 Calculus with Applications	4
PH 201 College Physics I [III]	5

Industrial Technology Major

The program provides students with the skills to hold supervisory and technical positions in industry. Graduates of the program are hired as quality control technicians, production supervisors and managers. Students are strongly urged to meet with their adviser to select a minor that will support their career goals.

Minimum Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major Courses	32
IT 180 Introduction to Fluid Power	3
MET 211 Mechanics-Statics	4
MET 213 Materials Science I	3
IT 214 Industrial Observation	1
IT 261 Robotics and Automation Systems	4
IT 265 Total Productive Maintenance	1
IT 300 Industrial Supervision	3
IT 340 Enterprise Resource Planning	3
IT 380 Facility Planning	3
IT 400 Industrial Safety and Ergonomics	2
IT 420 Quality Control	3
MET 430 Senior Project	2

Other Required Courses	47
ACT 202 Accounting Concepts for Management	4
CH 105 Chemical Principles [III]	4
DD 100 Technical Drafting/Introduction to CAD	4
ET 110 Introduction to Electricity	4
IS 100 Introduction to Windows, E-mail and the Internet [V]	1
IS 101 Beginning Word Processing [V]	1
IS 102 Beginning Spreadsheets [V]	1
IS 104 Beginning Database [V]	1
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4

MA 171 Probability and Statistics [V]	4
MF 134 Manufacturing Processes	4
MGT 221 Business Law	3
MKT 230 Introduction to Marketing	3
PH 201 College Physics I [III]	5
SP 100 Public Address	4

Minor, Contracted Minor or General Electives 20

Mechanical Engineering Technology Major

This major provides students with a solid foundation in science, mathematics and engineering principles. Graduates are employed as designers, manufacturing engineers and related positions.

Total Credits Required for Degree 128

Liberal Studies	30-40
Health Promotion	2

Technology Core	57
DD 100 Technical Drafting/Introduction to CAD	4
DD 102 Engineering Graphics	3
DD 202 Product Development and Design	4
ET 112 DC Circuit Analysis	4
ET 201 Visual Programming for Technicians	4
ET 410 Interfacing and Data Acquisition <i>or</i>	3
ET 420 Microcontroller Applications	
IT 180 Introduction to Fluid Power	3
IT 214 Industrial Observation	1
MET 211 Mechanics Statics	4
MET 213 Materials Science I	3
MET 216 Materials Science II	3
MET 310 Mechanics-Dynamics	3
MET 311 Strength of Materials	4
MET 320 Mechanical Design	4
MET 410 Thermodynamics	4
MET 430 Senior Project	2
MF 134 Manufacturing Processes	4

Other Required Courses	34
CH 105 Chemical Principles [III]	4
EN 211D Technical and Report Writing [I]	4
IS 100 Introduction to Windows, E-Mail and the Internet [V]	1
IS Electives [V]	3
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4
MA 171 Introduction to Probability and Statistics [V]	4
MA 271 Calculus with Applications	4
PH 201 College Physics I [III]	5
PH 202 College Physics II [III]	5

Technical Electives 12

<i>Choose from the following:</i>	
DD 103 Geometric Dimensioning and Tolerancing (2 cr.)	
DD 105 Schematic/Diagram Drafting (2 cr.)	
DD 203 Industrial Drawing and Design (4 cr.)	
ET 113 AC Circuit Analysis (4 cr.)	
ET 250 Industrial Electrical Machinery (4 cr.)	
ET 252 Industrial Motor Controls (4 cr.)	
ET 311 Applied Programmable Controllers (2 cr.)	
ET 360 Process Control Systems (3 cr.)	

- IT 265 Total Productive Maintenance (1 cr.)
- IT 300 Industrial Supervision (3 cr.)
- IT 340 Enterprise Resource Planning (3 cr.)
- IT 380 Facility Planning (3 cr.)
- IT 400 Industrial Safety and Ergonomics (2 cr.)
- IT 420 Quality Control (3 cr.)
- MF 233 Numerical Control (4 cr.)
- MF 383 Computer Aided Manufacturing (4 cr.)
- MGT 210 Time Management (1 cr.)
- BI 104 Human Anatomy and Physiology (4 cr.) [III] *or*
 B1 201 Human Anatomy (3 cr.)
- PE 317 Anatomical Kinesiology (2 cr.)
- PE 417 Biomechanics (2 cr.)
- DD 295, ET 295, IT 295 or MF 295 Special Topics (1-4 cr.)
- DD 298, ET 298, IT 298 or MF 298 Directed Study and Research (1-4 cr.)

Secondary Education Industrial Technology Major

Completion of the technical courses, a teaching minor and the professional education sequence lead to certification as a secondary teacher of industrial technology.

Total Credits Required for Degree	135
Liberal Studies	30-40
Health Promotion	2
Major Courses	37
DD 100 Technical Drafting/Introduction to CAD	4
ET 110 Introduction to Electricity	4
MF 134 Manufacturing Processes	4
WD 140 Introduction to Welding	4
WT 161 Wood Processes I	2
IT 180 Introduction to Fluid Power	3
DD 202 Product Development and Design	4
MET 213 Materials Science I	3
IT 214 Industrial Observation	1
CN 156 Construction Systems and Methods	3
TE 100 Graphic Arts Printing	2
Technical Elective	3
Teaching Minor, minimum	24
Professional Education	32
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading-Secondary Teacher	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education & the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
TE 350 Methods and Materials/Industrial Technology	3
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
Other Required Courses	12
EN 211D Technical and Report Writing [I]	4
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4
TE 351 Humanity and Technology [II]	4

Technology and Applied Sciences Major

This major provides students with a foundation in science and mathematics along with a core of technology classes and a technical focus.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major Courses	34
ET 110 Introduction to Electricity <i>or</i> ET 100 Fundamentals of Electricity (2 cr.) <i>and</i> ET 101 Principles of Electrical Wiring (2 cr.)	4
DD 100 Technical Drafting with an Introduction to CAD	4
MF 134 Manufacturing Processes	4
IT 180 Introduction to Fluid Power	3
MET 211 Mechanics-Statics	4
MET 213 Materials Science I	3
IT 214 Industrial Observation	1
IT 300 Industrial Supervision	3
IT 380 Facility Planning	3
IT 400 Industrial Safety and Ergonomics	2
IT 420 Quality Control	3
Other Required Courses	16-17
EN 211D Technical and Report Writing [I]	4
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4
CH 105 Chemical Principles [III] <i>or</i> PH 201 Physics [III] (5 cr.)	4-5
MA 171 Introduction to Probability and Statistics [V]	4
Technical or Contracted Minor	20

ASSOCIATE DEGREE PROGRAMS

Engineering Design

Associate of Applied Science

This major gives students a background in the use of computer-aided design software for the design of mechanical parts devices. Students learn to use AutoCAD and Solid Works design software to qualify for positions as CAD designers and mechanical engineering aids.

Total Credits Required for Degree	64
<hr/>	
Liberal Studies	15-17
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
MA 104 College Algebra with Applications in the Sciences and Technologies	4
PH 201 College Physics I (5 cr.) <i>or</i> MA 106 Trigonometry (3 cr.)	3-5
<hr/>	
Health Promotion	1
HP 200 Physical Well Being	1
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Major Courses	19
DD 100 Technical Drafting/Introduction to CAD	4
DD 102 Engineering Graphics	3
DD 103 Geometric Dimensioning and Tolerancing	2
DD 105 Schematic/Diagram Drafting	2
DD 202 Product Development and Design	4
DD 203 Industrial Drawing and Design	4
<hr/>	
Other Required Courses	24-28
MF 134 Manufacturing Processes	4
MF 233 Computer Numerical Control (4 cr.) <i>or</i> IT 180 Introduction to Fluid Power (3 cr.) <i>or</i>	3-4
MET 211 Mechanics-Statics	4
MET 213 Materials Science I	3
IT 214 Industrial Observation	1
CIS 110 Principles of Computer Information Systems <i>or</i> IS 100 Introduction to Windows, E-mail and the Internet <i>and</i> Three IS Electives <i>or</i>	3-4
DD 207 Architectural Design <i>or</i> DD 208 Architectural Detailing <i>or</i> DD 302 Architectural Drawing-Residential <i>or</i> DD 303 Architectural Drawing-Commercial <i>or</i> IT 380 Facility Planning (3 cr.)	3-4
ET 100 Fundamentals of Electricity <i>or</i> ET 110 Introduction to Electricity (4 cr.)	2-4
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General Electives	0-5

Electronics Technology

Associate of Applied Science

This major offers students a solid foundation in electronics with the opportunity to chose technical electives. Students may choose to concentrate in computer maintenance, application software, computer interfacing, or biomedical technology through an internship at Marquette General Hospital.

Total Credits Required for Degree	64
<hr/>	
Liberal Studies	25
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
MA 104 College Algebra with Applications in the Sciences and Technologies	4
PH 201 College Physics I	5
IS 100 Introduction to Windows, E-mail and the Internet	1
Social Science elective	4
IS Electives	3
<hr/>	
Health Promotion	1
HP 200 Physical Well Being	1
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Major Courses	23
ET 112 DC Circuit Analysis	4
ET 113 AC Circuit Analysis	4
ET 201 Visual Programming for Technicians	4
ET 210 Discrete Semiconductors	4
ET 211 Digital Electronics	4
ET 212 Advanced Linear Circuits	3
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General Electives	15

Industrial Electrical Technology

Associate of Applied Science

This program prepares students for employment as technicians in environments where electrical machinery, hydraulic and pneumatic systems, or motor control systems are prevalent. Graduates are employed in paper mills and other industrial companies.

Total Credits Required for Degree	64
<hr/>	
Liberal Studies	21
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
MA 104 College Algebra with Applications in the Sciences and Technologies	4
PH 201 College Physics I	5
IS 100 Introduction to Windows, E-mail and the Internet	1
IS Electives	3
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Health Promotion	1
HP 200 Physical Well Being	1

Major Courses	39
ET 112 DC Circuit Analysis	4
ET 113 AC Circuit Analysis	4
ET 202 Industrial Wiring Concepts	2
ET 210 Discrete Semiconductors	4
ET 211 Digital Electronics	4
ET 212 Advanced Linear Circuits	3
ET 250 Industrial Electrical Machinery	4
ET 252 Industrial Motor Controls	4
ET 311 Applied Programmable Controllers	2
ET 360 Process Control Systems	3
IT 180 Introduction to Fluid Power	3
IT 215 General Industrial Safety	2

General Electives	3
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Manufacturing Technology
Associate of Applied Science

This program prepares students for employment as manufacturing technicians, computer numerical control (CNC) programmers, and quality technicians.

Total Credits Required for Degree	64
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Liberal Studies	16
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
IS 100 Introduction to Windows, E-mail and the Internet	1
IS 101 Beginning Word Processing	1
IS 102 Beginning Spreadsheets	1
IS 104 Beginning Databases	1
CH 105 Chemical Principles	4

Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	19
DD 100 Technical Drafting/Introduction to CAD	4
DD 103 Geometric Dimensioning and Tolerancing	2
MF 134 Manufacturing Processes	4
MF 133 Machinery Handbook	2
MF 233 Numerical Control	4
MET 213 Materials Science I	3

Other Required Courses	20
ET 110 Introduction to Electricity <i>or</i> ET 100 Fundamentals of Electricity <i>and</i> ET 101 Principles of Electrical Wiring	4
MET 216 Materials Science II	3
IT 215 General Industrial Safety	2
IT 180 Introduction to Fluid Power	3
MA 100 Intermediate Algebra	4
SP 100 Public Address	4

General Electives	8
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MINOR PROGRAMS

Alternative Energies Minor

Total Credits Required for Minor	20
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ET 112 DC Circuit Analysis	4
ET 221 Solar Power	3
ET 222 Wind Power	3
HV 270 Heating Systems	4
MET 200 Introduction to Alternative Energies	3
MET 230 Bioenergy	3

Engineering Design Minor

Total Credits Required for Minor	20
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DD 102 Engineering Graphics	3
DD 103 Geometric Dimensioning and Tolerancing	2
DD 105 Schematics/Diagram Drafting	2
DD 202 Product Development and Design	4
DD 203 Industrial Drawing and Design	4

Drafting and Design Electives	5
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Electronics Minor

Total Credits Required for Minor	20
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ET 110 Introduction to Electricity	4
ET 210 Discrete Semiconductors	4
ET 211 Digital Electronics	4
ET 212 Advanced Linear Circuits	3
ET 430 Senior Project	2
ET 410 Interfacing and Data Acquisition	3

Industrial Electrical Technology Minor

Total Credits Required for Minor	20
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ET 210 Discrete Semiconductors	4
ET 211 Digital Electronics	4
ET 250 Industrial Electrical Machinery	4
ET 252 Industrial Motor Controls	4
IT 215 General Industrial Safety	2
ET 311 Applied Programmable Controllers	2

Manufacturing Minor

Total Credits Required for Minor	23
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DD 103 Geometric Dimensioning and Tolerancing	2
DD 202 Product Development and Design	4
MF 133 Machinery Handbook	2
MF 233 Numerical Control	4
MET 216 Materials Science II	3
WD 140 Introduction to Welding	4
MF 383 Computer-Aided Manufacturing	4

Contracted Minor

Total Credits Required for Minor 20

The contracted minor consists of courses that emphasize a technical or industrial area of study. Courses comprising this minor must be submitted to the Degree Audits Office along with department head and adviser approval.

This minor is available to students in the Industrial Technology and Applied Sciences majors and to students in the General University Studies Associate Degree.

CERTIFICATE PROGRAM

Computer Numerical Control Technician Certificate

Graduates of this program are employed by manufacturers as CNC technicians.

Total Credits Required for Certificate 31

Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	19
DD 100 Technical Drafting/Introduction to CAD	4
DD 103 Geometric Dimensioning and Tolerancing	2
MF 133 Machinery Handbook	2
MF 134 Manufacturing Processes	4
MF 233 Numerical Control	4
MF 235 Computer Numerical Control	3

Other Required Course	1
IS 100 Introduction to Windows, E-mail and the Internet	1

General Electives	10
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Pioneer Surgical Internship Option*

**Students seeking participation in the Pioneer Surgical Internship program should take the following courses as electives: IT 150 Industrial Practices I (2 cr.), IT 151 Industrial Practices II (2 cr.), and DD 202 Product Development and Design (4 cr.).*

ENGLISH

DEPARTMENT OFFICE

229 Walter F. Gries Hall

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E-mail: english@nmu.edu

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Department Head: James M. Schiffer • jschiffe@nmu.edu

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English at NMU

While serving all students in the university with composition and study skills courses, the English Department also offers strong programs in literature and specialized writing. As literature courses challenge students to consider matters of broad human significance, so the many offerings in creative writing, exposition and journalism encourage students to develop their talents for expressing ideas and emotions. The department directs its majors and minors toward courses that will further enhance their abilities to analyze and discuss literature or to write fiction, nonfiction or poetry. A career in one of these fields, either teaching or another professional endeavor, can be a richly rewarding experience.

The department offers four undergraduate English majors and six minors. The majors are in English, English/graduate-bound, English secondary education, and writing. The six minors offered are in writing, journalism, journalism education, film studies, English and English education. The department also participates in the interdisciplinary majors in technical communications and liberal arts and sciences, as well as the gender studies and Native American studies minors.

Student Organizations

- *The North Wind* Student Newspaper
- *Passages North* Literary Magazine
- Sigma Tau Delta Honor Society
- Student Michigan Education Association

Department Facilities

The department operates the Writing Center in the Learning Resources Center. This facility is open daily to help all students, whether or not they are enrolled in writing courses. This assistance is free to NMU students.

Department/Program Policies

English graduate-bound majors are required to have proficiency at the 202 level in a language other than English. Other

students in English are encouraged, although not required, to complete at least one year of study in a language.

Students majoring in English secondary education or minoring in secondary education English or secondary education journalism must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the “Liberal Studies Program and Graduation Requirements” section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

English Major

This major prepares students for careers in business and government, and for professions ranging from law and medicine to publishing.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major*	40
EN 280 Patterns and Continuity of the Literary Past I	1
EN 281 Patterns and Continuity of the Literary Past II	1
EN 282 Introduction to Literature	4
EN 493 Senior Seminar: Issues in Literature	4
British Literature Survey or Period Courses	6-8
<i>Choose from the following:</i>	
EN 283 Survey of British Literature I (4 cr.) [II]	
EN 284 Survey of British Literature II (4 cr.) [III]	
EN 312 Medieval British Literature (3-4 cr.)	
EN 320 Renaissance British Literature (3-4 cr.)	
EN 322 Restoration Eighteenth Century British Literature (3-4 cr.)	
EN 330 British Romantic Literature (3-4 cr.)	
EN 340 Victorian Literature (3-4 cr.)	
EN 360 Modern British Literature (3-4 cr.)	
American Literature Survey Course	4
<i>Choose from the following:</i>	
EN 370 American Literature I (4 cr.) [II]	
EN 371 American Literature II (4 cr.) [II]	
EN 372 American Literature III (4 cr.) [II]	
EN 373 American Literature IV (4 cr.) [II]	
EN 375 Diverse Traditions in American Literature (4 cr.) [II]	
EN 375Z Diverse Traditions in American Literature (4 cr.) [II]	
Major Author Course	3-4
<i>Choose from the following:</i>	
EN 412 Chaucer (3-4 cr.)	
EN 420 Shakespeare (3-4 cr.)	
EN 422 Milton (3-4 cr.)	
EN 430 Major Authors (3-4 cr.)	
Genre Course	3-4
<i>Choose from the following:</i>	
EN 361 Studies in Genre, Poetry (3-4 cr.)	
EN 362 Studies in Genre, Narrative (3-4 cr.)	
EN 363 Studies in Genre, Drama (3-4 cr.)	
EN 364 Studies in Genre, Film (3-4 cr.)	

EN 381 Contemporary Dramatic Literature (3-4 cr.)
 EN 410 Genres of Writing (1-4 cr.)

Upper-level writing course or research paper option in two variable credit courses 2-4

Choose from the following writing courses or complete a research paper (4th credit) in two variable credit courses from major author, genre, world literature/diverse traditions, or British literature survey or period courses:

EN 300 Creative Writing: Fiction (4 cr.)
 EN 301 Creative Writing: Poetry (4 cr.)
 EN 302 Nonfiction Writing (4 cr.)
 EN 303 Technical and Professional Writing (4 cr.)
 EN 400 Narrative Writing Seminar (4 cr.)
 EN 401 Poetry Writing Seminar (4 cr.)
 EN 402 Nonfiction Writing Seminar (4 cr.)
 EN 403 Drama and Script Writing Seminar (4 cr.)
 EN 405 Technical Writing Seminar (4 cr.)

World Literature/Diverse Traditions Course 3-4

Choose from the following:

EN 250 Images of Women (4 cr.)
 EN 311 World Literature in English (4 cr.) [II]
 EN 311Z World Literature in English (4 cr.) [II]
 EN 314 Traditional Oral Literature (4 cr.) [II]
 EN 316 Native American Novels and Poetry (4 cr.) [II]
 EN 317 Native American Drama, Non-Fiction and Short Stories (4 cr.) [II]
 EN 375 Diverse Traditions in American Literature (4 cr.) [II]
 EN 375Z Diverse Traditions in American Literature (4 cr.) [II]
 EN 411 Topics in World Literature (3-4 cr.)
 EN 411Z Topics in World Literature (3-4 cr.)
 EN 440 Topics in Gender in Literature (3-4 cr.)

English Electives 4-8

Minor 20

**No more than eight credits may be at the 100 level and at least nine credits must be in courses 400 or above.*

English Graduate Bound Major Bachelor of Arts

This major is recommended for those interested in graduate school and post-secondary teaching.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	52
EN 283 Survey of British Literature I [II]	4
EN 284 Survey of British Literature II [II]	4
EN 366 Applied Literary Theory	3-4
EN 420 Shakespeare	3-4
Research paper option in two variable credit courses	2
EN 493 Senior Seminar: Issues in Literature	4
British Literature Courses	6-8
<i>Choose from the following:</i>	
EN 312 Medieval British Literature (3-4 cr.)	
EN 320 Renaissance British Literature (3-4 cr.)	
EN 322 Restoration Eighteenth Century British Literature (3-4 cr.)	
EN 330 British Romantic Literature (3-4 cr.)	
EN 340 Victorian Literature (3-4 cr.)	
EN 360 Modern British Literature (3-4 cr.)	
EN 412 Chaucer (3-4 cr.)	
EN 422 Milton (3-4 cr.)	
American Literature Survey Courses	8
<i>Choose from the following:</i>	
EN 370 American Literature I (4 cr.) [II]	
EN 371 American Literature II (4 cr.) [II]	
EN 372 American Literature III (4 cr.) [II]	
EN 373 American Literature IV (4 cr.) [II]	
EN 375 Diverse Traditions in American Literature (4 cr.) [II]	
EN 375Z Diverse Traditions in American Literature (4 cr.) [II]	
World Literature/Diverse Traditions Course	3-4
<i>Choose from the following:</i>	
EN 311 World Literature in English (4 cr.) [II]	
EN 311Z World Literature in English (4 cr.) [II]	
EN 314 Traditional Oral Literature (4 cr.)	
EN 316 Native American Novels and Poetry (4 cr.) [II]	
EN 317 Native American Drama, Non-fiction and Short Stories (4 cr.) [II]	
EN 375 Diverse Traditions in American Literature (4 cr.) [II]	
EN 375Z Diverse Traditions in American Literature (4 cr.) [II]	
EN 411 Topics in World Literature (3-4 cr.) [II]	
EN 411Z Topics in World Literature (3-4 cr.) [II]	
EN 440 Topics in Gender in Literature (3-4 cr.) [II]	
Genre Course	3-4
<i>Choose from the following:</i>	
EN 300 Creative Writing: Fiction (4 cr.)	
EN 301 Creative Writing: Poetry (4 cr.)	
EN 302 Nonfiction Writing (4 cr.)	
EN 403 Drama and Script Writing Seminar (4 cr.)	
EN 361 Studies in Genre, Poetry (3-4 cr.)	
EN 362 Studies in Genre, Narrative (3-4 cr.)	
EN 363 Studies in Genre, Drama (3-4 cr.)	

EN 364 Studies in Genre, Film (3-4 cr.)
EN 410 Genres of Writing (1-4 cr.)

English Electives (any level)	12
Other Required Courses	4
FR 202 Intermediate French [V] <i>or</i>	4
GR 202 Intermediate German [V] <i>or</i>	
SN 202 Intermediate Spanish [V]	

English Writing Major

This major enables students to acquire a solid background in literature while preparing for careers that require regular, extensive writing as part of professional duties.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	41
Literature Component	20
EN 282 Introduction to Literature	4
Literature Electives (300-400 level)	4-6
EN 493 Senior Seminar: Issues in Literature	4
Literary Surveys and Period Courses	6-8
<i>Choose from the following:</i>	
EN 283 Survey of British Literature I (4 cr.) [II] <i>or</i>	
EN 284 Survey of British Literature II (4 cr.) [II]	
EN 312 Medieval British Literature (3-4 cr.)	
EN 320 Renaissance British Literature (3-4 cr.)	
EN 322 Restoration Eighteenth Century British Literature (3-4 cr.)	
EN 330 British Romantic Literature (3-4 cr.)	
EN 340 Victorian Literature (3-4 cr.)	
EN 360 Modern British Literature (3-4 cr.)	
EN 380 Contemporary Literature (3-4 cr.)	
EN 381 Contemporary Dramatic Literature (3-4 cr.)	
EN 370 American Literature I (4 cr.) [II] <i>or</i>	
EN 371 American Literature II (4 cr.) [II] <i>or</i>	
EN 372 American Literature III (4 cr.) [II] <i>or</i>	
EN 373 American Literature IV (4 cr.) [II] <i>or</i>	
EN 375 Diverse Traditions in American Literature (4 cr.) [II] <i>or</i>	
EN 375Z Diverse Traditions in American Literature (4 cr.) [II]	
EN 420 Shakespeare (3-4 cr.)	
Writing Component	21
EN 205 Introduction to Professional Writing	1
Concentration Areas	12-20
<i>Select from at least two of the following areas. At least eight credit hours must be at the 400 level.</i>	
Journalism	
EN 207 Journalism: News and Reporting (4 cr.)	
EN 306 Journalism Editing (4 cr.)	
EN 406 Public Affairs Reporting (4 cr.)	
EN 407 Feature and Magazine Writing (4 cr.)	
EN 410 Genres of Writing (1-4 cr.)	
EN 491 Internship (2-6 cr.)	
EN 495W Special Topics-Writing (1-4 cr.)	

Fiction

- EN 215 Introduction to Creative Writing (4 cr.)
- EN 300 Creative Writing: Fiction (4 cr.)
- EN 400 Narrative Writing Seminar (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Nonfiction

- EN 302 Nonfiction Writing (4 cr.)
- EN 402 Nonfiction Writing Seminar (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Poetry

- EN 215 Introduction to Creative Writing (4 cr.)
- EN 301 Creative Writing: Poetry (4 cr.)
- EN 401 Poetry Writing Seminar (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Technical Writing

- EN 303 Technical and Professional Writing (4 cr.)
- EN 405 Technical Writing Seminar (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 491 Internship (2-6 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Drama

- EN 215 Introduction to Creative Writing (4 cr.)
- EN 403 Drama and Script Writing Seminar (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Media Writing

- BC 265 Writing and Announcing for Broadcast (4 cr.)
- BC 473W Advanced Media Production-Script Writing (4 cr.)
- PR 330 Public Relations Message Design (4 cr.)
- EN 410 Genres of Writing (1-4 cr.)
- EN 495W Special Topics-Writing (1-4 cr.)

Cognates	0-8
Minor (Except Writing)	20

Secondary Education English Major

Completion of this major's required English courses, a teaching minor and the professional education sequence leads to certification as a secondary school teacher in English.

Total Credits Required for Degree	136-138*
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	36-38*
EN 200 Basic English Grammar and Usage for Teachers*	2
EN 280 Patterns and Continuity of the Literary Past I	1
EN 281 Patterns and Continuity of the Literary Past II	1
EN 282 Introduction to Literature	4
EN 309 Teaching of Writing	4
EN 404 The English Language	4
EN 420 Shakespeare	3-4

British Literature Survey or Period Course

3-4

- Choose from the following:*
- EN 283 Survey of British Literature I (4 cr.) [II]
 - EN 284 Survey of British Literature II (4 cr.) [II]
 - EN 312 Medieval British Literature (3-4 cr.)
 - EN 320 Renaissance British Literature (3-4 cr.)
 - EN 322 Restoration Eighteenth Century British Literature (3-4 cr.)
 - EN 330 British Romantic Literature (3-4 cr.)
 - EN 340 Victorian Literature (3-4 cr.)
 - EN 360 Modern British Literature (3-4 cr.)
 - EN 412 Chaucer (3-4 cr.)
 - EN 422 Milton (3-4 cr.)

American Literature Survey

4

- Choose from the following:*
- EN 370 American Literature I (4 cr.) [II]
 - EN 371 American Literature II (4 cr.) [II]
 - EN 372 American Literature III (4 cr.) [II]
 - EN 373 American Literature IV (4 cr.) [II]

Genre Course

3-4

- Choose from the following:*
- EN 361 Studies in Genre, Poetry (3-4 cr.)
 - EN 362 Studies in Genre, Narrative (3-4 cr.)
 - EN 363 Studies in Genre, Drama (3-4 cr.)
 - EN 364 Studies in Genre, Film (3-4 cr.)

World Literature/Diverse Traditions Course

3-4

- Choose from the following:*
- EN 250 Images of Women (4 cr.)
 - EN 311 World Literature in English (4 cr.) [II]
 - EN 311Z World Literature in English (4 cr.) [II]
 - EN 314 Traditional Oral Literature (4 cr.) [II]
 - EN 316 Native American Novels and Poetry (4 cr.) [II]
 - EN 317 Native American Drama (4 cr.) [II]
 - EN 375 Diverse Traditions in American Literature (4 cr.) [II]
 - EN 375Z Diverse Traditions in American Literature (4 cr.) [II]
 - EN 411 Topics in World Literature (3-4 cr.) [II]
 - EN 411Z Topics in World Literature (3-4 cr.) [II]
 - EN 440 Topics in Gender in Literature (3-4 cr.)

English Electives	2-7
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Teaching Minor, minimum	24
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Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
EN 350 Methods and Materials in Teaching English Education**	4
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

*EN 200 Basic English Grammar and Usage for Teachers is not required for any student who successfully completes a 100 or 200 level language course. EN 200 may be completed by examination. For information, call Zhuang-Zhong Lehmborg at 906-227-2778.

**To be taken the semester prior to student teaching, by instructor permission.

MINOR PROGRAMS

English Minor

Total Credits Required for Minor	20
EN Electives*	12
EN Electives (300 level or above)	8

*Courses below EN 110, and composition courses EN 111, EN 211A, EN 211B, EN 211D and EN 211E or equivalents can not be used for the minor.

Film Studies Minor

This minor, which is designed to complement almost any major, teaches students strong communication skills through the study of film.

Total Credits Required for Minor	20
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Choose at least 12 credits from the following:

EN 125 Introduction to Film (4 cr.)
 EN 225 History of World Cinema (4 cr.)
 EN 325 Authorship in the Cinema (4 cr.)
 EN 326 National Cinema (4 cr.)
 EN 364 Studies in Genre, Film (3-4 cr.)
 EN 425 Topics in Film Theory (4 cr.)

Choose a maximum of 8 credits from the following:

AD 121 Digital Cinema: Introduction (4 cr.)
 AD 221 Digital Cinema: Animation (4 cr.)
 AD 321 Digital Cinema: Seminar (4 cr.)
 BC 410 The Documentary (4 cr.)
 LG 317 World Studies through Literature in Translation (4 cr.)

Journalism Minor

Prepares students for jobs in the newspaper, online news, magazine and corporate public relations and writing professions.

Total Credits Required for Minor	20
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Choose from the following:

EN 206 Survey of Journalism (4 cr.)
 EN 207 Journalism: News Writing and Reporting (4 cr.)
 EN 302 Nonfiction Writing (4 cr.)
 EN 306 Journalism Editing and Design (4 cr.)
 EN 307 Journalism Practicum (2 cr.)
 EN 406 Public Affairs Reporting (4 cr.)
 EN 407 Feature and Magazine Writing (4 cr.)
 EN 491 Internship (2-6 cr.)
 BC 265 Writing and Announcing for Broadcast (4 cr.)

The journalism minor is not a certified teaching minor.

Secondary Education English Minor

Students interested in teaching English at the secondary level are urged to pursue the major in English instead of the minor.

Total Credits Required for Minor	22-26*
EN 200 Basic English Grammar and Usage for Teachers*	2
EN 282 Introduction to Literature	4
EN 309 Teaching of Writing	4
EN 350 Methods and Materials in Teaching English Education	4
EN 404 The English Language	4
British literature survey or period course	3-4
American literature survey or period course	3-4

*EN 200 Basic English Grammar and Usage for Teachers is not required for any student who successfully completes a 100 or 200 level language course. EN 200 may be completed by examination. For information, call Zhuang-Zhong Lehmsberg at 906-227-2778.

Secondary Education Journalism Minor (pending state approval)

Prepares students to teach journalism and act as faculty advisers for student publications. Students interested in teaching English at the secondary level are urged to pursue the English Major.

Total Credits Required for Minor	24
EN 206 Survey of Journalism	4
EN 207 Journalism News and Reporting	4
EN 306 Journalism Editing and Design	4
EN 368 Teaching/Advising Scholastic Journalists	4
Choose from the following:	8

EN 307 Journalism Practicum (4 cr.)
 EN 406 Public Affairs Reporting (4 cr.)
 EN 407 Feature/Magazine Writing (4 cr.)
 EN 491 Internship (4 cr.)
 BC 265 Writing and Announcing for Broadcast (4 cr.)

Writing Minor

Total Credits Required for Minor	20
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Choose from the following:

EN 205 Introduction to Professional Writing (1 cr.)
 EN 215 Introduction to Creative Writing (4 cr.)
 EN 300 Creative Writing: Fiction (4 cr.)
 EN 301 Creative Writing: Poetry (4 cr.)
 EN 302 Nonfiction Writing (4 cr.)
 EN 303 Technical and Professional Writing (4 cr.)
 EN 400 Narrative Writing Seminar (4 cr.)
 EN 401 Poetry Writing Seminar (4 cr.)
 EN 402 Non-Fiction Writing Seminar (4 cr.)
 EN 403 Drama and Script Writing Seminar (4 cr.)
 EN 404 The English Language (4 cr.)
 EN 410 Genres of Writing (1-4 cr.)
 BC 265 Writing and Announcing for Broadcast (4 cr.)
 EN 405 Technical Writing Seminar (4 cr.)
 EN 491 Internship (2-6 cr.)
 EN 495W Special Topics Writing (1-4 cr.)

Note: The writing minor is not a certified teaching minor.

ENVIRONMENTAL SCIENCE PROGRAM

PROGRAM OFFICE

3005 New Science Facility

Phone: 906-227-1359

Fax: 906-227-1621

Web Page: www.nmu.edu/environmentalscience

Program Director: Ronald C. Sundell • rsundell@nmu.edu



Environmental Science at NMU

The environmental science program is an interdisciplinary approach offered jointly by the departments of Biology, Economics, Chemistry, Geography, Mathematics and Computer Science, Physics, and Political Science and Public Administration.

The program provides students an opportunity to gain an understanding of how the physical, biological and social sciences interact with each other in this field of study. The program is designed to prepare students for a variety of professions dealing with both natural and human-made environments, as well as graduate study. Because of the interdisciplinary nature of the environmental field, it is important for students to be proficient in a range of technical skills such as ecological assessment, chemical analysis and geographic information systems. Students should also be familiar with a broad array of environmental policies and regulations, and possess effective communication skills.

Environmental scientists are often required to interact with professionals from a diverse number of disciplines or specialties. Therefore, every environmental science major will take a 36 credit-hour core of courses that provides a basic understanding of several environmentally related disciplines. Each student also must complete 25 to 30 credit hours in one of three areas of program emphasis: (1) biological science, (2) physical science, or (3) environmental policy. The track selected by the student will appear on his or her transcript.

Student Organization

- Student Environmental Science Organization

Facilities

- Environmental Chemistry Laboratory
- Environmental Resource Room
- Lake Superior Research Boat
- Longyear Forest
- Native Plants Study Area

Students also can use a large range of laboratory facilities and field equipment associated with the seven departments involved in the program. See each department's facility list for details.

Environmental Science Program Policies

Environmental science majors must select an area of emphasis (biological sciences, physical sciences or environmental policy) upon entering the program. Students also must select a faculty adviser. The adviser must be either the program director or a faculty member from one of the associated departments (Biology Department faculty for the biological sciences track, Chemistry Department faculty for the physical sciences track, and Geography Department faculty or Political Science and Public Administration Department faculty for the environmental policy track).

As a requirement for graduation, environmental science majors must maintain the minimum grades and cumulative grade point average as set forth by each of the participating departments. For example, a student in the biology track must maintain the same academic standards as biology majors. Likewise, students in the physical track must maintain academic standards as set forth by the Chemistry Department, and those in the environmental policy track must maintain the academic standards as determined by the department of their adviser in either the Geography or Political Science and Public Administration Departments.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Environmental Science Major

This major provides students with an interdisciplinary approach on how to apply research methods, assessment techniques and management strategies to resolve environmental problems. It provides students an opportunity to gain an understanding of how the physical, biological and social sciences interact with each other in this field of study.

Total Credits Required for Degree 128

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major (Core + Emphasis)

Students must complete the core and one of the three areas of emphasis. ENV 101 should be taken during the first year of entering the program.

Core 36

ENV 101 Introduction to Environmental Science [III] 4
BI 210 Principles of Ecology 4
CH 111 General Chemistry I [III] 5
CH 112 General Chemistry II [III] 5
GC 100 Physical Geography [III] 4
GC 225 Introduction to Maps 2
GC 320 Environmental Policy and Regulation 4
GC 335 Geographic Information Systems 4
MA 171 Probability and Statistics [V] *or* 4
 BI 412 Biometrics (4 cr.) *or*
 GC 235 Quantitative Methods (4 cr.)

Biological Sciences Emphasis 28

BI 240 Conservation Biology 4
BI 310 Ecology Theory and Methods 4
BI 402 Microbial Ecology 4
BI 411 Limnology 4
BI 441 Fisheries Management 4
BI 442 Wildlife Management 4
GC 401 Biogeography 4

Physical Sciences Emphasis 27-30

CH 220 Introductory Organic Chemistry (5 cr.) *or* 5-8
 CH 321 Organic Chemistry I (4 cr.) *and*
 CH 322 Organic Chemistry II (4 cr.)
CH 241 Chemical Equilibrium 3
CH 242 Quantitative Analysis 2
CH 430 Environmental Chemistry 5
GC 202 Soils 4
GC 370 Geomorphology 4
GC 465 Hydrology 4

Environmental Policy Emphasis 28

GC 330 Planning Theory and Practice 2
GC 340 Land Use Controls 2
GC 470 Environmental Ethics 4
GC 475 Environmental Impact Assessment 4
PS 301 Seminar in Public Policy Analysis 4
PS 307 Principles of Public Administration 4
PS 309 State and Local Government 4
SP 432 Environmental Communication 4

Environmental Science Electives 12-15

Choose from the following or any course from one of the above emphases, other than the student's chosen emphasis. No more than eight credits can be taken under a single prefix.

BC 415 Intercultural Communication (4 cr.)
BI 303 General Microbiology (5 cr.)
BI 305 Ecology of the Northern Forest (3 cr.) [III]
BI 410 Ecology of the Great Lakes (4 cr.)
BI 421 Invertebrate Zoology (4 cr.)
BI 424 Entomology (4 cr.)
BI 433 Boreal Flora (2-3 cr.)
BI 460 Ichthyology (4 cr.)
BI 461 Herpetology (3 cr.)
BI 462 Ornithology (3 cr.)
BI 463 Mammalogy (3 cr.)
BI 498 Directed Studies in Biology (1-4 cr.)
BI 499 Internship (1-6 cr.)
CH 435 Gas and Liquid Chromatography (2 cr.)
CH 490 Senior Research and Seminar I (2-4 cr.)
CH 491 Senior Research and Seminar II (2-4 cr.)
EC 345 Environmental and Natural Resource Economics (4 cr.)
GC 385 Weather and Climate (4 cr.)
GC 425 Remote Sensing (4 cr.)
GC 428 Spatial Analysis (4 cr.)
GC 491 Internship (2-6 cr.)
GC 498 Directed Studies in Geography (1-4 cr.)
PH 201 College Physics I (5 cr.) [III]
PH 202 College Physics II (5 cr.) [III]
PH 220 Introductory Physics I (5 cr.) [III]
PR 231 Introduction to Public Relations (4 cr.)
 PR 250 co-requisite is waived
PS 105 American Government (4 cr.) [IV]
PS 215 Introduction to Law (4 cr.)
PS 332 Administrative Law (4 cr.)
PS 491 Internship in Public Policy or Law (2-6 cr.)
PS 498 Directed Studies in Political Science (1-4 cr.)
SP 401 Persuasion (4 cr.)

Other Required Courses 8

BI 111 Introductory Biology: Principles [III] 4
BI 112 Introductory Biology: Diversity [III] 4

GEOGRAPHY

DEPARTMENT OFFICE

3001 New Science Facility

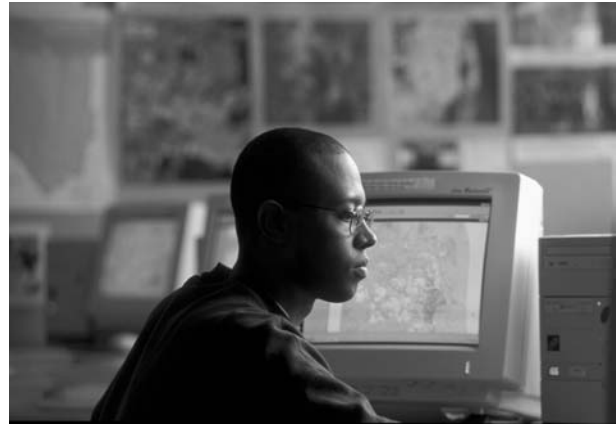
Phone: 906-227-2500

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Geography at NMU

The Geography Department offers a variety of programs in human geography, earth science, physical geography, geographic information science, planning, environmental conservation, and education, along with a certificate program in geographic information systems (GIS). The department is committed to excellence in teaching and preparing students for graduate study, professional careers in teaching, governmental service, and the private sector.

Since geography is an integrative discipline, students, whether interested in its human or physical aspects, must have a basic understanding of the scope of the discipline and its methodologies. This is reflected in the department's core curriculum, which all geography students are required to take. It consists of courses in human and physical geography, three methods classes and a capstone course that integrates the human and physical aspects of the discipline by focusing on the interactions between humankind and the natural environment.

Geography majors have the opportunity to gain practical work experience through internships with local governmental agencies and the private sector.

Student Organizations

- Gamma Theta Upsilon Honor Society
- Student Michigan Education Association
- Superior Geography Club
- Rock and Mineral Club

Department Facility

- GIS and Remote Sensing Lab

Department/Program Policies

As a requirement for graduation, all non-teaching geography department majors must have a minimum grade of "C" and a minimum cumulative grade point average of 2.25 for all courses constituting the major curriculum. Students majoring in secondary education earth science, secondary education geography, or minoring in geography education or earth science education must maintain a grade point average of 2.70 or greater with no

grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Students majoring in programs in the department must also do the following:

1. Successfully complete EN 211 before taking 300-level courses or above in the major.
2. Complete AIS 101 if required during the freshman year or within the first year of transferring to a major in the department.
3. Satisfy the prerequisites for each major course enrolled in as described in this bulletin.

Note: Petition for exception to any of the program policies must be made in writing and submitted to the Geography Department. The petition must include reasons why an exception should be made and provide documentation of those reasons, if applicable.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Earth Science Major

This major provides students with a thorough knowledge of Earth's physical environment including its geology, weather and climate, astronomical relationships and hydrology.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	44
AS 103 Observational and Solar System Astronomy [III]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 255 Physical Geology [III]	4
GC 260 Minerals and Rocks	4
GC 365 Historical Geology	4
GC 385 Weather and Climate	4
GC 390 Oceanography	2
GC 489 Human Impact on the Environment	4
GC 335 Geographic Information Systems	4
GC 425 Remote Sensing	
GC 202 Soils <i>or</i>	4
GC 370 Geomorphology (4 cr.) <i>or</i>	
GC 465 Hydrology (4 cr.)	
Other Required Courses	19
ALS 101 Introduction to Information Resources	1
MA 104 College Algebra with Applications [III] (or higher)	4
PH 201 College Physics I [III] (or higher)	5
Biology Elective	4
(BI 111 Introductory Biology: Principles [III] recommended)	
Chemistry Elective	5
(CH 111 General Chemistry 1 [III] recommended)	
Minor	20

Environmental Conservation Major

This major provides students with an introduction to quantitative and qualitative methods of assessing and analyzing humankind's impact upon the environment.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	38
GC 100 Physical Geography [III]	4
ENV 101 Introduction to Environmental Science [III]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 320 Environmental Policy and Regulation	4
GC 335 Geographic Information Systems	4
GC 475 Environmental Impact Assessment	4
GC 489 Human Impact Upon the Environment	4
GC 202 Soils <i>or</i>	4
GC 255 Physical Geology (4 cr.) [III] <i>or</i>	
GC 370 Geomorphology (4 cr.) <i>or</i>	
GC 401 Biogeography (4 cr.) <i>or</i>	
GC 465 Hydrology (4 cr.) <i>or</i>	
GC 470 Environmental Ethics (4 cr.)	
Other Required Courses	5
ALS 101 Introduction to Information Resources	1
CIS 110 Principles of Computer Information Systems [V]	4
Minor	20

Geographic Information Science Major

This major provides students with knowledge and skills related to information technology, spatial data management, analysis and visualization.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	34
CIS 155 Software Development with Databases	4
GC 100 Physical Geography [III]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 335 Geographic Information Systems	4
GC 337 Computer Cartography	4
GC 425 Remote Sensing	4
GC 428 Spatial Analysis	4

Electives	12
CS 120 Computer Science I [V]	4
CS 122 Computer Science II	4
CS 201 Programming in C++	3
CS 222 Data Structures	4
CS 302 Unix System Administration	4
CS 326 Object Oriented Design	3
CS 470 Artificial Intelligence	4
CIS 355 Web Application Programming	3
GC 330 Planning Theory and Practice	2
GC 445 Advanced Aerial Photography Interpretation and Photogrammetry	2
GC 455 Digital Image Processing	2
GC 491 Internship in Geography	2-6
IS 120 Computer Concepts [V]	2
MA 240 Discrete Mathematics	3
Other Required Courses	9
ALS 101 Introduction to Information Resources	1
CIS 110 Principles of Computer Information Systems [V]	4
GC 164 Human Geography [IV]	4
Minor or Cluster Minor	20

Human Geography Major

This major allows students to specialize in different systematic branches of the discipline such as urban, economic, political and regional geography.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major	38
GC 100 Physical Geography [III]	4
GC 164 Human Geography [IV]	4
GC 200 North America <i>or</i> GC 300 Regional Studies (4 cr.) [IV]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 489 Human Impact Upon the Environment	4
GC 335 Geographic Information Systems <i>or</i> GC 337 Computer Cartography (4 cr.) <i>or</i> GC 425 Remote Sensing (4 cr.) <i>or</i> GC 428 Spatial Analysis (4 cr.)	4
Geography Electives	8
<i>Choose from the following:</i>	
GC 220 Economic Geography (4 cr.)	
GC 310 Urban Geography (4 cr.)	
GC 316 Geography of Tourism (4 cr.)	
GC 317 Geography of Food Systems (4 cr.)	
GC 360 Population Geography (4 cr.) [IV]	
Other Required Courses	5
ALS 101 Introduction to Information Resources	1
CIS 110 Principles of Computer Information Systems [V]	4
Minor or Cluster Minor	20

Physical Geography Major

This major is designed to provide students with a thorough knowledge of the Earth's physical environment including its climate, soil, vegetation, landforms and geology.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	38
GC 100 Physical Geography [III]	4
GC 164 Human Geography [IV]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 489 Human Impact Upon the Environment	4
GC 335 Geographic Information Systems <i>or</i> GC 337 Computer Cartography (4 cr.) <i>or</i> GC 425 Remote Sensing (4 cr.) <i>or</i> GC 428 Spatial Analysis (4 cr.)	4

Geography Electives 12

Choose from the following:

GC 202 Soils (4 cr.)	
GC 255 Physical Geology (4 cr.) [III]	
GC 260 Minerals and Rocks (4 cr.)	
GC 365 Historical Geology (4 cr.)	
GC 370 Geomorphology (4 cr.)	
GC 385 Weather and Climate (4 cr.)	
GC 401 Biogeography (4 cr.)	
GC 465 Hydrology (4 cr.)	

Other Required Courses 5

ALS 101 Introduction to Information Resources	1
CIS 110 Principles of Computer Information Systems [V]	4

Minor or Cluster Minor 20

Planning Major

This program applies the planning process to land-use decision-making in small towns and rural areas. Students are provided with a solid background in the tools and techniques of planning and given the opportunity to gain practical experience by working on local planning issues.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	42
GC 100 Physical Geography [III]	4
GC 164 Human Geography [IV]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 330 Planning Theory and Practice	2
GC 340 Land Use Controls	2
GC 485 Planning Practicum	4

Geography Electives

Choose from the following:

GC 335 Geographic Information Systems (4 cr.)	
GC 337 Computer Cartography (4 cr.)	
GC 425 Remote Sensing (4 cr.)	
GC 428 Spatial Analysis (4 cr.)	

Geography Electives

Choose from the following:

GC 202 Soils (4 cr.)	
GC 220 Economic Geography (4 cr.)	
GC 310 Urban Geography (4 cr.)	
GC 316 Geography of Tourism (4 cr.)	
GC 320 Environmental Policy and Regulation (4 cr.)	
GC 360 Population Geography (4 cr.) [IV]	
GC 370 Geomorphology (4 cr.)	
GC 401 Biogeography (4 cr.)	
GC 465 Hydrology (4 cr.)	
GC 470 Environmental Ethics (4 cr.)	
GC 475 Environmental Impact Assessment (4 cr.)	
GC 491 Internship (2-4 cr.)	

Other Required Courses

ALS 101 Introduction to Information Resources	5
CIS 110 Principles of Computer Information Systems [V]	1
	4

Minor or Cluster Minor 20

Secondary Education Earth Science Major

Teaching certification is obtained by completing a major in earth science, a teaching minor and the professional education sequence. Advising for this major is provided by Dr. Mitchell D. Klett in the School of Education.

Total Credits Required for Degree 143-146

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 36

AS 103 Observational and Solar System Astronomy [III]	4
GC 225 Introduction to Maps	2
GC 255 Physical Geology [III]	4
GC 260 Minerals and Rocks	4
GC 365 Historical Geology	4
GC 385 Weather and Climate	4
GC 390 Oceanography	2
GC 465 Hydrology	4
Choose from the following:	8
GC 202 Soils (4 cr.)	
GC 370 Geomorphology (4 cr.)	
GC 425 Remote Sensing (4 cr.)	

Teaching Minor, minimum 20-22

Choose from biology education, chemistry education or physics education.

Other Required Courses 16-17

MA 103 Finite Mathematics [III]	4
MA 271 Calculus with Applications	4

8 Choose two courses from the following that are not in the selected minor area. 8-9

BI 100 Biological Science (4 cr.) [III]	
BI 111 Introductory Biology: Principles (4 cr.) [III]	
BI 112 Introductory Biology: Diversity (4 cr.) [III]	
CH 105 Chemical Principles (4 cr.) [III]	
PH 201 College Physics I (5 cr.) [III]	

8

Professional Education 37

ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2
MSED 340 Fundamental Concepts in Science	4
MSED 350 Methods and Materials in Teaching Science Education	4

Secondary Education Geography Major

Teaching certification is obtained by completing a major in geography, a teaching minor and the professional education sequence. Advising for this major is provided by the Geography Department.

Total Credits Required for Degree 129-133

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 34

GC 100 Physical Geography [III]	4
GC 164 Human Geography [IV]	4
GC 200 North America or GC 300 Regional Studies [IV]	4
GC 205 Introduction to Geographic Research	4
GC 225 Introduction to Maps	2
GC 235 Quantitative Methods	4
GC 489 Human Impact Upon the Environment	4
GC 337 Computer Cartography or GC 425 Remote Sensing (4 cr.) or GC 428 Spatial Analysis (4 cr.)	4
GC 220 Economic Geography or GC 310 Urban Geography (4 cr.) or GC 316 Geography of Tourism (4 cr.) or GC 360 Population Geography (4 cr.) [IV] or GC 435 Geography of Michigan (4 cr.)	4

Teaching Minor, minimum 20-24

Professional Education 33

ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
GC 350 Methods and Materials in Teaching Social Studies Education	4

ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2

GC 330 Planning Theory and Practice	2
GC 445 Advanced Aerial Photography Interpretation and Photogrammetry	2
GC 455 Digital Image Processing	2
GC 491 Internship in Geography	2-6
IS 120 Computer Concepts	2
MA 240 Discrete Mathematics	3

MINOR PROGRAMS

Earth Science Minor

Total Credits Required for Minor	20
GC 225 Introduction to Maps	2
GC 255 Physical Geology	4
GC 365 Historical Geology	4
GC 385 Weather and Climate	4
GC 390 Oceanography	2
AS 103 Observational and Solar System Astronomy or GC 202 Soils (4 cr.) or GC 260 Minerals and Rocks (4 cr.) or GC 370 Geomorphology (4 cr.) or GC 465 Hydrology (4 cr.)	4

Environmental Conservation Minor

Total Credits Required for Minor	20
GC 100 Physical Geography	4
ENV 101 Introduction to Environmental Science	4
GC 320 Environmental Policy and Regulation	4
Geography Electives	8
<i>Choose from the following:</i>	
GC 202 Soils (4 cr.)	
GC 401 Biogeography (4 cr.)	
GC 465 Hydrology (4 cr.)	
GC 470 Environmental Ethics (4 cr.)	
GC 475 Environmental Impact Assessment (4 cr.)	

Geographic Information Systems Minor

Total Credits Required for Minor	24
Required Courses	18
GC 225 Introduction to Maps	2
GC 335 Geographic Information Systems	4
GC 337 Computer Cartography	4
GC 425 Remote Sensing	4
GC 428 Spatial Analysis	4
Electives	6
CIS 155 Software Development with Databases	4
CIS 355 Web Application Programming	3
CS 120 Computer Science I	4
CS 122 Computer Science II	4
CS 201 Programming in C++	3
CS 222 Data Structure	4
CS 302 Unix System Administration	4
CS 326 Object Oriented Design	3
CS 470 Artificial Intelligence	4
DD 110 CAD Productivity and Customization	2

Geography Cluster Minor

For geography department non-teaching majors only.

Total Credits Required for Minor	20
<i>Note: The cluster minor may consist of courses that emphasize the physical, cultural or applied (planning) areas of the discipline. Approval of a cluster minor must be obtained from each department contributing two or more courses to the minor. Courses comprising the cluster minor must be submitted to the Degree Audits Office during the student's third semester at NMU.</i>	

Human Geography Minor

Total Credits Required for Minor	22
GC 100 Physical Geography	4
GC 164 Human Geography	4
GC 225 Introduction to Maps	2
Geography Electives	12
<i>Choose from the following:</i>	
GC 220 Economic Geography (4 cr.)	
GC 300 Regional Studies (4 cr.)	
GC 310 Urban Geography (4 cr.)	
GC 316 Geography of Tourism (4 cr.)	
GC 360 Population Geography (4 cr.)	

Physical Geography Minor

Total Credits Required for Minor	22
GC 100 Physical Geography	4
GC 225 Introduction to Maps	2
GC 370 Geomorphology	4
GC 385 Weather and Climate	4
Geography Electives	8
<i>Choose from the following:</i>	
GC 202 Soils (4 cr.)	
GC 255 Physical Geology (4 cr.)	
GC 401 Biogeography (4 cr.)	
GC 465 Hydrology (4 cr.)	

Planning Minor

Total Credits Required for Minor	22
GC 100 Physical Geography	4
GC 105 World Regional Geography <i>or</i> GC 164 Human Geography	4
GC 225 Introduction to Maps	2
GC 330 Planning Theory and Practice	2
GC 340 Land Use Controls	2

Geography Electives

Choose from the following:	8
GC 220 Economic Geography (4 cr.)	
GC 310 Urban Geography (4 cr.)	
GC 320 Environmental Policy and Regulation (4 cr.)	
GC 335 Geographic Information Systems (4 cr.)	
GC 475 Environmental Impact Assessment (4 cr.)	

Secondary Education Earth Science Minor

Total Credits Required for Minor	22-30*
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AS 103 Observational and Solar System Astronomy	4
GC 255 Physical Geology	4
GC 385 Weather and Climate	4
GC 465 Hydrology	4

<i>Choose from the following:</i>	6-8
GC 202 Soils (4 cr.)	
GC 225 Maps (2 cr.)	
GC 365 Minerals and Rocks (4 cr.)	
GC 370 Geomorphology (4 cr.)	
GC 390 Oceanography (2 cr.)	

MSED 340 Fundamental Concepts in Science*	4
MSED 350 Methods and Materials in Teaching Science Education*	4

*Not required if major is biology education, chemistry education, physics education or integrated science education.

Secondary Education Geography Minor

Total Credits Required for Minor	22-26*
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GC 100 Physical Geography	4
GC 164 Human Geography	4
GC 200 North America	4
GC 220 Economic Geography	4
GC 225 Introduction to Maps	2
GC 350 Methods and Materials in Teaching Social Studies Education*	4
GC 435 Geography of Michigan	4

*Not required if major is economics education, history education, political science education or social studies education.

CERTIFICATE PROGRAM

Geographic Information Systems Certificate

This program is designed to provide students with the practical skills and theoretical knowledge necessary to enter the rapidly expanding field of geographic information science.

Total Credits Required for Certificate	35
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Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	18
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GC 225 Introduction to Maps	2
GC 335 Geographic Information Systems	4
GC 337 Computer Cartography	4
GC 425 Remote Sensing	4
GC 428 Spatial Analysis	4

Electives	4
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CIS 155 Software Development with Databases	4
CIS 355 Web Application Programming	3
CS 120 Computer Science I	4
CS 122 Computer Science II	4
CS 201 Programming in C++	3
CS 222 Data Structure	4
CS 302 Unix System Administration	4
CS 326 Object Oriented Design	3
CS 470 Artificial Intelligence	4
DD 110 CAD Productivity and Customization	2
GC 330 Planning Theory and Practice	2
GC 445 Advanced Aerial Photography Interpretation and Photogrammetry	2
GC 455 Digital Image Processing	2
GC 491 Internship in Geography	2-6
IS 120 Computer Concepts	2
MA 240 Discrete Mathematics	3

Other Required Courses	12
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CIS 110 Principles of Computer Information Systems <i>or</i> equivalent	4
GC 235 Quantitative Methods <i>or</i> equivalent	4
MA 104 College Algebra <i>or</i> equivalent	4

HEALTH, PHYSICAL EDUCATION AND RECREATION

DEPARTMENT OFFICE

201 Physical Education Instructional Facility

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Health, Physical Education and Recreation at NMU

The department offers programs leading to a bachelor's degree in either liberal arts or education, with specializations in athletic training, health education, outdoor recreation, physical education or sports science. There are eight majors and 11 minors. A master of science degree is also available for students wishing to pursue advanced study in exercise science. The department's programs are designed to build on a student's liberal studies foundation, give a broad overview of the health and fitness fields and offer a focused preparation in the student's choice of profession.

The health education and management of health and fitness programs include an internship, field experience or student teaching experience. These programs also help students prepare to earn certifications such as the American College of Sports Medicine (ACSM) Health and Fitness Instructor Certification, the Certified Health Education Specialist (CHES) Accreditation, and relevant Michigan teacher certifications.

The athletic training program prepares students to take the National Athletic Trainers Association Board of Certification Examination.

Northern's HPER Department is accredited by the American Alliance for Health, Physical Education, Recreation and Dance, Commission on the Accreditation of Allied Health Education Program (CAAHEP), and Wilderness Education Association.

Student Organizations

- Health Promotion Society
- Organization for Outdoor Recreation Professionals
- Student Athletic Training Organization
- Student Michigan Education Association

Department Facilities

The department has one of the finest physical education buildings of its kind: the Physical Education Instructional Facility (PEIF). This facility includes four gymnasiums, several classrooms, a pool and dive tank, an exercise physiology and biomechanics lab, athletic training labs, a high ropes course and an instructional dance studio.

The Student Recreation Center is also located in the PEIF and features aerobic and weight training equipment, basketball courts, a student lounge and an indoor climbing wall.

The Outdoor Recreation Center provides programs and equipment rental.

Additional facilities include the Superior Dome (the world's largest wooden dome) and Berry Events Center. The Superior Dome seats 8,000 for football, soccer and softball. When the turf is retracted, basketball, tennis, volleyball and track and field are available. The Berry Events Center, which seats 3,675, has an Olympic-sized ice surface and is the home for Wildcat hockey and basketball and United States Olympic Education Center (USOEC) speedskating.

Department/Program Policies

General Information

Student placement and/or employment in public school systems, athletic training agencies and outdoor recreation leadership management agencies generally stipulate that applicants possess good moral character and strong judgment. The ability to successfully pass the rigors of Northern Michigan University's HPER Department helps to validate or ensure these prerequisite qualities in our majors. Each student is therefore advised that school systems and agencies will perform a background investigation on potential employees. The nature and scope of the background investigation is the prerogative of the specific

school system or agency and is ordinarily subject to the consent of the applicant. Lack of consent would ordinarily remove an individual from placement and/or employment consideration. Additional information in this regard is available to you by speaking with your academic adviser, department head or the director of teacher education student services.

Admission to the Baccalaureate Athletic Training Program

Before applying for admission to the athletic training program, applicants must fulfill the following requirements:

1. Be admitted to Northern Michigan University.
2. Have completed, or be in the process of completing the following courses: ATR 110 Introduction to Athletic Training, HL 101 Medical Terminology for Health Educators and HL 242 Emergency Health Care.
3. Achieve a cumulative NMU grade point average of 2.75 or better in their first semester, with a minimum grade of "B" in ATR 110 Introduction to Athletic Training.
4. Complete required athletic training observation hours under the guidance of a member of the NMU certified staff during the first year of enrollment.
5. File an application with current transcript of grades and three letters of recommendation with the Health, Physical Education and Recreation Department by February 1 for the succeeding fall semester.
6. Sit for a formal interview with the director of the athletic training education program and additional certified athletic training staff members after application has been filed.
7. Meet technical standards for admission.

Technical Standards for Admission to the Athletic Training Program

The technical standards set forth by the Northern Michigan University athletic training educational program establish the essential qualities considered necessary for students admitted to this program to achieve the knowledge, skills and competencies of an entry-level athletic trainer, as well as meet the expectations of CAAHEP. The following abilities and expectations must be met by students admitted to the athletic training education program. Failing to fulfill these technical standards with or without reasonable accommodations will result in a student not being admitted into the program. Compliance with the technical standards does not guarantee a student's eligibility for the National Athletic Trainers Association Board of Certification (NATABOC) examination.

Candidates for selection into the NMU athletic training major must demonstrate the following:

1. The mental capacity to assimilate, analyze, synthesize, integrate concepts and problem solve to formulate assessment and therapeutic judgments and to be able to distinguish deviations from the norm.
2. Sufficient postural and neuromuscular control, sensory function and coordination to perform appropriate physical examinations using accepted techniques; and accurately, safely and efficiently use equipment and materials during the assessment and treatment of patients.
3. The ability to communicate effectively and sensitively with patients and colleagues, including individuals from different cultural and social backgrounds. This includes, but is not limited to, the ability to establish rapport with patients and communicate judgments and treatment information effectively. Students must be able to understand and speak the English language at a level consistent with competent professional practice.
4. The ability to record the physical examination results and a treatment plan clearly and accurately.
5. The capacity to maintain composure and continue to function well during periods of high stress.
6. The perseverance, diligence and commitment to complete the athletic training education program as outlined and sequenced.
7. Flexibility and the ability to adjust to changing situations and uncertainty within the clinical situation.
8. Affective skills and appropriate demeanor and rapport that relate to professional education and quality patient care.

Once accepted into the athletic training education program, students will be required to have a brief physical exam to ensure he or she meets all program technical standards. The physical exam is conducted by the contracted medical director of the athletic training education program and is of no charge to the student.

The Health, Physical Education and Recreation Department admits a limited number of students to the athletic training program each year. If the number of eligible applicants exceeds the number of placements available, the faculty reserves the right to select the applicants who shall be admitted. The remaining eligible applicants may apply for admission the following year. Ordinarily, students may expect to complete the entire program in approximately three academic years after being admitted to the athletic training program, assuming that they complete all of their courses satisfactorily and in sequence.

Students are responsible for their own transportation to and from off-campus clinical assignments.

Retention in the Athletic Training Program

1. Maintain a minimum cumulative NMU grade point average of 2.50.
2. Successfully complete an athletic training (ATR) course on the first or second attempt (i.e., student may repeat an athletic training course only once).
3. Complete all courses in the major with a minimum grade of "C", except courses with the ATR prefix must be completed with a minimum grade of "B-".
4. Adhere to the Northern Michigan University Student Code.
5. Demonstrate a pattern of safe clinical practice commensurate with the student's educational experiences.

Students who withdraw from the program and wish to re-enter must follow the same application and admission procedures as all pre-athletic training students.

Department Grade Point Average Requirements

Community health education majors and management of health and fitness majors must achieve a grade of "C" (2.00) or higher in all major courses. In addition, students are expected to follow a lifestyle commensurate with their professional aspirations. Sports science majors must achieve a grade of "C" (2.00) or higher in all major courses.

See Retention in the Athletic Training Program (above) for information on this major.

Students majoring in secondary education health education or secondary education physical education or minoring in health education secondary education or physical education secondary education must maintain a grade point average of 2.70 or higher with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Students majoring in outdoor recreation leadership and management must achieve a grade of "C" (2.00) or higher in all major core courses.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Athletic Training Major

This major is designed to prepare and qualify students to take the National Athletic Trainers Association Board of Certification Examination. Upon obtaining certification, students will be qualified athletic trainers for positions in settings such as high schools, colleges, sports medicine clinics, rehabilitation centers or private industry. The program provides solid didactic and clinical education and boasts a fully equipped, 1044-square foot athletic training laboratory facility, campus athletic training rooms and a staff of 17 approved clinical instructors. The program is CAAHEP accredited.

Note: See Admissions Standards, Technical Standards and Retention Standards specific to this program as outlined above.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	60
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
HL 101 Medical Terminology for Health Educators	1
HL 242 Emergency Health Care	2
HN 301 Nutrition for Health Professionals	4
PE 315 Physiology of Exercise	4
PE 317 Anatomical Kinesiology	2
PE 417 Biomechanics	2
PE 421 Physiological Aspects of Conditioning	3
PE 470 Psychological Aspects of Athletic Performance	2
ATR 110 Introduction to Athletic Training	1
ATR 201 Pathology and Pharmacology for the Athletic Trainer	2
ATR 241 Prevention and Care of Injuries	3
ATR 292A Introduction to Practicum I	1
ATR 292B Introduction to Practicum II	1
ATR 320 Advanced Assessment Techniques in Athletic Training I (Lower Quarter)	3
ATR 321 Advanced Assessment Techniques in Athletic Training II (Upper Quarter)	3
ATR 360 Therapeutic Exercise and Rehabilitation Techniques	4
ATR 380 Therapeutic Modalities	2
ATR 392A Intermediate Practicum I	2
ATR 392B Intermediate Practicum II	2
ATR 410 Athletic Training Policies and Procedures	2
ATR 490 Seminar in Athletic Training	2

ATR 492A Advanced Practicum I	2
ATR 292B Advanced Practicum II	2

Other Required Courses	12-13
HL 460 Human Disease	4
CH 105 Chemical Principles (4 cr.) [III] <i>or</i> CH 107 Introductory Chemistry I (4 cr.) [III] <i>or</i> CH 111 General Chemistry I (5 cr.) [III]	4-5
PY 100S, L, or H, Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science (4 cr.) [IV]	4

Community Health Education Major

This major is designed to promote the development of health literacy and prepare students for entry-level community health education positions in line with appropriate professional standards. It teaches students to use health promotion and disease prevention interventions in ethical ways to affect the health knowledge, attitudes and behaviors of various target populations in a variety of settings (worksites, schools, hospitals/clinics, public health agencies, health clubs, geriatric centers and others).

Total Credits Required for Degree	124
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Liberal Studies	30-40
Health Promotion	2

Required Courses in Major	40
HL 101 Medical Terminology for Health Educators	1
HL 110 Introduction to Health and Fitness	2
HL 111 Personal Wellness	4
HL 240 Community Health	2
HL 242 Emergency Health Care	2
HL 250 Applied Health Theory	2
HL 311 Health Communication	2
HL 367 Program Planning and Evaluation	4
HL 430 Grant Writing for Health Educators	2
HL 440 Critical Issues in Health Education	3
HL 460 Human Disease Education	4
HN 210 Nutrition for Humans	4

Health Electives	8
<i>Choose any HL and/or HN courses with the exception of HL 246.</i>	

Other Required Courses	8-9
BI 104 Human Anatomy and Physiology (4 cr.) [III]	4
CH 105 Chemical Principles (4 cr.) [III] <i>or</i> CH 107 Introductory Chemistry I (4 cr.) [III] <i>or</i> CH 111 General Chemistry I (5 cr.) [III]	4-5

Minor	20
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Management of Health and Fitness Major

This major focuses on health and fitness promotion and disease prevention interventions. Completion of this program prepares students for entry-level jobs at worksites, hospitals/clinics, public health agencies, health clubs, geriatric centers and other places where health and fitness are promoted.

Total Credits Required for Degree	124
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Liberal Studies	30-40
Health Promotion	2
HP 200 Physical Well Being	1
HP 245 Weight Training and Conditioning	1

Required Courses in Major	55
HL 101 Medical Terminology for Health Educators	1
HL 110 Introduction to Health and Fitness	2
HL 111 Personal Wellness	4
HN 210 Nutrition for Humans	4
HL 215 Cardiovascular Risk Factors	1
HL 240 Community Health	2
HL 242 Emergency Health Care	2
HL 311 Health Communication	2
PE 230 Fitness Leadership	2
PE 315 Physiology of Exercise	4
PE 317 Anatomical Kinesiology	2
HL 367 Program Planning and Evaluation	4
HL 368 Programming in Health and Fitness	2
HN 415 Obesity and Weight Management	4
HL 440 Critical Issues in Health Education	3
HL 460 Human Disease Education	4
PE 471 Exercise Specialization	2
PE 472 Health and Exercise Leadership Skills	2
HL 491 Internship in Health and Fitness	2-4
HL/HN/PE/RE elective	0-2

Activities	4
<i>Select PE, HP, and/or RE activity courses. One must be an HP outdoor activity.</i>	

Other Required Courses	18-19
BI 104 Human Anatomy and Physiology [III]	4
MGT 240 Organizational Behavior and Management	3
MKT 230 Introduction to Marketing	3
PY 100S, L, or H, Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
CH 105 Chemical Principles (4 cr.) [III] <i>or</i> CH 107 Introductory Chemistry I (4 cr.) [III] <i>or</i> CH 111 General Chemistry I (5 cr.) [III]	4-5

Outdoor Recreation Leadership and Management Major

This major is for students who expect to pursue a career or graduate work in leisure services, outdoor recreation, protected area management or related fields. The program provides an academic foundation that meets professional standards in leisure studies, in general, and outdoor recreation, in particular. It also provides varied opportunities to develop additional competencies for more specialized entry-level positions in leisure and outdoor recreation settings. The learning environment uses both traditional and experiential learning strategies in a small-scale setting. Graduates may be self-employed or find employment in interpretive or outdoor education centers, organized camps, resorts, outfitters and guide services, colleges, adventure programs, county and city recreation and parks departments, state and federal land and water resource management agencies, and a variety of nonprofit organizations and businesses related to the field of outdoor recreation.

Total Credits Required for Degree	130
Liberal Studies	30-40
Health Promotion	2
HP 200 Physical Well Being	1
HP 239 or HP 239A, B, C, D or E Swimming	1
Required Courses in Major	56.5-57
Major Core	40
RE 110 Introduction to Leisure and Recreation	2
RE 155 Outdoor Living Skills	2
RE 250 Education in Outdoor Settings	3
RE 251 Adventure Activities, Facilitation and Group Behavior	3
RE 261 Leadership and Pedagogy in Leisure Services	3
RE 270 Outdoor Recreation Resources, Behavior and Values	3
RE 356 Wilderness Education Association Wilderness Stewardship	2
RE 362 Program Design in Leisure Services	3
RE 371 Protected Area Management*	3
RE 381 Interpretation I: Foundations and Guided Services*	4
RE 382 Interpretation II: Self-Guided Media*	3
RE 410 Leisure Through the Ages	2
RE 461 Management and Supervision of Leisure Services	4
RE 467 Evaluation/Research in Leisure Services	3
Professional Development Seminars	1-1.5
RE 191 Professional Development Seminar I (.5 cr.)	
RE 291 Professional Development Seminar II (.5 cr.)	
RE 391 Professional Development Seminar III (.5 cr.)	
<i>Students must enroll in one of the above every two semesters until graduation; RE 391 may be repeated.</i>	
Field Work/Internship/Plan of Study	15
RE 294 Field Work	3
RE 494 Internship	12
<i>Or approved program of study; courses can be any prefix but must be 300 level or higher.</i>	
Professional Assessment Seminar	0.5
RE 491 Professional Assessment Seminar	

Other Required Courses	12-13
AIS 101 Introduction to Information Resources	1
MKT 230 Introduction to Marketing	3
PY 305 Psychological Statistics [V] (or equivalent)	4
HL 242 Emergency Health Care (2 cr.) <i>or</i>	2-3
<i>Certification Required</i>	
RE 352 Wilderness First Responder (3 cr.)	
<i>Certification Required</i>	
RE 357 Teaching of Canoeing <i>or</i>	2
RE 358 Teaching of Rock Climbing <i>or</i>	
Two outdoor recreation HP courses.	

**See the "Course Descriptions" section of this bulletin for major and minor course prerequisites, particularly RE 371, RE 381 and RE 382, before selecting liberal studies and world cultures courses.*

Physical Education Major

The primary aim of this program is to prepare majors through the acquisition of knowledge, the development of skills and the development of a positive attitude toward activity and fitness that will enable them to perform effectively in a teaching role. Students will obtain knowledge about human movement, such as the physiology of muscular activity, the neural and kinesiological basis of movement, measurement and evaluation of motor performance and methodology of teaching motor skills; develop personal skills in a variety of activities in addition to teaching skills; and acquire sensitivity to, and understanding of, human relations in the learning environment by participating in a variety of laboratory and field experiences.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	4
HP 200 Physical Well Being	1
Health Promotion Elective	1
Health Promotion Electives	2
<i>Choose from the following:</i>	
HP 206 Backpacking (1 cr.)	
HP 209 Bicycling/Mt. Biking (1 cr.)	
HP 216 Skating-Beginning (1 cr.) <i>or</i>	
HP 216A Skating-Figure (1 cr.) <i>or</i>	
HP 216B Skating-Intermediate Figure (1 cr.)	
HP 217 Fly and Bait Casting (1 cr.)	
HP 222 Hiking (1 cr.)	
HP 228 Power Skating and Hockey (1 cr.)	
HP 230 Rock Climbing (1 cr.)	
HP 231 Skiing-Alpine (1 cr.)	
HP 231A Skiing-Intermediate Alpine (1 cr.)	
HP 231B Skiing-Cross Country (1 cr.)	
HP 233 Snowshoeing (1 cr.)	
HP 238 Winter Camping (1 cr.)	
HP 253 Adventure Based Learning (1 cr.)	

Required Courses in Major	32	HL 367 Planning and Evaluation for Health Education	4
Theory Courses	27	HL 450 Human Sexuality: Educational Issues	3
PE 110 Introduction to Physical Education	2	HL 485 Drug Use and Abuse	3
PE 217 Motor Development and Elementary School Physical Education	3	HN 210 Nutrition for Humans	4
PE 230 Fitness Leadership	2	Health Electives	2
PE 241 Prevention and Care of Injuries	2	<i>Choose any HL or HN courses with the exception of HL 245 and HL 246.</i>	
PE 310 Measurement and Evaluation in Physical Education	3	Teaching Minor, minimum	24
PE 315 Physiology of Exercise	4	Professional Education	32
PE 317 Anatomical Kinesiology	2	ED 201 Introduction to Education	2
PE 318 Motor Learning and Secondary School Physical Education	3	ED 231 Teaching and Learning in the Secondary Classroom	4
PE 346 Adapted Physical Education	2	ED 301 Dimensions of American Education	2
PE 411 Organization and Administration of Physical Education and Athletics	2	ED 319 Teaching of Reading for Secondary Teachers	3
Physical Education Elective (300 level or above)	2	ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
Activity Courses	5	HL 350 Methods and Materials in Teaching Health Education	3
PE 100 Rhythmic Movement Fundamentals (.5 cr.)		ED 361 Special Education and the General Classroom Teacher	2
PE 101 Volleyball (.5 cr.)		ED 483 Educational Media Technology	2
PE 103 Tumbling Activities (.5 cr.)		ED 430 Teaching in the Secondary School	11
PE 199 Team Sports (.5 cr.)		ED 450 Seminar in Teaching	1
PE 200 Track and Field (.5 cr.)			
PE 201 Strength Training and Conditioning (.5 cr.)			
PE 205 Tennis (.5 cr.)			
PE 207 Badminton (.5 cr.)			
PE 211 Dance Survey (1 cr.)			
Other Required Courses	16		
PY 100S, L, or H, Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4		
HL 111 Personal Wellness	4		
HL 242 Emergency Health Care	2		
HPER Electives	6		
<i>Any six credits at the 200 level or above offered in academic majors in the department. And HL 110 and RE 110. Choose in consultation with adviser.</i>			
Minor	20		

Secondary Education Health Education Major

Completion of this major's required health courses and the professional education sequence leads to certification as a secondary school teacher in health education. Students learn how to promote the development of health literacy and teach health promotion/health education courses in line with appropriate professional standards.

Total Credits Required for Degree	130
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
HL 110 Introduction to Health and Fitness	2
HL 111 Personal Wellness	4
HL 240 Community Health	2
HL 242 Emergency Health Care	2
HL 315 Consumer Health and Quackery	3
HL 340 School Health Program	3

Secondary Education Physical Education Major

Completion of this major's required health and fitness courses and the professional education sequence leads to certification as a secondary school teacher in physical education. Students learn about human movement, such as the physiology of muscular activity, the neural and kinesiological basis of movement, measurement and evaluation of motor performance and methodology of teaching motor skills; how to develop personal skills in a variety of activities in addition to teaching skills; and acquire sensitivity to, and understanding of, human relations in the learning environment by participating in a variety of laboratory and field experiences.

Total Credits Required for Degree	133
Liberal Studies	30-40
Health Promotion	4
HP 200 Physical Well Being	1
Health Promotion Elective	1
Health Promotion Electives	2
<i>Choose from the following:</i>	
HP 206 Backpacking (1 cr.)	
HP 209 Bicycling/Mountain Biking (1 cr.)	
HP 216 Skating-Beginning (1 cr.) <i>or</i> HP 216A Skating-Figure (1 cr.) <i>or</i> HP 216B Skating-Intermediate Figure (1 cr.)	
HP 217 Fly and Bait Casting (1 cr.)	
HP 222 Hiking (1 cr.)	
HP 228 Power Skating and Hockey (1 cr.)	
HP 230 Rock Climbing (1 cr.)	
HP 231 Skiing-Alpine (1 cr.)	
HP 231A Skiing-Intermediate Alpine (1 cr.)	
HP 231B Skiing-Cross Country (1 cr.)	
HP 233 Snowshoeing (1 cr.)	
HP 238 Winter Camping (1 cr.)	
HP 253 Adventure-Based Learning (1 cr.)	

Required Courses in Major

Theory Courses

PE 110 Introduction to Physical Education	27
PE 217 Motor Development and Elementary School Physical Education	2
PE 230 Fitness Leadership	3
HL 242 Emergency Health Care <i>or</i> PE 241 Prevention and Care of Injuries	2
PE 310 Measurement and Evaluation in Physical Education	3
PE 315 Physiology of Exercise	4
PE 317 Anatomical Kinesiology	2
PE 318 Motor Learning and Secondary School Physical Education	3
PE 346 Adapted Physical Education	2
PE 411 Organization and Administration of Physical Education and Athletics	2
Physical Education Electives (300 level or above)	2

Activity Courses

PE 100 Rhythmic Movement Fundamentals	5
PE 101 Volleyball	.5
PE 103 Tumbling Activities	.5
PE 199 Team Sports	.5
PE 200 Track and Field	.5
PE 201 Strength Training and Conditioning	.5
PE 205 Tennis	.5
PE 207 Badminton	.5
PE 211 Dance Survey	1

Practicum

PE 407 Apprentice Teaching	1
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Teaching Minor, minimum

	24
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Professional Education

ED 201 Introduction to Education	32
ED 231 Teaching and Learning in the Secondary Classroom	2
ED 301 Dimensions in American Education	4
ED 319 Teaching of Reading for Secondary Teachers	2
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	3
PE 350 Methods and Materials in Teaching Physical Education	2
ED 361 Special Education and the General Classroom Teacher	3
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	2
ED 450 Seminar in Teaching	11
	1

33 Sports Science Major

This is a graduate school preparation program for students who have focused interests in sport and exercise science. The curriculum provides a strong foundation in the basic sciences of human biology, chemistry and physics and introductory-level study in the applied areas of exercise physiology, kinesiology/ biomechanics and sport nutrition. Successful graduates will have completed prerequisites for graduate study in more specific exercise science disciplines.

Total Credits Required for Degree 124

Liberal Studies	30-40
Health Promotion	4

Required Courses in Major

PE 111 Introduction to Sports Science	53
CH 111 General Chemistry I [III]	1
CH 112 General Chemistry II [III]	5
BI 201 Human Anatomy	5
BI 202 Human Physiology	3
PH 201 College Physics I [III]	5
CIS 110 Principles of Computer Information Systems [V]	4
HL 242 Emergency Health Care	2
HN 210 Nutrition for Humans	4
MA 171 Introduction to Probability and Statistics [V] <i>or</i> PY 305 Psychological Statistics [V]	4
PE 315 Physiology of Exercise	4
PE 317 Anatomical Kinesiology	2
PE 417 Biomechanics	2
PE 421 Physiological Training for Sport	3
PE 422 Sport Biomechanics	2
PE 470 Psychological Aspects of Athletic Performance	2

Sports Science Electives

	20
<i>Choose from the following: (or substituted electives approved by a sport science adviser).</i>	
BI 206 Human Genetics (3 cr.)	
BI 313 Cell Biology (4 cr.)	
BI 425 Endocrinology (3 cr.)	
BI 426 Human Histology (4 cr.)	
CH 220 Introduction to Organic Chemistry (5 cr.)	
CH 450 Introduction to Biochemistry (4 cr.)	
CH 452 Intermediary Metabolism (4 cr.)	
HL 485 Drug Use and Abuse (3 cr.)	
HN 415 Obesity and Weight Management (4 cr.)	
PE 241 Prevention and Care of Injuries (2 cr.)	
PE 498 Directed Study (1-4 cr.)	
PH 393 Experimental Instrumentation and Analysis (4 cr.)	
PY 204 Physiological Psychology (4 cr.)	

MINOR PROGRAMS

Emergency Medical Services Minor

This minor is designed to give students an opportunity to apply for a license in the State of Michigan as a basic-emergency medical technician. Students in this minor should choose BI 104 Human Anatomy and Physiology as their liberal studies laboratory course.

Total Credits Required for Minor	20
HL 101 Medical Terminology for Health Educators	1
HL 111 Personal Wellness	4
HL 245 Basic-EMT I	4
HL 246 Basic-EMT II	4
ATR 241 Prevention and Care of Athletic Injuries	3
Electives (HL, ATR, or RE 352)	4

Health and Nutrition Minor

Total Credits Required for Minor 20

Only courses with an HL or HN prefix are allowed in the minor. Students should develop their program of minor studies during their sophomore year. After the minor program is developed and approved by a health education adviser, a statement is sent to the Degree Audits Office. Modifications in the program may be made only with the approval of both major and minor advisers. At least six credits must be in courses numbered 300 or above.

Health Education Cluster Minor

For health education and management of health and fitness majors only.

Total Credits Required for Minor 24

Students with departmental approval may select a cluster of cognate courses from two or more departments totaling 24 credit hours. A list of courses comprising the cluster must be submitted to the Degree Audits Office before the second semester of the student's junior year. This option is not available to those in secondary education. At least six credits must be in courses numbered 300 or above.

Interpretation and Outdoor Education Minor

Total Credits Required for Minor	23.5
RE 110 Introduction to Leisure and Recreation	2
RE 155 Outdoor Living Skills	2
RE 191 Professional Development Seminar I	0.5
RE 250 Education in Outdoor Settings	3
RE 261 Leadership and Pedagogy in Leisure Services	3
RE 270 Outdoor Recreation Resources, Behavior and Values	3
RE 371 Protected Area Management*	3
RE 381 Interpretation I: Foundations and Guided Services*	4
RE 382 Interpretation II: Self-Guided Media*	3

*Check course descriptions for prerequisites and consult an ORLM adviser.

Outdoor Leadership Minor

Total Credits Required for Minor	26.5-27.5
RE 110 Introduction to Leisure and Recreation	2
RE 155 Outdoor Living Skills	2
RE 191 Professional Development Seminar I	0.5
RE 250 Education in Outdoor Settings	3
RE 251 Adventure Activities, Facilitation and Group Behavior	3
RE 261 Leadership and Pedagogy in Leisure Services	3
RE 270 Outdoor Recreation Resources, Behavior and Values	3
RE 356 Wilderness Education Association Wilderness Stewardship	2
RE 455 Wilderness Education Association National Standard Program I	2
RE 456 Wilderness Education Association National Standard Program II	2
RE 457 Wilderness Education Association National Standard Program III	2
HL 242 Emergency Health Care (2 cr.)	2-3
<i>Certification Required or</i>	
RE 352 Wilderness First Responder (3 cr.)	
<i>Certification Required</i>	

Outdoor Recreation Minor

Total Credits Required for Minor	20.5
RE 110 Introduction to Leisure and Recreation	2
RE 155 Outdoor Living Skills	2
RE 191 Professional Development Seminar I	0.5
RE 250 Education in Outdoor Settings	3
RE 270 Outdoor Recreation Resources, Behavior and Values	3
Recreation Electives	10
<i>All courses must have an RE prefix. At least one course must be at the 300-400 level.</i>	

Outdoor Recreation Leadership Management Cluster Minor

For outdoor recreation leadership and management majors only.

Total Credits Required for Minor	20-24
<i>Students may elect a cluster of courses from two or more departments, one of which may be the HPER Department, in lieu of a regular minor or electives. Courses must be approved by the department's outdoor recreation division faculty. A list of courses in the cluster must be submitted by the student to the Degree Audits Office before the first semester of the student's senior year. An appropriate representative of any department contributing eight or more credits to the cluster must sign off on the list.</i>	

Physical Education Coaching Emphasis Minor

This minor is open only to non-teaching degree students.

Total Credits Required for Minor	25-26
Health Promotion Electives	2
<i>Choose from the following:</i>	
HP 206 Backpacking (1 cr.)	
HP 209 Bicycling/Mountain Biking (1 cr.)	
HP 216 Skating-Beginning (1 cr.) <i>or</i>	
HP 216A Skating-Figure (1 cr.) <i>or</i>	
HP 216B Skating-Intermediate Figure (1 cr.)	
HP 217 Fly and Bait Casting (1 cr.)	
HP 222 Hiking (1 cr.)	
HP 228 Power Skating and Hockey (1 cr.)	
HP 230 Rock Climbing (1 cr.)	
HP 231 Skiing-Alpine (1 cr.)	
HP 231A Skiing-Intermediate Alpine (1 cr.)	
HP 231B Skiing-Cross Country (1 cr.)	
HP 233 Snowshoeing (1 cr.)	
HP 238 Winter Camping (1 cr.)	
HP 253 Adventure-Based Learning (1 cr.)	
Theory Courses	20-21
PE 110 Introduction to Physical Education	2
PE 241 Prevention and Care of Injuries	2
PE 315 Physiology of Exercise	4
PE 317 Anatomical Kinesiology	2
PE 340 Principles of Coaching	2
PE 411 Organization and Administration of Physical Education and Athletics	2
HL 242 Emergency Health Care	2
PE 322 Theory of Basketball <i>or</i>	2
PE 323 Theory of Football <i>or</i>	
PE 325 Theory of Swimming <i>or</i>	
PE 335 Theory of Volleyball	
PE 230 Fitness Leadership (2 cr.) <i>or</i>	2-3
PE 217 Motor Development and Elementary School Physical Education (3 cr.) <i>or</i>	
PE 310 Measurement and Evaluation in PE (3 cr.) <i>or</i>	
PE 318 Motor Learning and Secondary School PE (3 cr.) <i>or</i>	
PE 321 Athletic-Officiating (2 cr.) <i>or</i>	
PE 346 Adapted Physical Education (2 cr.) <i>or</i>	
PE 470 Psychology Aspects of Athletic Performance (2 cr.) <i>or</i>	
PE 417 Biomechanics (2 cr.)	
Activity Courses	3
<i>Choose from the following:</i>	
PE 101 Volleyball (.5 cr.)	
PE 103 Tumbling Activities (.5 cr.)	
PE 199 Team Sports (.5 cr.)	
PE 200 Track and Field (.5 cr.)	
PE 201 Strength Training and Conditioning (.5 cr.)	
PE 205 Tennis (.5 cr.)	
HP 245 Weight Training and Conditioning (1 cr.)	
HP 245A Weight Training-Intermediate (1 cr.)	
HP 247 Yoga (1 cr.)	
HP 226C Aerobic Dance (1 cr.)	
HP 231 Skiing-Alpine (1 cr.)	
HP 231A Skiing-Intermediate Alpine (1 cr.)	
HP 231B Skiing-Cross Country (1 cr.)	

Note: This is not a coaching minor, but physical education minor with a coaching emphasis. Students who select this minor may count up to 10 credits of HP courses toward graduation.

**Noncredit Practicum Requirement: Students pursuing this minor are required to complete one of the following practicum options:*

1. Assist a head coach in a sport during the student teaching assignment.
2. Participate on a college varsity athletic team for a minimum of two competitive seasons.
3. Assist a Northern Michigan University head coach for a minimum of one competitive season.
4. Perform as a coach in a public/private school or summer camp.

Physical Education Minor Secondary Education Physical Education Minor

This minor is available to students in both secondary education and non-teaching programs.

Total Credits Required for Minor	25-26
Health Promotion Electives	2
<i>Choose from the following:</i>	
HP 206 Backpacking (1 cr.)	
HP 209 Bicycling/Mountain Biking (1 cr.)	
HP 212 Flatwater Canoeing (1 cr.)	
HP 216 Skating-Beginning (1 cr.) <i>or</i>	
HP 216A Skating-Figure (1 cr.) <i>or</i>	
HP 216B Skating-Intermediate Figure (1 cr.)	
HP 217 Fly and Bait Casting (1 cr.)	
HP 222 Hiking (1 cr.)	
HP 228 Power Skating and Hockey (1 cr.)	
HP 230 Rock Climbing (1 cr.)	
HP 231 Skiing-Alpine (1 cr.)	
HP 231A Skiing-Intermediate Alpine (1 cr.)	
HP 231B Skiing-Cross Country (1 cr.)	
HP 233 Snowshoeing (1 cr.)	
HP 238 Winter Camping (1 cr.)	
HP 253 Adventure-Based Learning (1 cr.)	
Theory Courses	12
PE 110 Introduction to Physical Education	2
PE 217 Motor Development and Elementary School Physical Education <i>or</i>	3
PE 318 Motor Learning and Secondary School Physical Education	
PE 310 Measurement and Evaluation in Physical Education	3
PE 315 Physiology of Exercise	4
Health/Physical Education Electives	4-5
<i>Choose from the following:</i>	
HL 242 Emergency Health Care (2 cr.)	
PE 217 Motor Development and Elementary School Physical Education (3 cr.)	
PE 230 Fitness Leadership (2 cr.)	
PE 241 Prevention and Care of Injuries (2 cr.)	
PE 317 Anatomical Kinesiology (2 cr.)	
PE 318 Motor Learning and Secondary School Physical Education (3 cr.)	
PE 346 Adapted Physical Education (2 cr.)	
PE 411 Organization and Administration in Physical Education (2 cr.)	
Physical Education Electives	2
300-400 level	

Activity Courses 5*Choose from the following:*

- PE 101 Volleyball (.5 cr.)
- PE 103 Tumbling Activities (.5 cr.)
- PE 199 Team Sports (.5 cr.)
- PE 200 Track and Field (.5 cr.)
- PE 201 Strength Training and Conditioning (.5 cr.)
- PE 205 Tennis (.5 cr.)
- HP 226C Aerobic Dance (1 cr.)
- HP 231 Skiing-Alpine (1 cr.)
- HP 231A Skiing-Intermediate Alpine (1 cr.)
- HP 231B Skiing-Cross Country (1 cr.)
- HP 245 Weight Training and Conditioning (1 cr.)
- HP 245A Weight Training-Intermediate (1 cr.)
- HP 247 Yoga (1 cr.)

Note: Students who minor in this minor may count up to 10 credits of HP courses toward graduation.

Secondary Education Health Education Minor

This option is available only to students in secondary education.

Total Credits Required for Minor	27
HL 110 Introduction to Health and Fitness Education	2
HL 111 Personal Wellness	4
HL 242 Emergency Health Care	2
HL 315 Consumer Health and Quackery	3
HL 340 School Health Program	3
HL 350 Methods and Materials in Teaching Health Education	3
HL 367 Planning and Evaluation For Health Education	4
HL 450 Human Sexuality	3
HL 485 Drug Use and Abuse	3

HISTORY

DEPARTMENT OFFICE

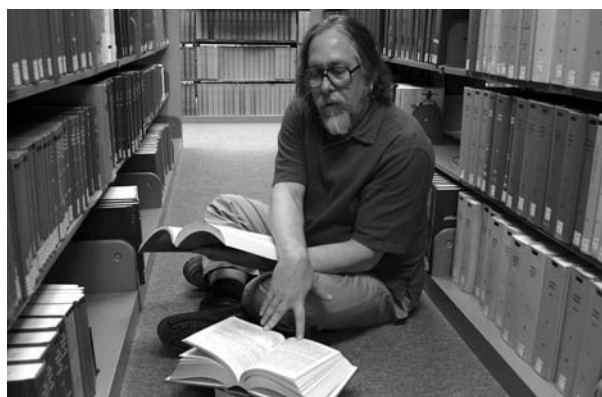
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History at NMU

The motto of the NMU History Department is: "We Study the Human Condition—Its Problems and Its Promise." The department's primary objective is to study the experience of human beings during past ages in order to obtain a better understanding of the nature of the human condition. Although it is not possible to predict the future, the faculty believes it essential to be aware of the views, aspirations and struggles of prior human communities to better understand the problems and promises of today. The course offerings reflect the diversity of human history as the department faculty members have come to know it through research and teaching.

The department offers three undergraduate majors and three minors. It also participates in an international studies and a social science major. The international studies major provides students with courses and experiences that enhance their opportunities for work abroad or in international organizations. (See "International Studies" section of this bulletin.)

Student Organizations

- Phi Alpha Theta Honorary Society
- Student Michigan Education Association

Department Facilities

The Lydia Olson Library houses more than 51,000 historical items and more than 100 historically related periodicals and journals. Students also have access to materials held by other libraries and museums in Marquette County. A large collection of audiovisual materials also enriches classroom work.

Department/Program Policies

Students in history are encouraged to complete at least one year of study in a language. Language study could be undertaken to satisfy either the formal studies requirement or, ideally, the four-semester requirement for the bachelor of arts degree.

The department strongly recommends that its students work closely with their academic advisers in order to create the best possible individual programs in their majors and minors and successfully meet all other requirements for graduation.

Grade Point Average Requirements

Students majoring in secondary education history or secondary education social studies, or minoring in history education, must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Recommendations for Graduate-Bound Students

Students who are planning graduate work in history choose from the same history courses available to meet the requirements for either the history or secondary education history majors. In addition, the department recommends that they do the following:

1. Take courses in at least one foreign language through the 200 level (two languages if going on to the doctorate). The exception to this recommendation would be if a student were going to a graduate school that allowed another option in place of a language.
2. Review the admissions requirements of prospective school(s). This could include direct contact, either by mail or by a visit, arranged beforehand.
2. Take courses in a variety of areas from several instructors. It is not wise to specialize too much at the bachelor's level. Students should have the opportunity to observe several different teaching styles and areas. Graduate schools may prefer this as a criterion for admission.
3. Confer with the History Department faculty member who is designated to advise graduate-bound students. Currently this is Chet DeFonso.
4. Attend any sessions held by Phi Alpha Theta that orient students about graduate schools.
5. Take HS 410 Seminar in Approaches to History.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

History Major

This major provides the necessary background for professional careers in post-secondary teaching, law, politics, business, the ministry, government service, journalism, publishing, archival work, museum work or historic preservation.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	36
Basic Surveys	4
<i>Choose from the following:</i>	
HS 101 History of Western Civilization to 1600 (4 cr.) [II]	
HS 102 History of Western Civilization Since 1600 (4 cr.) [II]	
<i>Choose from the following:</i>	4
HS 126 The United States to 1865 (4 cr.) [IV]	
HS 127 The United States Since 1865 (4 cr.) [IV]	
<i>Choose from the following:</i>	4
HS 104 Third World in Historical Perspective (4 cr.) [IV]	
HS 234 Indigenous People of Latin America (4 cr.) [II]	
HS 251 Latin American Civilization (4 cr.) [II]	
HS 252 Arab-Islamic History (4 cr.) [II]	
HS 254 Introduction to the History of Africa (4 cr.) [II]	
HS 256 Approaching China (4 cr.) [II]	
HS 258 The Emergence of Modern Japan (4 cr.) [II]	
HS 200 Historical Thinking and Writing	4
HS Electives from 200-400 levels	16
<i>No more than two courses at the 200 level.</i>	
HS 490 Junior/Senior Seminar in History	4
Minor	20

Secondary Education History Major

Completion of this major's required history courses, a teaching minor and the professional education sequence leads to certification as a secondary school teacher in history.

Total Credits Required for Degree	131-135
Liberal Studies	30-40
Health Promotion	2
Required Courses Major	36
<i>Choose from the following:</i>	4
HS 101 History of Western Civilization to 1600 (4 cr.) [II]	
HS 102 History of Western Civilization Since 1600 (4 cr.) [II]	
HS 127 The United States Since 1865 [IV]	4
<i>Choose from the following:</i>	4
HS 104 The Third World in Historical Perspective (4 cr.) [IV]	
HS 234 Indigenous People of Latin America (4 cr.) [II]	
HS 251 Latin American Civilization (4 cr.) [II]	
HS 252 Arab-Islamic History (4 cr.) [II]	
HS 254 Introduction to the History of Africa (4 cr.) [II]	
HS 256 Approaching China (4 cr.) [II]	
HS 258 The Emergence of Modern Japan (4 cr.) [II]	
HS 200 Historical Thinking and Writing	4
HS Electives from 200-400 levels	16
<i>No more than two courses at the 200 level.</i>	
HS 490 Junior/Senior Seminar in History	4
Teaching Minor, minimum	20-24
Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
HS 350 Methods and Materials in Teaching Social Studies Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

Secondary Education Social Studies Major

Completion of this major's required courses, a teaching minor and the professional education sequence leads to certification as a secondary school teacher in social studies.

Total Credits Required for Degree	131-135
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major*	36
Economics	8
<i>Choose from the following:</i>	
EC 101 The American Economy (4 cr.) [IV]	
EC 201 Microeconomic Principles (4 cr.)	
EC 202 Macroeconomic Principles (4 cr.)	
Geography	8
ENV 101 Introduction to Environmental Science (4 cr.) [III]	
GC 164 Human Geography (4 cr.) [IV]	
History	8
HS 101 History of Western Civilization to 1600 (4 cr.) [II] <i>or</i>	
HS 102 History of Western Civilization Since 1600 (4 cr.) [II]	
HS 127 The United States Since 1865 (4 cr.) [IV]	
Political Science	8
<i>Choose from the following:</i>	
PS 101 Introduction to Political Science (4 cr.) [IV]	
PS 105 American Government (4 cr.) [IV]	
PS 203 Comparative Government and Politics (4 cr.)	
PS 309 State and Local Government (4 cr.)	
EC/GC/HS/PS Electives	4
<i>Must be a 300 level course if PS 309 is not taken above.</i>	
Teaching Minor, minimum	20-24
Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
HS 350 Methods and Materials in Teaching Social Studies Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2

*Transfer students can complete the major by taking two courses—three semester hours each, minimum—in each of the four required areas. The additional credits comprising the 36 required hours may be accumulated by taking courses in any one or more of the four required areas.

MINOR PROGRAMS

History Minor

Total Credits Required for Minor	20
HS Electives	16
<i>No more than 12 credit hours at the 100 level.</i>	
HS Electives (300 level or above)	4

Public History Minor

Total Credits Required for Minor	24*
HS 200 Historical Thinking and Writing**	4
HS 380 Public History	4
ALS 330 Archival Management	4
HS 491 Internship***	4
Electives	8
<i>Choose from the following:</i>	
HS 335 Michigan History (4 cr.)	
HS 336 History of the Upper Peninsula (4 cr.)	
HS 363 Canadian History (4 cr.)	
AD 200 Native American Art and Architecture of the Great Lakes (4 cr.)	
AD 260 Why America Looks This Way (4 cr.)	
<i>*History majors may have a public history minor; however, courses cannot be double counted.</i>	
<i>**Waived if student is a history major.</i>	
<i>***Enrollment requires faculty and department head approval.</i>	

Secondary Education History Minor

Total Credits Required for Minor	20-24
HS 101 History of Western Civilization to 1600 <i>or</i>	4
HS 102 History of Western Civilization Since 1600	
HS 104 The Third World in Historical Perspective	4
HS 127 The United States Since 1865	4
HS 200 Historical Thinking and Writing	4
HS Elective (200-400 level)	4
HS 350 Methods and Materials in Teaching Social Studies Education*	4
<i>*Not required if major is social studies education, economics education, geography education or political science education.</i>	

INTERNATIONAL STUDIES PROGRAM

ADVISING OFFICE

Modern Languages and Literatures

145 Whitman Hall

Phone: 906-227-2940

Fax: 906-227-2533

Web page: <http://www.nmu.edu/languages>

Department Head: Timothy G. Compton •

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International Studies at NMU

The departments of Art and Design, Communication and Performance Studies, Economics, English, Modern Languages and Literatures, Geography, History, Philosophy, Political Science and Public Administration, Sociology and Social Work and the College of Business cooperatively sponsor the international studies major. This broad major provides students with a basic understanding of modern world history, international relations, world cultures and world religions. Part of this learning, as well as intensive language instruction, takes place abroad.

As students advance in the international studies major, they deepen their understanding of particular parts of the world and specialized issues of international importance. The study abroad and language requirements of the major ensure that NMU students experience internationalism rather than just learn about it in classrooms.

The capstone course for the international studies major, IP 490 International Studies Seminar, offers students the opportunity to make comparisons and contrasts that integrate their study-abroad experience into their academic program.

Academic direction for the international studies major and minor as well as the Latin American studies minor is provided by the International Studies Academy Advisory Committee, which has members from many departments and is currently chaired by Dr. Timothy Compton, head of the Modern Languages and Literatures Department, e-mail tcompton@nmu.edu.

Student Organization

- All Nations Club

Department/Program Policies

International studies majors must demonstrate proficiency in a language other than English at the 202 level or higher. This can be accomplished by completing a 202 (or 300, 305, or 400) course in a language or by verification through the Modern Languages and Literatures Department (i.e. determined by examination or through some other means of confirming proficiency).

International studies majors must have a study-abroad experience, normally in a non-English speaking country, for at least 12 weeks, including a minimum of nine weeks of study through an approved college-level institution. Please see the Study Abroad section of this bulletin. This must be approved in writing by an international studies academic adviser. Up to 12 credits may be applied to the area and advanced disciplinary studies requirement of the major with prior approval of the academic adviser. International students or resident aliens who wish to major in international studies may petition the international studies academic adviser for exemption from the requirement for study abroad.

A course in economics is required for international studies majors. (An EC course from foundations of social sciences is recommended.)

A program approval for international studies majors and minors must be prepared and approved by an academic adviser from the Modern Languages and Literatures Department and a copy forwarded to the Registrar's Office. The Registrar's Office is not able to perform a degree audit until it receives this form.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

International Studies Major

This major gives students a broad view of the world with an emphasis on developing regions. The core ensures that students have broad exposure to major world religions, international politics and government, recent global history, and relationships between geography, culture, arts and society. This major is a good point of departure for pursuing an international-related master's degree and/or many careers, including international business, diplomacy and fields related to human development.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	44
Core	24
GC 164 Human Geography [IV]	4
AN 100 Introduction to Socio-Cultural Anthropology [IV] or BC 415 Intercultural Communication	4
HS 104 The Third World [IV]	4
PL 270 World Religions [IV]	4
PS 206 International Relations or PS 203 Comparative Government	4
IP 490 International Studies Seminar	4
Area and Advanced Disciplinary Studies	20
<i>Choose from the following, with no more than 12 credits from one department and a minimum of 8 credits at the 300-400 level. Courses from the minor field of study cannot be used.</i>	
AD 265 Art and Architecture of Japan (4 cr.) [VI]	
AD 300 Japan and the West (4 cr.) [VI]	
AN 210 People, Culture and Nature (4 cr.) [IV]	
AN 320 Native Peoples of North America (4 cr.) [IV]	
BC 325 Communication and Performance in Africa (4 cr.) [VI]	
BC 420 Global Communication (4 cr.)	
CJ 426 Comparative Criminal Justice (4 cr.)	
EC 425 International Economics (4 cr.)	
EN 311 World Literature (4 cr.) [II]	
EN 411Z Topics in World Literature (3-4 cr.) [II]	
FR 310 Introduction to French Civilization and Culture (4 cr.) [III]	
GC 220 Economic Geography (4 cr.)	
GC 300 Regional Studies (4 cr.) [IV]	
GC 400 Political Geography (4 cr.)	
GR 310 Introduction to German Civilization and Culture (4 cr.) [II]	
HS 234 Indigenous People of Latin America (4 cr.) [II]	

HS 251 Latin American Civilization (4 cr.) [II]	
HS 252 Arab Islamic History (4 cr.) [II]	
HS 254 Introduction to the History of Africa (4 cr.) [II]	
HS 256 Approaching China (4 cr.) [II]	
HS 258 The Emergence of Modern Japan (4 cr.)	
HS 312 Revolutionary Russia (4 cr.)	
HS 360 Chinese Revolution, 1800-Present (4 cr.)	
HS 362 Mexico (4 cr.) [II]	
HS 363 Canadian History and Culture (4 cr.)	
IP 285 Study Abroad: Special Topics (1-12 cr.)	
IP 286 Study Abroad: Special Topics (1-12 cr.) (Graded S/U)	
IP 485 Study Abroad: Special Topics (1-12 cr.)	
IP 486 Study Abroad: Special Topics (1-12 cr.) (Graded S/U)	
MKT 466 International Marketing (3 cr.)	
MGT 475 International Business (3 cr.)	
PS 299 Model U.N. (2 cr.)	
<i>May be taken twice as country of study varies.</i>	
PS 312 War and Peace in the 21st Century (4 cr.) [IV]	
PS 404 Politics of East and Southeast Asia (4 cr.)	
SN 310 Introduction to Spanish Civilization and Culture (4 cr.)	
SN 314 Contemporary Latin American Culture (4 cr.) [II]	
SO 351 Social Change (4 cr.) [IV]	

Minor 20

MINOR PROGRAMS

International Studies Minor

International studies minors must demonstrate proficiency in a language other than English at the 102 level or higher. This can be accomplished by completing a 102 (or 201, 202, 300, 305 or 400) course in a language, or by verification through the Modern Languages and Literatures Department (i.e. determined by examination or through some other means of confirming proficiency).

Total Credits Required for Minor 24

Core	16
AN 100 Introduction to Sociocultural Anthropology or GC 164 Human Geography	4
HS 104 The Third World	4
PL 270 World Religions	4
PS 203 Comparative Government or PS 206 International Relations	4

Area and Advanced Disciplinary Studies 8

Choose 8 credit hours from the following: At least one course must be at the 300-400 level. Courses from the major field of study or other minors cannot be used.

AD 265 Art and Architecture of Japan (4 cr.)	
AD 300 Japan and the West (4 cr.)	
AN 210 People, Culture and Nature (4 cr.)	
AN 320 Native Peoples of North America (4 cr.)	
BC 325 Communication and Performance in Africa (4 cr.)	
BC 415 Intercultural Communication (4 cr.)	

BC 420 Global Communication (4 cr.)
 EC 425 International Economics (4 cr.)
 EN 311 World Literature (4 cr.)
 FR 310 Introduction to French Civilization and Culture (4 cr.)
 GC 220 Economic Geography (4 cr.)
 GC 300 Regional Studies (4 cr.)
 GC 400 Political Geography (4 cr.)
 GR 310 Introduction to German Civilization and Culture (4 cr.)
 HS 251 Latin American Civilization (4 cr.)
 HS 252 Arab Islamic History (4 cr.)
 HS 254 Introduction to the History of Africa (4 cr.)
 HS 256 Approaching China (4 cr.)
 HS 258 The Emergence of Modern Japan (4 cr.)
 HS 312 Revolutionary Russia (4 cr.)
 HS 360 Chinese Revolution, 1800-Present (4 cr.)
 HS 362 Mexico (4 cr.)
 HS 363 Canadian History and Culture (4 cr.)
 IP 285 Study Abroad: Special Topics (1-12 cr.)
 IP 286 Study Abroad: Special Topics (1-12 cr.) (Graded S/U)
 IP 485 Study Abroad: Special Topics (1-12 cr.)
 IP 486 Study Abroad: Special Topics (1-12 cr.) (Graded S/U)
 MKT 466 International Marketing (3 cr.)
 MGT 475 International Business (3 cr.)
 PS 299 Model U.N. (2 cr.)
May be taken twice as country of study varies.
 PS 404 Politics of East and Southeast Asia (4 cr.)
 SN 310 Introduction to Spanish Civilization and Culture (4 cr.)
 SN 314 Contemporary Latin American Culture (4 cr.)
 SO 351 Social Change (4 cr.)

**Native speakers of Spanish must take POR 210, and native speakers of Portuguese must take SN 202. Spanish majors and minors must take the Portuguese component of the core.*

***Any course used in the core cannot be used as an elective.*

Latin American Studies Minor

This interdisciplinary minor allows students to take classes dealing with Latin America from a variety of departments on campus.

Total Credits Required for Minor	24
Core	8
HS 251 Latin American Civilization <i>or</i> SN 314 Modern Latin American Culture	4
SN 202 Intermediate Spanish II <i>or</i> POR 210 Intermediate Portuguese*	4
Electives	16
<i>Electives must come from at least three disciplines/prefixes.</i>	
<i>Choose 16 credit hours from the following:</i>	
EN 311Z World Literature: Latin America (4 cr.)	
EN 411Z World Literature: Latin America (4 cr.)	
GC 300 Regional Studies: Latin America (4 cr.)	
HS 251 Latin American Civilization** (4 cr.)	
HS 361 History of Americas (4 cr.)	
HS 362 Mexico (4 cr.)	
IP 485 Special Topics: Related to Latin America (1-8 cr.)	
IP 486 Study Abroad: Special Topics (1-12 cr.)	
POR 210 Intermediate Portuguese** (4 cr.)	
SN 312 Introduction to Spanish America (4 cr.)	
SN 314 Contemporary Latin American Culture** (4 cr.)	
SN 429 Twentieth Century Literature of Spanish America (4 cr.)	
SN 495 Special Topics: Related to Latin America (1-4 cr.)	

LIBERAL ARTS AND SCIENCES PROGRAM

PROGRAM OFFICE

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Liberal Arts and Sciences Degree Programs at NMU

The university offers a bachelor of arts/bachelor of science degree with a major in liberal arts and sciences. It is designed particularly for nontraditional students and students who are already employed, but who wish to complete an undergraduate degree to enhance their own education and/or professional development.

The university also offers an associate of arts degree with a liberal arts and sciences concentration for students seeking a two-year degree. Designed for both new freshmen and returning students, the program is appropriate for people uncertain about their final degree goals. Combining breadth with flexibility, the program introduces students to the major areas of college study and lets them accumulate credits toward a degree without first committing to a major field of study. This two-year program can serve as the basis for later work toward a four-year baccalaureate program.

Bachelor of Arts Degree/Bachelor of Science Degree

The bachelor's degree is intended to provide an opportunity for students who are willing to accept responsibility for designing their own degree program. The liberal arts and sciences major is for self-motivated students who seek to create sense and order out of a rich and varied liberal studies curriculum.

Potential students should recognize that this program is not appropriate for everyone since it may not be an adequate preparation for admission to certain graduate programs or for careers that require specified course sequences and specialization associated with traditional degree programs. However, when properly planned, this major can serve as an exceptional educational experience for many students.

Associate of Arts Degree

This degree program parallels in content the core curriculum requirements at many colleges and universities. Its requirement of two courses in each of four content areas (foundations of communication, foundations of humanities, foundations of mathematics/sciences and foundations of social sciences) provides students with the basis for later, more specialized work. The program also enables students who are uncertain



about career plans to sample various courses and determine which areas of study appeal to them most. These areas may then be explored further through electives carefully chosen in cooperation with the program director.

Program Policies

Bachelor of Arts/Bachelor of Science

Applicants usually have completed 60 credits of college work, including 40 credit hours of the university's liberal studies requirements, with a minimum grade point average of 2.25. At least 30 credit hours must be completed after the applicant is admitted into the program, regardless of the number of hours already completed.

Associate of Arts

Students may be admitted to the program if they submit records verifying that they have met the standards for admission to baccalaureate programs listed in this bulletin. After admission to the program, students must complete at least 16 more credit hours, regardless of the number of hours already completed. A "C" (2.00) average must be maintained for all program courses.

Note: Courses in both programs must be planned in consultation with the program director.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Liberal Arts and Sciences Major Option 1

The 60-credit major will include at least 16 credits in three of the following five areas: humanities, social sciences, communication studies, natural sciences/mathematics and fine arts, with at least 28 credits at or above the 300 level.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major	60

Liberal Arts and Sciences Major Option 2

The 44-credit major will include at least 12 credits in three of the following five areas: humanities, social sciences, communication studies, natural sciences/mathematics and fine arts with at least 28 credits at or above 300.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major	44
Minor (approved by director)	20

Note: Students in either degree program may not use any course to meet more than one degree requirement. Courses in the program concentration must be approved by the program director, who will submit the approved list to the Degree Audits Office. Any changes in the program must have the approval of the director.

ASSOCIATE DEGREE PROGRAM

Liberal Arts and Sciences Associate of Arts

Total Credits Required for Degree	64
Liberal Studies	32
EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities Electives	8
<i>Must be from more than one discipline.</i>	
Natural Science/Mathematics Electives	8
<i>Must be from more than one discipline; one course must be a laboratory science.</i>	
Social Sciences	8
<i>Must be from more than one discipline.</i>	
Health Promotion	1
HP 200 Physical Well Being	1
Program Electives	31
<i>Note: Students may not use any course to meet more than one degree requirement. Courses in the program concentration must be approved by the program director, who will submit the approved list to the Degree Audits Office. Any changes in the program must have the approval of the director.</i>	

Upper-level Courses Suitable for Bachelor's Degree in Liberal Arts and Sciences

All language courses at the 300 level and above are acceptable. Substitutions can be made with the approval of the director. Lower-level courses (100-200) must be chosen from the approved list of liberal studies courses. Students must satisfy all prerequisites for courses.

Foundations of Humanities

Communication and Performance Studies

SP 402 Communication Criticism
TH 385 Theatre in Perspective: The Stratford Festival Stage

Engineering Technology

TE 351 Humanity and Technology

English

EN 300 Creative Writing: Fiction
EN 301 Creative Writing: Poetry
EN 302 Nonfiction Writing
EN 303 Technical and Professional Writing
EN 310 Literature and the Bible
EN 311 World Literature in English
EN 312 Medieval British Literature
EN 314 Traditional Oral Literatures: Selected Native American Cultures
EN 316 Native American Novels and Poetry
EN 317 Native American Drama
EN 320 Renaissance British Literature
EN 322 Restoration Eighteenth Century British Literature
EN 330 British Romantic Literature

EN 340 Victorian Literature
 EN 360 Modern British Literature
 EN 361 Studies in Genre, Poetry
 EN 362 Studies in Genre, Narrative
 EN 363 Studies in Genre, Drama
 EN 364 Studies in Genre, Film
 EN 370 American Literature I: Columbus to the American Revolution (1492-1800)
 EN 371 American Literature II: Emergent National Voices (1800-1865)
 EN 372 American Literature III: Realism, Naturalism, to WWI (1865-1930)
 EN 373 American Literature IV: Contemporary Vistas (1930-Present)
 EN 375 Diverse Traditions in American Literature
 EN 380 Contemporary Literature
 EN 385 Theatre in Perspective: The Stratford Festival Stage
 EN 381 Contemporary Dramatic Literature
 EN 400 Narrative Writing Seminar
 EN 401 Poetry Writing Seminar
 EN 402 Nonfiction Writing Seminar
 EN 403 Drama and Script Writing Seminar
 EN 404 The English Language
 EN 405 Technical Writing Seminar
 EN 411 Topics in World Literature
 EN 412 Chaucer
 EN 420 Shakespeare
 EN 422 Milton
 EN 430 Major Authors
 EN 440 Topics in Gender in Literature
 EN 490 Seminar
 EN 493 Seminar: Issues in Literature

History

HS 300 Ancient Egypt
 HS 302 Ancient Rome
 HS 304 The Middle Ages
 HS 305 Renaissance-Reformation
 HS 307 Early Modern Europe, 1600-1815: A Thematic Approach
 HS 308 Modern Europe, 1815-Present: A Thematic Approach
 HS 312 Revolutionary Russia
 HS 314 Modern Britain, 1485-Present
 HS 315 Imperialism
 HS 316 The Holocaust
 HS 325 Colonial America in the Atlantic World
 HS 326 America from Revolution to Jackson
 HS 327 Civil War Era in America
 HS 328 America in the Age of Industrialization and Reform
 HS 335 Michigan History
 HS 336 History of the Upper Peninsula
 HS 360 Chinese Revolution, 1800-Present
 HS 361 History of the Americas
 HS 362 History of Mexico
 HS 481 Oral History

Modern Languages and Literatures

FR 310 Introduction to French Civilization and Culture
 GR 310 Introduction to German Civilization and Culture
 SN 314 Contemporary Latin American Culture

Philosophy

PL 310 Social and Political Philosophy
 PL 320 Philosophy of Science
 PL 330 Existentialism
 PL 370 Theory of Knowledge: Classical and Contemporary

Political Science and Public Administration

PS 411 American Political Thought

Foundations of Natural Sciences Mathematics

Biology

BI 305 Ecology of the Northern Forest
 BI 310 Ecology Theory and Methods

Chemistry

CH 321 Organic Chemistry I
 CH 322 Organic Chemistry II
 CH 340 Environmental Chemistry
 CH 435 Gas and Liquid Chromatography
 CH 450 Introductory Biochemistry
 CH 460 Nuclear Chemistry

Geography

GC 365 Historical Geology
 GC 370 Geomorphology
 GC 385 Weather and Climate
 GC 390 Oceanography
 GC 401 Biogeography

Physics

PH 320 Physical Electronics
 PH 322 Modern Physics
 PH 330 Optics
 PH 393 Experimental Instrumentation and Analysis

Psychology

PY 302 Causes and Control of Aggression
 PY 304 Animal Behavior
 PY 305 Psychological Statistics
 PY 320 Psychological Measurement
 PY 355 Abnormal Psychology

Foundations of Social Sciences

Economics

EC 320 Money, Banking, and Monetary Theory
 EC 337 American Economic History
 EC 345 Environmental and Natural Resource Economics
 EC 401 Intermediate Microeconomics
 EC 402 Intermediate Macroeconomics
 EC 405 Public Finance
 EC 410 Managerial Economics
 EC 415 Labor Economics
 EC 420 Capitalism, Socialism and Democracy
 EC 425 International Economics
 EC 435 Law and Economics
 EC 444 Health Care Economics
 EC 460 Economic Development
 EC 490 Seminar in Economics

English

EN 313 Introduction to Linguistic Theory

Geography

GC 300 Regional Studies: World Cultures
 GC 305 Regional Studies
 GC 310 Urban Geography
 GC 316 Geography of Tourism
 GC 320 Environmental Policy and Regulation
 GC 360 Population Geography
 GC 435 Geography of Michigan

Health, Physical Education and Recreation

HL 322 International Health Issues
 HL 450 Human Sexuality: Educational Issues
 HL 485 Drug Use and Abuse

History

HS 337 American Economic History
 HS 352 African American History
 HS 353 The Finnish Immigrant in America
 HS 360 Chinese Revolution, 1800-Present

Political Science and Public Administration

PS 301 Seminar in Public Policy Analysis
 PS 303 Public Opinion and Voting Behavior
 PS 307 Principles of Public Administration
 PS 309 State and Local Government
 PS 312 War and Peace in the 21st Century
 PS 331 Judicial Process
 PS 332 Administrative Law
 PS 340 International Organizations
 PS 341 Social Welfare Policy
 PS 402 Political Economy
 PS 404 Politics of East and Southeast Asia
 PS 406 Legislative Politics
 PS 415 Politics of American Foreign Policy
 PS 430 American Constitutional Law and Politics

Psychology

PY 313 Introduction to Linguistic Theory
 PY 335 Social Psychology
 PY 344 Lifespan Developmental Psychology
 PY 345 Psychology of Exceptional Children
 PY 390 Western Childhood
 PY 400 History and Systems

Sociology and Social Work

AN 320 Native Peoples of North America
 AN 382 Health, Society and Culture
 SO 301 Urban Sociology
 SO 302 Life Cycle and Social Structure
 SO 312 Religion and Society
 SO 322 Social Class, Power, and Mobility
 SO 332 The Study of Population
 SO 343 Sociology of Deviant Behavior
 SO 351 Social Change
 SO 355 Introduction to Social Psychology
 SO 382 Health, Society and Culture
 SO 412 Sociology of Education
 SO 472 Occupational Stress
 SO 473 Juvenile Delinquency

Formal Communication Studies**Communication and Performance Studies**

SP 300 Rhetorical Theory
 SP 310 Communication Theory
 SP 401 Persuasion
 SP 402 Communication Criticism
 SP 404 Communication and the Arts
 SP 410 Advanced Interpersonal Communication
 SP 412 Nonverbal Communication
 SP 421 Organization Communication
 SP 425 Communication Ethics
 SP 432 Environmental Communication

English

EN 404 The English Language

Modern Languages and Literatures

All 300 and 400 Modern Languages and Literatures courses, except those listed in other areas.

Psychology

PY 305 Psychological Statistics
 PY 311 Thinking and Cognition
 PY 351 Psychology of Personality

Foundations of Visual and Performing Arts**Art and Design**

AD 300 Japan and the West: Crosscurrents in Art and Architecture
 AD 355 Twentieth Century Art and Architecture

Students may enroll in any 300 or 400 course, but they must consult with the department head before enrolling.

Communication and Performance Studies

BC 325 Communication and Performance in Africa
 TH 330 Intermediate Acting
 TH 340 Stage Lighting
 TH 341 Stage Properties
 TH 352 Directing Theory
 TH 357 Creative Dramatics
 TH 358 Directing Practicum
 TH 360 History of Theatre
 TH 361 Modern Drama
 TH 404 American Musical Theatre
 TH 432 Audition
 TH 458 Theory of Drama

Health, Physical Education and Recreation

PE 381 History of Dance
 PE 383 Theory of Dance

Music

Students may enroll in any 300 or 400 theory or performance course, but they must consult with the department head before enrolling.

MATHEMATICS AND COMPUTER SCIENCE

DEPARTMENT OFFICE

1001 New Science Facility

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Mathematics and Computer Science at NMU

The primary mission of the Mathematics and Computer Science Department is to prepare students for participation in professional careers in mathematics, mathematics education, and computer science, while providing service and liberal studies courses for the broader university community. In addition, the department contributes to the continuing education of K-12 teachers in the region. The department also offers a master's degree in mathematics education.

The study of mathematics develops the critical and analytical skills needed in medicine, law or business, and supports majors such as physics, chemistry, biology, psychology, economics, sociology, or geography. It provides an understanding of the contributions of mathematics to philosophy, the arts, science and technology, and provides an exciting intellectual experience.

Computer science is the study of what is possible through computation. It is also the creative exploration of how to achieve these possibilities. Computers are the ultimate machines because they can be reconfigured (programmed) in an infinite number of ways. A computer science degree provides a deep and thorough understanding of modern computers, from their theoretical limitations to the next great leap in their practical application.

Successful completion of a computer science, mathematics or mathematics education major prepares students for graduate work in mathematics or computer science and for professions in statistics, applied mathematics, computer science and teaching.

Student Organizations

- Mathematics and Computer Science Club
- Student Chapter of the Association for Computing Machinery
- Student Michigan Education Association

Department/Program Policies

To ensure student success, the department does not allow students to enroll in the same course more than two times. If a student must take a course for the third time, he or she must

first take the prerequisite course(s) and obtain a grade of "B-" or better in each.

All non-teaching majors and minors offered by the department require a 2.00 or higher overall grade point average in required courses and a grade of "C" or better in each required course. All students must pass prerequisite courses with a grade of "C-" or higher unless otherwise indicated.

Students majoring in secondary education mathematics or minoring in secondary education mathematics must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Mathematics courses with a middle digit of "5" will not count toward the requirements of a non-education major or minor. Students pursuing minors in the department are urged to consult with their advisers in determining an appropriate selection of courses.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Applied Mathematics Major

With an emphasis on the fundamental nature and function of mathematical modeling, this major combines computational techniques with computer-based problem solving in a variety of applications. Graduates of this program are provided with the foundation to either join the professional workforce or continue their studies at the graduate level. A computer science minor is built into this major.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	60
Mathematics Core	35
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
MA 211 Intro. to Matrix Theory and Linear Algebra	3
MA 265 Calculus III	3
MA 312 Abstract Algebra with Applications	3
MA 361 Differential Equations	3
MA 371 Applied Probability and Statistics	3
MA 380 Linear Programming	3
MA 340 Combinatorics (4 cr.) <i>or</i>	3-4
MA 410 Mathematical Modeling (3 cr.)	
MA 473 Numerical Analysis	4
MA 490 Senior Seminar	1
Computer Science Core	15
CS 120 Computer Science I [V] <i>or</i>	4
CS 120A Accelerated Computer Science I (4 cr.) [V]	
CS 122 Computer Science II	4
CS 222 Data Structures	4
CS 326 Software Design and Engineering	3
Mathematics/Computer Science Electives	10
<i>Choose from the following:</i>	
MA 340 Combinatorics (4 cr.)	
MA 381 Integer Programming and Network Flows (3 cr.)	
MA 410 Mathematical Modeling (3 cr.)	
MA 462 Higher Mathematics for the Sciences (3 cr.)	
MA 472 Advanced Applied Statistics (3 cr.)	
MA 475 Intermediate Statistics (4 cr.)	
MA 485 Stochastic Models in Operations Research (3 cr.)	

- MA 491 Internship in Applied Mathematics (3-6 cr.)
- CS 228 Network Programming (3 cr.)
- CS 322 Principles of Programming Languages (4 cr.)
- CS 422 Algorithms Design and Analysis (3 cr.)

Minor*	20
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**Computer science may be declared as the minor without further course requirement if at least five credits of the mathematics/computer science electives are in computer science.*

Computer Science Major

This major combines courses in practical programming, computer architecture, networking and algorithm design/analysis with an appropriate background in mathematics and theory of computing. Included are classes covering the latest technologies such as robotics and Internet applications. This major provides the foundation for a rewarding and productive career in industry as well as strong preparation for graduate school.

Total Credits Required for Degree	128
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	60
Computer Science Core	35
CS 120 Computer Science I [V] <i>or</i>	4
CS 120A Accelerated Computer Science I (4 cr.) [V]	
CS 122 Computer Science II	4
CS 201 Programming in C++	3
CS 222 Data Structures	4
CS 228 Network Programming	3
CS 322 Principles of Programming Languages	4
CS 326 Object Oriented Design	3
CS 330 Microcomputer Architecture	4
CS 422 Algorithms Design and Analysis	3
CS 426 Operating Systems	3
Mathematics Core	15
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
MA 211 Introduction to Matrix Theory and Linear Algebra	3
MA 240 Discrete Mathematics	3
Mathematics Elective	3-4
<i>Choose from the following:</i>	
MA 171 Introduction to Probability and Statistics (4 cr.) [V]	
MA 310 Mathematical Models and Problem Solving (4 cr.)	
MA 380 Linear Programming (3 cr.)	
MA 381 Integer Programming and Network Flows (3 cr.)	
MA 410 Mathematical Modeling (3 cr.)	
MA 473 Numerical Analysis (4 cr.)	

Computer Information Systems, Computer Science and Mathematics Electives 6
 Choose from the following:
 CIS 464 Database Management Systems (3 cr.)
 CS courses numbered 300 or higher, excluding those with middle digit 5. (1-6 cr.)
 MA courses numbered 265 or higher except MA 271, MA 331, MA 484 and math courses with middle digit "5." (1-6 cr.)

Minor* 20
 *Mathematics may be declared as a minor if at least five credits of electives are in mathematics courses.

Mathematics Major

Students pursuing this degree will have the opportunity to study traditional core courses in mathematics as well as modern applied mathematics courses covering some major topics related to actuarial science and operations research.

Total Credits Required for Degree 124

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 34-35

CS 120 Computer Science I [V] or 4
 CS 120A Accelerated Computer Science I (4 cr.) [V]
 MA 161 Calculus I [III] 5
 MA 163 Calculus II 4
 MA 211 Introduction to Matrix Theory and Linear Algebra 3
 MA 265 Calculus III 3
 MA 312 Abstract Algebra with Applications 3
 MA 361 Differential Equations 3

Mathematics Electives 9-10

Choose from the following:
 MA 340 Combinatorics (4 cr.)
 MA 363 Advanced Calculus I (3 cr.)
 MA 366 General Topology (3 cr.)
 MA 371 Applied Probability and Statistics (3 cr.)
 MA 380 Linear Programming (3 cr.)
 MA 412 Abstract Algebra II (3 cr.)
 MA 464 Advanced Calculus II (3 cr.)
 MA 465 Complex Variables (3 cr.)
 MA 472 Advanced Applied Statistics (3 cr.)
 MA 473 Numerical Analysis (4 cr.)
 MA 481 Mathematical Logic (3 cr.)
 MA 482 Foundations of Mathematics (3 cr.)
 MA 483 Introduction to Number Theory (3 cr.)
 MA 484 History of Mathematical Thought (3 cr.)

Minor 20

Network Computing Major

This major is designed to offer students an education in the important world of Internet and Intranet programming. This course of study emphasizes programming skills while concentrating on the latest concepts, architecture and algorithms for network computation. Students will learn the fundamentals of computer science while focusing on aspects important to the world of network computing.

Total Credits Required for Degree 124-125

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 42-43

Network Computing Core 21
 CS 120 Computer Science I [V] or 4
 CS 120A Accelerated Computer Science I (4 cr.) [V]
 CS 122 Computer Science II 4
 CS 201 Programming in C++ 3
 CS 222 Data Structures 4
 CS 326 Object Oriented Design 3
 CS 480 Senior Project in Computer Science 3

Mathematics Requirement 3
 MA 240 Discrete Mathematics 3

Networking Requirement 3
 CS 228 Network Programming 3

Computer Science Electives 6-7
 Choose from the following:
 CS 442 Advanced Networking (3 cr.)
 CS 444 Parallel and Distributed Processing (4 cr.)
 CS 460 Advanced Web Programming (3 cr.)

Computer Science, Mathematics, Computer Information Systems and Art and Design Electives 9

Choose from the following:
 CS courses numbered 200 or higher, excluding those with a middle digit 5. (1-9 cr.)
 AD 134 Electronic Imaging: Introduction (4 cr.)
 AD 234 Electronic Imaging: Web Design (4 cr.)
 AD 334 Electronic Imaging: 3D (4 cr.)
 AD 434 Electronic Imaging: Seminar (4 cr.)
 CIS 330 Novell Network Operating Systems II (3 cr.)
 CIS 334 Microsoft Network Operating Systems II (3 cr.)
 CIS 440 Management Information Systems (3 cr.)
 CIS 464 Database Management Systems (3 cr.)

Minor 20

Other Required Course 4
 MA 171 Introduction to Probability and Statistics [V] 4

Secondary Education Mathematics Major

Completion of the mathematics courses, a teaching minor as well as the professional education sequence lead to certification as a secondary teacher of mathematics.

Total Credits Required for Degree	133-137
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	33-35
MA 161 Calculus I [III]	5
MA 163 Calculus II	4
MA 211 Introduction to Matrix Theory and Linear Algebra	3
MA 265 Calculus III	3
MA 310 Mathematical Models and Problem Solving	4
MA 312 Abstract Algebra with Applications	3
MA 331 Geometry I	3
MA 484 History of Mathematics	3
MA 171 Introduction to Probability and Statistics (4 cr.) [VI] <i>or</i> MA 371 Applied Probability and Statistics (3 cr.)	3-4
Mathematics Electives	2-3
Select from mathematics courses numbered 300 or above, excluding those with a middle digit "5."	
Other Required Course	4
CS 120 Computer Science I [VI] <i>or</i> CS 120A Accelerated Computer Science I (4 cr.) [V]	4
Teaching Minor, minimum	24
Professional Education	34
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
MA 350 Methods and Materials in Teaching Senior High School Mathematics Education	3
MA 354 Methods and Materials in Teaching Junior High School Mathematics Education	2
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

MINOR PROGRAMS

Computer Science Minor

Total Credits Required for Minor **20**

This minor requires 20 credits in computer science courses numbered 120 or above; up to 8 hours of these may be mathematics courses numbered 115 or above, excluding those with a middle digit of "5."

Mathematics Minor

Total Credits Required for Minor **20**

This minor requires 20 credits in mathematics courses numbered MA 115 or above excluding those with a middle digit "5"; up to 8 hours of these may be computer science courses numbered 120 or above. This option is not available as a teaching minor.

Secondary Education Mathematics Minor

Total Credits Required for Minor **23-25**

MA 171 Introduction to Probability and Statistics (4 cr.) <i>or</i> MA 371 Applied Probability and Statistics (3 cr.)	3-4
MA 161 Calculus I	5
MA 163 Calculus II	4
MA 211 Introduction to Matrix Theory and Linear Algebra	3
MA 312 Abstract Algebra with Applications	3
MA 331 Geometry I	3
MA 350 Methods and Materials in Teaching Senior High School Mathematics Education (3 cr.) <i>or</i> MA 354 Methods and Materials in Teaching Junior High School Mathematics Education (2 cr.)	2-3

MILITARY SCIENCE

DEPARTMENT OFFICE

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Military Science at NMU

The Military Science Department offers a minor in military science and trains and commissions the future leadership of the U.S. Army and the nation. The department's courses teach leadership skills that are highly sought by major corporations.

Participation in the NMU military science program has a profound impact on any student, even through a single class. The program emphasizes modern leadership, team building, teamwork, problem solving, self-confidence development, and ethical behavior. Military science courses or enrollment in the department's military science minor complement any student's major by broadening his or her educational experience and teaching a variety of personal and professional skills.

Students who enroll in military science classes or in the minor program incur no military obligation, nor do they commit themselves to continue taking military science courses (unless they commit to becoming a U.S. Army Officer in the active Army, Army Reserves or Army National Guard). Students may add, drop or withdraw from military science courses as in any other academic program.

Student Organization

- Ranger Club

Leader's Training Course

The Leader's Training Course (LTC) is an obligation-free, five-week course held each summer at Fort Knox, Kentucky. Students who have not completed basic training, JROTC, or the four basic courses, and have junior status or higher (minimum 56 credit hours), may attend LTC. Upon completion of the program, they will be invited to contract into the commissioning program. All basic necessities, transportation and equipment are provided by the U.S. Army.

Commissioning Program

Only those students who volunteer for and meet U.S. Army qualifications may enter the commissioning program. Students contract with the U.S. Army to complete the required program of instruction in return for a stipend and/or scholarship monies and the training required to earn a commission. Veterans may

also compete for U.S. Army ROTC scholarships without affecting their veteran's benefits. Qualified cadets may attend the U.S. Army Airborne, Air Assault, Nurse Summer Training Program or Northern and Mountain Warfare Schools during the summer when openings are available. Overseas and other leadership training is also available on a regular basis.

Cadets are also required to take one history class to satisfy the Professional Military Education requirement. This requirement may be satisfied through several history courses offered at NMU.

The ROTC Scholarship Program

NMU U.S. Army ROTC has scholarships available to qualified students wanting to earn a commission in the U.S. Army. Special incentives exist for nursing students to become army nurses. For information about NMU scholarship opportunities, contact the department. To learn more about U.S. Army ROTC scholarship opportunities and requirements, visit the U.S. Army ROTC scholarship Web site at www.armyrotc.com/scholar.

Leader Development and Assessment Course

All contracted cadets must complete the five-week Leader Development and Assessment Course (LDAC) at Fort Lewis, Washington. This is normally done during the summer between a cadet's junior and senior year, but it is required prior to his or her appointment as a commissioned officer. This training supplements campus instruction by providing practical leadership experience in the form of problem analysis, decision-making and small group leadership experiences. This camp is an intense experience that matures and forges each individual. The U.S. Army provides transportation, food, shelter, clothing and other basic necessities.

Options Upon Commissioning

Army ROTC provides careers in 21 branches and 47 different fields. Candidates compete for an appointment to the active Army for three to four years, or they may serve on active duty for a period and then with an Army Reserve or National Guard unit for the remainder of their obligation (a total of eight years). Service as a Reserve or National Guard officer allows the individual to pursue a civilian career while serving for approximately 38 days per year.

Department/Program Policies

Uniforms, Texts and Special Equipment

Basic course cadets are not required to wear a uniform to their military science classes but must wear a uniform to the leadership lab. Advanced course cadets wear uniforms to their military science classes and to the leadership lab. All cadets must comply with military appearance standards while in uniform. Students who are taking military science classes only for academic credit or to fulfill the military science minor do not wear uniforms to class, nor are they required to comply with military appearance standards. The department furnishes all required military equipment as a temporary loan to students. Textbooks are provided by the department for 100- and 200-level courses. Students must purchase textbooks for MS 339, MS 359, MS 439 and MS 459.

Advanced Course Requirements

Advanced course students seeking commissions are required to participate in the following activities:

1. **Physical Training**—conducted by the department for one hour, three times a week.
2. **Mandatory Training Events**—including leadership laboratories, field training exercises, some extracurricular events and social events.

Advance Placement Credit for Veterans

Students having prior military service may receive advance placement credit equivalent to the basic courses upon the recommendation of the department head.

MINOR PROGRAM

Military Science Minor

This minor is open to students of any major. It is especially appropriate for students intending to enter public service at the local, state or federal levels. The program requires four classes at each level (100-400) for a total of 20 credits. Additional military science courses are offered to broaden the experience and perspective of the students. Refer to the "Course Descriptions" section of this bulletin.

Total Credits Required for Minor	20
<hr/>	
Basic Course	4
MS 139 Leadership and Confidence Building	1
MS 159 Leadership, Confidence Building, and Winter Training	1
MS 239 Leadership at the Unit Level	1
MS 259 Troop Leadership Training	1
Advanced Course	16
MS 339 Advanced Leadership Training	4
MS 359 Applied Leadership Training	4
MS 439 Leadership	4
MS 459 Leadership and Team Development	4

MODERN LANGUAGES AND LITERATURES

DEPARTMENT OFFICE

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Modern Languages and Literatures at NMU

The Modern Languages and Literatures Department offers language courses in Chinese, French, German, Portuguese and Spanish, as well as culture and literature courses in the target languages and in English. The department occasionally offers courses in other languages and helps facilitate university credit for students who study languages abroad. Language and cultural studies provide an excellent liberal education. Knowledge of languages enhances virtually any career and increases employment opportunities. World language, culture and literature studies open students to new and exciting horizons, place them in contact with worldwide artistic and intellectual accomplishments, help them to understand other people, and prepare them for success in an increasingly globalized world.

The department offers programs leading to the bachelor of arts degree with majors in French, Spanish, secondary education French and secondary education Spanish. Minors are offered in French, German, Spanish, French education, German education and Spanish education. Language students are encouraged to participate in language conversation tables.

Student Organizations

- French Club
- German Club
- Portuguese Club
- Spanish Club
- Student Michigan Education Association

Department Facilities

The department has a Language Learning Laboratory located in 203 Jamrich Hall. It includes wireless and wired connection to the Internet and a software library. It also has listening and viewing stations for the center's numerous audio and video-tapes. The laboratory is available for class and individual student use. The department also has a resource room for students, while Northern's Olson Library contains representative works by foreign authors, works of criticism and linguistics, and a fine collection of slides of European history, art and architecture.

Department/Program Policies

Procedures to follow before enrolling in LG 350, Methods and Materials in Teaching Language Education:

1. All students intending to seek teaching certification in one or more languages should contact the faculty member in charge of teaching methods and student supervision as soon as they declare their major and/or minor. They will be monitored throughout the rest of their studies at NMU for satisfactory academic progress and language proficiency.
2. Prior to enrolling in LG 350, students must obtain Evaluation Form 1 and 2 from the Modern Languages and Literatures Department secretary or LG 350 instructor, then complete an oral proficiency interview with a faculty member in each of the languages in which they intend to earn certification. The results of this interview will be entered on Evaluation Form 1 and filed with the Modern Languages and Literatures Department.
3. Students are also required to submit Evaluation Form 2 indicating their potential for becoming successful teachers (maturity, commitment).

Students will be notified of their enrollment status, based on the results of the evaluations. LG 350 is not taught as a directed study.

Use of Courses Taught in English for the French Major/Minor and German Minor

Students majoring in French may apply two NMU courses taught in English (a maximum of eight credits) toward the major. French and German minors may apply one NMU course taught in English (a maximum of four credits) toward the minor. Language majors or minors enrolled in courses taught in English will be expected to complete some assignments in either French or German.

Language Certification Program Policies and Procedures

The Modern Languages and Literatures Department offers a language certification program in which degree-seeking students can validate their language proficiency skills at less than the minor level, but beyond sophomore-level proficiency. Language certification is available in French, German or Spanish.

Language certification applications can be obtained in the Modern Languages and Literatures Department upon completion of the requisite courses. Accomplishment of language certification will be noted on NMU transcripts, and the student will receive a certificate from the department.

Grade Requirements

All non-teaching majors and minors and students seeking language certification must earn a minimum grade of “C” in every language course. Students majoring in secondary education French or secondary education Spanish, or minoring in French education, German education, or Spanish education must maintain a grade point average of 2.70 or greater with no grade below a “C” in the professional education sequence, the major and/or minors and required cognates combined.

Study Abroad Programs

Students who major or minor in French, German or Spanish are encouraged to study abroad for at least a semester to improve their language skills and to become immersed in the target culture. Programs are also open to students in other disciplines who want to pursue their studies abroad. For more information please see the “Study Abroad” section of this bulletin.

Advanced Placement Credit

Students may obtain credit for French, German and Spanish I and II (FR, GR and SN 101 and 102) through the College-Level Examination Program (CLEP).

Students who complete FR/GR/SN 102 or 201 at NMU with a grade of “C” or higher can receive credit for the course that immediately precedes it (101 or 102) in the sequence.

Students with high school language preparation or experience abroad who wish to major in French or Spanish or to minor in French, German, or Spanish may earn up to eight advanced placement credit hours for FR/GR/SN 201 or 202 by taking a departmental test. Students who pass the advanced placement examination (APP, CEEB) with a score of three or higher will receive advanced placement credit in either language or literature depending on the examination that was taken.

Native speakers of French, German, Spanish or other languages may not test out of their native language. They may, however, take a CLEP or departmental test in any other language besides their own.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the “Liberal Studies Program and Graduation Requirements” section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

French Major

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
FR 201 Intermediate French [V]	4
FR 202 Intermediate French II [V]	4
FR 300 Reading and Writing	4
FR 400 Advanced French Composition and Grammar	4
French Electives 300 or 400 level	16
LG 499 Graduation Assessment for Language Majors	0
Minor	20

Spanish Major

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
SN 300 Reading and Writing	4
Spanish Electives 300 or 400 level (except SN 314)	28
LG 499 Graduation Assessment for Language Majors	0
Minor	20

Secondary Education French Major

Teaching certification is obtained by completing a major in French, a teaching minor and the professional education sequence.

Total Credits Required for Degree	127-131
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
FR 201 Intermediate French I [V]	4
FR 202 Intermediate French II [V]	4
FR 300 Reading and Writing	4
FR 305 Conversational French and Phonetics [V] (or equivalent)	4
FR 400 Advanced Composition and Grammar	4
French Electives 300 or 400 level	12
LG 499 Graduation Assessment for Language Majors	0
Teaching Minor, minimum	20-24
Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2
LG 350 Methods and Materials in Teaching Language Education	4

Secondary Education Spanish Major

Teaching certification is obtained by completing a major in Spanish, a teaching minor and the professional education sequence.

Total Credits Required for Degree	127-131
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
SN 300 Reading and Writing	4
SN 305 Conversational Spanish [V]	4
SN 310 Introduction to Spanish Civilization and Culture	4
SN 312 Introduction to Spanish America [II]	4
SN 400 Advanced Composition and Grammar	4
Spanish Electives 300 and 400 level (except SN 314)	12
LG 499 Graduation Assessment for Language Majors	0
Teaching Minor, minimum	20-24
Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3

ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
LG 350 Methods and Materials in Teaching Language Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2

MINOR PROGRAMS

French Minor

Total Credits Required for Minor	20
FR 201 Intermediate French I	4
FR 202 Intermediate French II	4
FR 300 Reading and Writing	4
French Electives 300 or 400 level	8
LG 399 Graduation Assessment for Language Minors	0

French Education Minor

Total Credits Required for Minor	20-24
FR 201 Intermediate French I	4
FR 202 Intermediate French II	4
FR 300 Reading and Writing	4
FR 305 Conversational French (or equivalent)	4
FR 400 Advanced Composition and Grammar	4
LG 350 Methods and Materials in Teaching Language Education*	4
LG 399 Graduation Assessment for Language Minors	0

*Not required if major is Spanish education.

German Minor

Total Credits Required for Minor	20
GR 201 Intermediate German I	4
GR 202 Intermediate German II	4
GR 300 Reading and Writing	4
German Electives 300 or 400 level	8
LG 399 Graduation Assessment for Language Minors	0

German Education Minor

Total Credits Required for Minor	20-24
GR 201 Intermediate German I	4
GR 202 Intermediate German II	4
GR 300 Reading and Writing	4
GR 305 Conversational German (or equivalent)	4
GR 400 Advanced Composition and Grammar	4
LG 350 Methods and Materials in Teaching Language Education*	4
LG 399 Graduation Assessment for Language Minors	0

*Not required if major is French education or Spanish education.

Spanish Minor

Total Credits Required for Minor	20
SN 300 Reading and Writing	4
Spanish Electives 300 or 400 level (except SN 314)	16
LG 399 Graduation Assessment for Language Minors	0

Spanish Education Minor

Total Credits Required for Minor	20-24
SN 300 Reading and Writing	4
SN 305 Conversational Spanish	4
SN 310 Introduction to Spanish Civilization and Culture	4
SN 312 Introduction to Spanish America	4
SN 400 Advanced Composition and Grammar	4
LG 350 Methods and Materials in Teaching Language Education*	4
LG 399 Graduation Assessment for Language Minors	0

*Not required if major is French education.

CERTIFICATIONS

French Certification

Total Credits Required for Certification	20
FR 101 Elementary French I	4
FR 102 Elementary French II	4
FR 201 Intermediate French I	4
FR 202 Intermediate French II	4
FR 310 Introduction to French Civilization and Culture	4

German Certification

Total Credits Required for Certification	20
GR 101 Elementary German I	4
GR 102 Elementary German II	4
GR 201 Intermediate German I	4
GR 202 Intermediate German II	4
GR 310 Introduction to German Civilization and Culture	4

Spanish Certification

Total Credits Required for Certification	20
SN 101 Elementary Spanish I	4
SN 102 Elementary Spanish II	4
SN 201 Intermediate Spanish I	4
SN 202 Intermediate Spanish II	4
SN 310 Introduction to Spanish Civilization and Culture <i>or</i>	4
SN 312 Introduction to Spanish America (4 cr.) <i>or</i>	
SN 314 Contemporary Latin American Culture (4 cr.)	

MUSIC

DEPARTMENT OFFICE

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Music at NMU

The Music Department educates students, the university community and the general public in music of many different kinds. The department is a full member of the National Association of Schools of Music; its degree programs are approved by the association.

The department supports a wide variety of ensemble programs that are open to all students. The varied ensembles serve an array of functions including the laboratory experience for music majors. Musical enrichment for the university community is a high priority for the department. The department offers teachers and other community members the opportunity to refine their musicality and increase their musical skill and understanding. Recitals by both faculty and students enhance the area's cultural environment throughout the academic year.

Non-music majors are encouraged to minor in music and take part in any of the department's ensemble programs. When space is available, non-music majors may take private lessons from department faculty.

Student Organizations

- University Orchestra
- Jazz Band
- Pep Band
- Marching Band
- Symphonic Band
- University Choir
- Chamber Groups
- Madrigal Choir
- MENC (Music Educators National Conference) Student Organization
- Friends of Jazz

Department Facilities

The department is housed in the newly remodeled Russell Thomas Fine Arts building, which serves as the instructional and rehearsal facility. There are 28 individual practice rooms, two large rehearsal halls (instrumental and choral), an electronic piano lab, and a music technology lab. Recitals and concerts are performed in the new, 303-seat Reynolds Recital Hall,

which houses a Walker digital organ and two Steinway grand pianos (concert nine-foot Model D, and seven-foot Model B).

Department/Program Policies

Performance Requirements

A classification system defines four performance levels. All entering students, freshmen and transfers who have had no previous university-level performance study are assigned to the 100 performance level. All transfer students with previous university-level performance study are auditioned and assigned the 100 performance level until completing the departmental proficiency exams.

The performance regulations are as follows:

1. Each student in the bachelor of music education program must complete seven credits of performance study and must be promoted to the 300 level before enrolling in MU 490 Senior Recital. Each student in the bachelor of arts or bachelor of science program must complete a minimum of four credits of performance study and must be promoted to the 300 level in order to graduate.
2. For the bachelor of music education, five of the seven credit hours in performance must be on one instrument. For the bachelor of arts/bachelor of science, four credit hours must be on one instrument.
3. Students seeking the bachelor of music education must achieve the 300 level (decision rendered by full faculty) before they are permitted to schedule their senior recital. Students seeking the bachelor of arts or bachelor of science must achieve the 300 level in order to graduate and take MU 491 Senior Project if the project is a performance. All recitalists must pre-audition before area faculty two weeks before their recital.
4. Proficiency assessment from the 100 to 200 level, the 200 to 300 level, and 300 to 400 level is rendered by the full faculty.
5. Any performance level may be repeated for credit any number of times.

Double performance classes in a single instrument or voice may be necessary for transfer students to make up deficiencies or to qualify for requirements. (See the *Music Department Student Handbook*.)

Generally, students study in their major performing area to satisfy the performance requirement. Students electing a double major must meet the requirements of areas they select, including ensemble requirements.

Grade Point Average Requirements

All music curriculum core courses must be passed with a grade of "C" or higher. A student can have no more than five repeats of "failed" courses in the music major or minor. A minimum

grade point average of 2.70 is required for all major degree programs (bachelor of science, bachelor of arts and bachelor of music education). In addition to the aforementioned requirements, bachelor of music education degree candidates are required to satisfy the Teacher Selection and Retention Standards outlined in the "School of Education" section of this bulletin.

Piano Level Requirements

Instrumental majors, including pianists, must complete Piano III (MU 140) with a grade of "C" or higher, or test out of this requirement (equivalent to the final in Piano III). Piano I (MU 103) and Piano II (MU 106) may be taken as electives if the student has no previous experience. Choral majors must pass Piano IV or test out of this requirement. Piano I, II and III may be taken as electives if the student has no previous experience.

Large and Small Ensemble Requirements

Music majors are urged to audition for the ensemble of their choice; however, the faculty reserves the right to assign students to particular ensembles in order to obtain balance within the ensemble or to broaden the student's performance experience. All music majors must participate in a large ensemble from their first semester of enrollment and should continue to participate in consecutive semesters until the ensemble requirement is completed. Normally, two semesters of large ensemble participation will be required to perform the proficiency exam for promotion to the 200 level.

Large ensembles include Marching Band, Symphonic Band, University Choir and University Orchestra.

University Choir is highly recommended as an elective for all entering music majors, both instrumental and vocal. The large ensemble requirement for instrumental wind and percussion majors in the bachelor of music education program is Marching Band in the fall and the Symphonic Band in the winter.

The large ensemble requirement for vocal majors in the bachelor of music education program is the University Choir. The Marquette Choral Society may be substituted only with the written approval of vocal-area faculty.

Instrumental wind, string and percussion non-teaching majors (bachelor of arts, bachelor of science degrees) must complete two credits of large and/or small ensembles. The vocal non-teaching majors must complete four credits of ensemble, of which three semesters must be large ensemble (University Choir) and one semester can be chamber music or University Choir. The amount of credit for all ensembles is .5 credit.

Additional Requirements

Piano majors who elect the choral specialization must take Class Voice (MU 170) or performance lessons for a minimum of one semester.

Music majors must attend a specified number of concerts each semester or the performance grade is lowered. The policies and procedures for lowering of the performance grade is fully described in the *Music Department Student Handbook*.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin (38-44).

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Music Major (B.A./B.S.)

This major provides a general education in music performance, music history and theory.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Music Core Courses	31
MU 101 Music Theory I	2
MU 102 Sight Singing and Ear Training I	2
MU 103 Piano I	2
MU 104 Music Theory II	2
MU 105 Sight Singing and Ear Training II	2
MU 125 Music in Society [VI]	4
MU 201 Music Theory III	2
MU 202 Sight Singing and Ear Training III	2
MU 203 Music History and Literature I	3
MU 204 Music Theory IV	2
MU 205 Form and Analysis	2
MU 206 Music History and Literature II	3
MU 210 Sight Singing and Ear Training IV	2
MU 491 Senior Project	1
Performance classes	4
Ensembles	2
Music Electives	7
<i>Two credits must be upper division performance, theory, or history.</i>	
Minor	20

Bachelor of Music Education Secondary Education Music Major (B.M.E.)

Completion of the music courses as well as the professional education sequence lead to secondary certification, which enables the holder to teach music at the K-12 level.

Total Credits Required for Degree	134
Liberal Studies	30-40
Health Promotion	2
Music Core Courses	29
MU 101 Music Theory I	2
MU 102 Sight Singing and Ear Training I	2
MU 104 Music Theory II	2
MU 105 Sight Singing and Ear Training II	2
MU 125 Music in Society [VI]	4
MU 201 Music Theory III	2
MU 202 Sight Singing and Ear Training II	2
MU 203 Music History and Literature I	3
MU 204 Music Theory IV	2
MU 205 Form and Analysis	2
MU 206 Music History and Literature II	3
MU 210 Sight Singing and Ear Training IV	2
MU 490 Senior Recital	1
Performance Lessons	7
Ensembles	5
<i>See large and small ensemble requirements on the previous page.</i>	
<i>Choral or instrumental. Each course is worth one half credit per semester.</i>	
Choral	
Large Ensembles	3.5
Elective Ensembles	1.5
Instrumental	
Large Ensembles	2.5
Small Ensembles	1.0
Elective Ensemble	1.5
Area of Specialization (Choral or Instrumental)	22
Choral	
MU 142 Piano IV	2
MU 146 Classroom Instruments	1
MU 150 Percussion Class	2
MU 172 Musical Diction in Singing I	2
MU 173 Musical Diction in Singing II	2
MU 208 Conducting I	2
MU 212 Choral Methods	2
MU 230H High Brass or MU 230L Low Brass	1
MU 260U Upper Strings or MU 260L Lower Strings	1
MU 280S Single Reeds	1
MU 349 Methods and Materials in Teaching Music Education I	2
MU 350 Methods and Materials in Teaching Music Education II	2
Music Electives	2

Instrumental	
MU 111 University Choir	.5
MU 140 Piano III	2
MU 150 Percussion Class	2
MU 170 Voice Class <i>or</i>	
MU 171 Vocal Performance	1
MU 208 Conducting I	2
MU 230H High Brass	1
MU 230L Low Brass	1
MU 260U Upper Strings	1
MU 260L Lower Strings	1
MU 280D Double Reeds	1
MU 280F Flute Class	1
MU 280S Single Reeds	1
MU 345A Marching Band Practicum	1
MU 349 Methods and Materials in Teaching Music Education I	2
MU 350 Methods and Materials in Teaching Music Education II	2
Music Electives	2.5
Professional Education	29
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
ED 483 Educational Media and Technology	2

MINOR PROGRAM

Music Minor

Total Credits Required for Minor	20
MU 101 Music Theory I	2
MU 103 Piano I	2
MU 125 Music in Society	4
Music Electives	12

Approval from the Music Department head is required prior to declaring or planning the music minor. The minor in music is non-teaching.

NATIVE AMERICAN STUDIES

PROGRAM OFFICE

Center for Native American Studies

112 Whitman Hall

Phone: 906-227-1397

Fax: 906-227-1396

Web Page: www.nmu.edu/nativeamericans

Interim Director: April Lindala • alindala@nmu.edu



Native American Studies at NMU

The Center for Native American Studies oversees the Native American Studies minor program. The courses are designed for both Native American and non-Native American students so they can better understand human similarities and differences as well as recognize the contributions that Native Americans have made to the world, thereby widening the multicultural curriculum of Northern Michigan University.

Student Organizations

- *Anishinaabe News* (www.nmu.edu/anishinaabe)
- Native American Student Association

MINOR PROGRAM

Native American Studies Minor

This minor examines the contemporary and historical experiences and ways of life of the indigenous people of North America from their perspective. It is designed to provide a study of Native American issues from a holistic and humanistic viewpoint by focusing on their cultural, historical and contemporary life.

Total Credits Required for Minor **24**

Required Courses **5-8**

NAS 204 The Native American Experience 4

NAS 488 Native American Service Learning Project 1-4

Electives **16-19**

All students must take at least four credits from each category unless an alternative plan is pre-approved by the director of the Center for Native American Studies.

Native American Content Courses in English and Oral Traditions **4**

Choose from the following:

NAS 280 Storytelling by Native American Women (4 cr.)

EN311Z World Literature in English* (4 cr.)

EN 314 Traditional Oral Literatures: Selected Native American Cultures (4 cr.)

EN 316 Native American Novels and Poetry (4 cr.)

EN 317 Native American Drama, Non-fiction, and Short Stories (4 cr.)

EN 430 Major Authors* (3-4 cr.)

Native American Content Courses in Anthropology, History and Sociology **4**

Choose from the following:

AN 320 Native People of North America (4 cr.)

AN 330 Indians of the Western Great Lakes (4 cr.)

HS 233 Native American History (4 cr.)

HS 234 Indigenous People of Latin America (4 cr.)

HS 295 Special Topics in History* (1-4 cr.)

SO 295 Special Topics in Sociology* (1-4 cr.)

Native American Content Courses in Anishinaabe Language, Art and Design and Music **4**

Choose from the following:

NAS 101 Anishinaabe Language, Culture and Community I (4 cr.)

NAS 102 Anishinaabe Language, Culture and Community II (4 cr.)

AD 200 Native American Art and Architecture (4 cr.)

AD 295 Special Topics in Art and Design* (1-4 cr.)

MU 325 World Music* (4 cr.)

Native American Content Courses in Education and Political Science **4**

Choose from the following:

NAS 287 The Legal and Political History of Michigan Indian Education (2 cr.)

NAS 288 Politics of Indian Gaming (4 cr.)

NAS 310 Tribal Law and Government (4 cr.)

NAS 484 Native American Inclusion in the Classroom (2 cr.)

NAS 485 American Indian Education (3 cr.)

PS 295 Special Problems in Political Science* (1-4 cr.)

**Note: EN 311Z, EN 430, HS 295, SO 295, AD 295, MU 325, and PS 295 are courses of variable content. Credit only applies to the minor when these courses deal with Native American subject matter.*

NAS 295 Special Topics in Native American Studies may include course content that is not presently included in these categories. NAS 298 Directed Study in Native American Studies may also be taken for 1-4 credits with approval.

NURSING - BACCALAUREATE

DEPARTMENT OFFICE

School of Nursing

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Web Page: www.nmu.edu/nursing

Department E-mail: bsnnurse@nmu.edu

Associate Dean and Department Head: Kerri D. Schuiling

Nursing at NMU

The School of Nursing offers programs from the certificate level to graduate degree. Program options include: (1) a BSN degree program; (2) a fast track BSN program designed primarily for post-baccalaureate students; (3) an LPN to BSN program (for LPNs desiring to obtain a baccalaureate degree); (4) an RN to BSN degree program (for registered nurses who desire to obtain a baccalaureate degree in nursing); and (5) an MSN degree program with a family nurse practitioner functional track as its specialty. The RN to BSN program is also offered in a Web-based format.

The BSN program prepares students to function as professional nurses in a variety of hospital and community settings. Students acquire the requisite knowledge and skills to practice across a variety of settings with diverse populations within the health care system and to be independently skillful in the promotion and maintenance of health, the prevention of disease, and the management, coordination and supervision of client care.

Northern's bachelor of science in nursing and master of science in nursing programs are accredited by the Commission on Collegiate Nursing Education.

Student Organization

- Student Nurses Association

BSN Program Policies

Pre-Admission Policies

The department strongly recommends that prospective nursing students prepare themselves in high school by taking the following courses: English (four years), mathematics (three or four years, including two years of algebra), social studies (four years) and one unit each of biology, chemistry and physics. Students without the necessary high school preparation in algebra and chemistry may need to take additional preparatory courses in these subjects, which will lengthen their program.

Prospective transfer students from community colleges should take courses equivalent to those listed as requirements for admission to the nursing sequence.

Entering students are assigned an adviser who helps them plan an academic program of pre-nursing courses. When the prerequisites are nearly completed, students may apply for admission to the baccalaureate nursing sequence in consultation with an adviser. For more information, contact the nursing department at bsnnurse@nmu.edu.

Note: Completion of prerequisites does not guarantee admission to the nursing program.

Admission to the Baccalaureate Nursing Sequence

Before applying for admission to the nursing sequence, applicants must:

1. be admitted to Northern Michigan University;
2. have completed or be in the process of completing the following courses: BI 201 Human Anatomy, BI 202 Human Physiology, CH 107 Introductory Chemistry I, CH 108 Introductory Chemistry II, PY 100 Psychology and SO 101 Introductory Sociology or equivalent courses. Prerequisites must be completed with a "C-" or better. In special circumstances, the department may substitute BI 104 Human Anatomy and Physiology for BI 201; and
3. have a 2.75 or greater cumulative NMU grade point average. The transfer grade point average of those courses with a "C-" or above will be used until a student completes 12 credit hours at NMU.

Note: Admission to the BSN program is very competitive. Meeting prerequisites and minimum GPA criteria does not ensure admission.

Admission to the Fast Track Baccalaureate Nursing Sequence

Before applying for admission to the fast track nursing sequence, applicants must:

1. be admitted to Northern Michigan University;
2. have completed or be in the process of completing all non-nursing graduation requirements;
3. have completed or be in the process of completing all the prerequisite courses: BI 201 Human Anatomy, BI 202 Human Physiology, CH 107 Introductory Chemistry I, CH 108 Introductory Chemistry II, SO 101 Introductory Sociology and PY 100 Psychology with a "C-" or better. In special circumstances, the department may substitute BI 104 Human Anatomy and Physiology for BI 201; and
4. have a 3.00 or greater cumulative NMU grade point average. The transfer grade point average of those courses with a C- or above will be used until a student completes 12 credit hours at NMU.

Note: Admission to the fast track BSN program is very competitive. Meeting prerequisites and minimum GPA criteria does not ensure admission.

Application Deadlines

All prospective BSN students must complete and submit an application with a current transcript of grades to the School of Nursing by February 1 for the succeeding fall semester, or by October 1 for the succeeding winter semester.

The School of Nursing admits a limited number of students to the baccalaureate nursing sequence each semester. Records and applications of all students are reviewed promptly, and students are notified of acceptance or rejection no later than the beginning of the pre-registration period. If the number of eligible applicants exceeds the number of placements available, the faculty reserves the right to select the applicants who shall be admitted. The remaining eligible applicants may apply for admission the following semester. Ordinarily, students may expect to complete the entire program in approximately three academic years after being admitted to the nursing sequence, assuming that they complete all of their courses satisfactorily and sequentially.

Admission of Licensed Practical Nurses to the Baccalaureate Program

Students with an LPN license who request admission to the BSN program and have graduated from an LPN program within five years of admission into the BSN program and/or have worked as an LPN within five years of admission into the BSN program, are granted, without testing, advanced placement credit for: NE 201 Introduction to Nursing Concepts: Theory (4 credits), NE 202 Introduction to Nursing Skills I: Lab (1 credit) and NE 204 Introduction to Nursing Concepts II: Clinical (2 credits).

LPN student applicants who have not practiced as an LPN and have graduated more than five years prior to admission will be required to successfully complete challenge exams for advanced placement credit.

All LPN student applicants may take the NLN Pharmacology placement exam for advanced placement credit for NE 212 Pharmacology and Therapeutics (2 credits).

Students must submit a copy of their current Michigan LPN license prior to acceptance into the BSN program.

Preadmission requirements are the same as delineated in "Admission to the Baccalaureate Nursing Sequence."

Admission of Registered Nurses

Credit for a maximum of 39 semester hours of selected previous nursing courses will be granted to those individuals transferring from an NLN accredited program or a community college with whom the School of Nursing has an articulation agreement. RNs who enter the BSN program with a deficit in

nursing credits can make up the deficit with credits from the School of Nursing including nursing electives, NE 399 Advanced Nursing Apprenticeship and/or NE 491 Nursing Practicum/Internship. If the scheduling and/or staffing of nursing courses does not allow the student the opportunity to make up the credit deficit from nursing courses, other courses may be substituted with department approval.

To be admitted to the nursing major, RN to BSN applicants must:

1. be admitted to Northern Michigan University;
2. have graduated from a state-approved diploma or associate degree program in nursing;
3. provide a photocopy of a current unrestricted Michigan RN license (or proof of being in process of obtaining licensure);
4. have a 2.75 or greater cumulative NMU grade point average. The transfer grade point average of those courses with a "C-" or above will be used until a student completes 12 credit hours at NMU; and
5. have completed or concurrently enrolled in the following courses: BI 201 Human Anatomy, BI 202 Human Physiology, BI 203 Medical Microbiology, CH 107 Introduction to Chemistry I (or CH 111), CH 108 Introduction to Chemistry II (or CH 112), HN 301 Nutrition for Health Professions, NE 391 Transitions in Professional Nursing (Theory), NE 392 Transitions in Professional Nursing (Clinic), PY 100 Psychology and SO 101 Introductory Sociology. Non-nursing course prerequisites must be completed with a "C-" or higher. NE 391 Transitions in Professional Nursing (Theory) and NE 392 Transitions in Professional Nursing (Clinic) must be completed with a "C" or higher. In special circumstances the department may substitute BI 104 Human Anatomy and Physiology for BI 201 and waive HN 301 Nutrition for Health Professions if HN 210 Nutrition for Humans or an equivalent course has been successfully completed.

Admission of Registered Nurses to the Online RN to BSN Program

Once per academic year, a cohort of students is admitted to the RN to BSN online program. The requirements for admission and progression are the same as those listed for admission of registered nurses. The admission deadline varies; check for dates by e-mailing msnurse@nmu.edu. The online program provides all nursing courses in a Web-based format. Students complete their clinical experiences in their own communities via a preceptor.

In addition to the requirements noted for admission of RNs, students in the online program should be proficient in basic computer skills such as e-mail, uploading and downloading documents, and attaching files.

Retention in the Nursing Sequence

To remain in the program, all students:

1. must maintain a minimum 2.25 NMU cumulative grade point average. If the cumulative grade point average falls below 2.25, the student is not eligible to enroll in a nursing course until the cumulative grade point average is raised to 2.25. Since the student is not enrolled in any nursing classes while the grade point average is less than 2.25, the student must reapply to the nursing major when the student's grade point average enables the student to again enroll in a nursing class;
2. must successfully complete a nursing course on the first or second attempt (i.e., students may repeat a nursing course only once);
3. may only fail one nursing course throughout the curriculum. Failure in more than one of the following nursing courses will result in dismissal from the program: NE 200/200L Basic Health Assessment, Interviewing and Communication: Theory and Laboratory; NE 201/202 Introduction to Nursing Concepts: Theory and Laboratory; NE 301/302 Psychiatric/Mental Health Nursing: Theory and Clinic; NE 311/312 Adult Health Nursing: Theory and Clinic; NE 371/372 Maternal-Infant Nursing: Theory and Clinic; NE 381/382 Child and Family Nursing: Theory and Clinic; NE 420/421 Community Health Nursing and Continuity of Care: Theory and Clinic; NE 431/432 Management Concepts in Nursing: Theory and Clinic; and NE 391/NE 392 Transitions in Nursing: Theory and Clinic;
4. must complete all nursing courses with a minimum grade of "C" or "S" when course is graded "S/U";
5. must adhere to the university student code; and
6. must demonstrate a pattern of safe clinical practice commensurate with their educational experiences.

The faculty reserves the right to withdraw any student whose health, conduct, scholastic standing or clinical practice is such that it is inadvisable for the student to remain in the School of Nursing. Each student is responsible for reading the *Northern Michigan University Undergraduate Bulletin* and the *Student Nurse Handbook*, and seeking consultation with the School of Nursing if specific questions arise.

Students who withdraw from the program and wish to re-enter must follow the same application and admission procedure as all pre-nursing students.

Note: Before graduation, students must pass the RN-CAT Exam. Students may take the exam only two times per semester. (This graduation requirement does not apply to RN-BSN program students.) All School of Nursing student policies are clearly described in the *BSN Student Nurse Handbook*, which is available in the school office.

Review Testing Package

All BSN students are required to register and complete selected clinically associated Educational Resources, Inc. (ERI) assessment tests. Students register for these tests each semester. The tests are listed as co-requisite to the appropriate course. The ERI tests carry no credit and grades are either Satisfactory (S) or Unsatisfactory (U). An NCLEX RN Review course is included in the testing package. There is a service charge each semester for the assessment package.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Nursing Major

This program combines the study of humanities and physical and behavioral sciences with professional nursing courses and clinical experience. Students are expected to demonstrate competency in critical thinking, communication and therapeutic nursing interventions when providing care for clients, families and communities. Graduates of the program are qualified to take the National Council for Licensure Exam (NCLEX-RN) and to apply for entrance to graduate programs in nursing. See admission and retention standards for this program outlined above.

Key: T=Theory, C=Clinic, L=Lab

Total Credits Required for Degree	130
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	62
NE 200 Basic Health Assessment, Interviewing and Communication (T)	2
NE 200L Basic Health Assessment, Interviewing and Communication (L)	1
NE 201 Introduction to Nursing Concepts (T)	4
NE 202 Introduction to Nursing Skills I (L)	1
NE 204 Introduction to Nursing Skills II (C)	2
NE 212 Pharmacology and Therapeutics (T)	2
NE 222 Concepts of Altered Health States (T)	3
NE 301 Psychiatric Mental Health Nursing (T)	3
NE 302 Psychiatric Mental Health Nursing (C)	3
NE 311 Adult Health Nursing (T)	4

NE 312 Adult Health Nursing (C)	6
NE 322 Introduction to Nursing Research (T)	2
NE 371 Maternal - Infant Nursing (T)	2
NE 372 Maternal - Infant Nursing (C)	2
NE 381 Child and Family Nursing (T)	4
NE 382 Child and Family Nursing (C)	3
NE 420 Community Health Nursing and Continuity of Care (T)	4
NE 421 Community Health Nursing and Continuity of Care (C)	4
NE 422 Nursing Issues Seminar (T)	2
NE 431 Management Concepts in Nursing (T)	2
NE 432 Management Concepts in Nursing (C)	4
NE 435 Senior Nursing Seminar (T)	2

Other Required Courses	33
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
BI 203 Medical Microbiology	5
CH 107 Introductory Chemistry I* (4 cr.) [III] <i>or</i> CH 111 General Chemistry I* [III] (5 cr.)	4-5
CH 108 Introductory Chemistry II* [III] <i>or</i> CH 112 General Chemistry II (5 cr.) [III]	4
HN 301 Nutrition for Health Professions	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
SO 101 Introductory Sociology [IV]	4

*Transfer Students: Other chemistry courses may be substituted for the Northern Michigan University chemistry course requirement (chemistry: 6 semester credits minimum) at the discretion of the nursing faculty.

The Nursing Department accepts biology courses (anatomy, physiology and microbiology) from other colleges and universities that are at least 3 credit hours. If any course that includes a laboratory component is less than 3 credit hours, the student will take the specific course at NMU or a substitute designated by the department.

NE 312 Adult Health Nursing (C)*	6
NE 322 Introduction to Nursing Research (T)	2
NE 371 Maternal - Infant Nursing (T)*	2
NE 372 Maternal - Infant Nursing (C)*	2
NE 381 Child and Family Nursing (T)*	4
NE 382 Child and Family Nursing (C)*	3
NE 420 Community Health Nursing and Continuity of Care (T)	4
NE 421 Community Health Nursing and Continuity of Care (C)	4
NE 422 Nursing Issues Seminar (T)	2
NE 431 Management Concepts in Nursing (T)	2
NE 432 Management Concepts in Nursing (C)	4
NE 435 Senior Nursing Seminar (T)	2

Other Required Courses	33
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
BI 203 Medical Microbiology	5
CH 107 Introductory Chemistry I** (4 cr.) [III] <i>or</i> CH 111 General Chemistry I** [III] (5 cr.)	4-5
CH 108 Introductory Chemistry II** [III] <i>or</i> CH 112 General Chemistry II (5 cr.) [III]	4
HN 301 Nutrition for Health Professions	4
PY 100L, S or H Psychology as a Laboratory Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
SO 101 Introductory Sociology [IV]	4

*Courses included in the maximum 39 semester hours of transfer nursing courses.

**Transfer Students: Other chemistry courses may be substituted for the Northern Michigan University chemistry course requirement (chemistry: 6 semester credits minimum) at the discretion of the nursing faculty.

The Nursing Department accepts biology courses (anatomy, physiology and microbiology) from other colleges and universities that are at least 3 credit hours. If any course that includes a laboratory component is less than 3 credit hours, the student will take the specific course at NMU or a substitute designated by the department.

RN to Baccalaureate Nursing Degree Program

This degree is designed for students who already hold a Michigan RN license, but who have not completed a baccalaureate program. See admission and retention standards for this program outlined above.

Key: T=Theory, C=Clinic, L=Lab

Total Credits Required for Degree	130
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	62
NE 391 Transitions in Professional Nursing (T)	2
NE 392 Transitions in Professional Nursing (C)	1
NE 201 Introduction to Nursing Concepts (T)*	4
NE 202 Introduction to Nursing Skills I (L)*	1
NE 204 Introduction to Nursing Skills II (C)*	2
NE 212 Pharmacology and Therapeutics (T)*	2
NE 222 Concepts of Altered Health States (T)*	3
NE 301 Psychiatric Mental Health Nursing (T)*	3
NE 302 Psychiatric Mental Health Nursing (C)*	3
NE 311 Adult Health Nursing (T)*	4

Review Testing Package Educational Resources, Inc. (ERI)

Nursing Course	I.D. for Correlating ERI Exam
NE 200	NE 002 Fundamentals
NE 204	No ERI exam
NE 301	NE 003 Mental Health Nursing
	NE 003 Therapeutic Communication
NE 311	NE 004 Adult Health I
	NE 004 Adult Health II (Med-Surg)
NE 371	NE 009 Childbearing
NE 381	NE 005 Pediatric Nursing
NE 420 (RNs are not exempt)	NE 007 Community Health Review
NE 420 (RNs are exempt)	NE 001 RN-CAT
NE 435 (RNs are exempt)	NE 006 Review Course

NURSING-PRACTICAL

PRACTICAL NURSING OFFICE

3515 West Science

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Fax: 906-227-1309

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Department E-mail: LPN@nmu.edu

Department Head: Kerri Schuiling

Coordinator: Kristi Robinia



Practical Nursing at NMU

The School of Nursing is committed to providing a quality education for students seeking a one-year certificate in practical nursing.

The practical nursing program prepares graduates to provide nursing care to patients and their families in hospitals, nursing homes, physician offices, home health care agencies and health clinics. The program of study combines nursing theory lectures with planned patient care learning experiences in hospitals, nursing homes and community health care agencies. Graduates are qualified to take the National Council of Licensure Examination (NCLEX-PN).

Accreditation

Northern's practical nursing program is fully accredited by the Michigan Department of Licensing and Regulation, State Board of Nursing.

Student Organization

- Student Practical Nurses Association

Department/Program Policies

Prospective students must have a high school diploma or GED and a 2.00 high school grade point average. Practical nursing students who place lower than MA 100 Intermediate Algebra and EN 111 College Composition I on the Northern Michigan University math and English placement tests may be required to take remedial courses in these areas before being considered for admission.

If required for their program, students are responsible for their own transportation to the clinical facilities, and must buy uniforms, white shoes, name pin, bandage scissors and a stethoscope. Students must have proof of a tuberculosis test or chest X-ray and rubella screening before beginning the clinical experience; completion of a CPR course or current certification is also required. A Hepatitis B vaccination is recommended.

Students in baccalaureate degree programs may apply up to six credits of cosmetology (COS), practical nursing (PN) and surgical technology (ST) courses combined toward graduation unless otherwise prohibited. Students in associate degree programs may apply three credits of these courses combined toward graduation, and those in certificate programs other than cosmetology, practical nursing and surgical technology may apply two credits of these courses combined toward graduation unless otherwise prohibited.

Admission to the Practical Nursing Clinical Program

Admission to the practical nursing clinical sequence of courses is limited. The admissions committee in the School of Nursing's Practical Nursing Department reserves the right to select students to be admitted. Admission into the clinical nursing sequence is based on the student's cumulative grade point average in the prerequisite courses and admission placement test results. Students who have the highest grade point average in the prerequisite courses and the highest admission test scores will be admitted first until the class is filled.

To be considered for admission into the practical nursing clinical program, students must meet the following qualifications:

1. Meet all NMU admission requirements and be in good standing.
2. Take the Pre-Practical Nursing Assessment test, if required.
3. Have a minimum cumulative grade point average of 2.00 (C) in all the prerequisite college courses required in the program with no grade below "C." In addition, students must have a cumulative NMU GPA of 2.00.
4. Have successfully passed all required prerequisite nursing courses after a maximum of two tries. This includes PN 100, AH 102, PN 103 and NE 212 (if taken prior to admission to the program).

Practical nursing students will be notified of acceptance or rejection during the summer semester.

Retention in the Practical Nursing Sequence

For students to remain in the nursing sequence, they need to meet the following conditions:

1. Maintain a minimum overall grade point average of 2.00 in all nursing courses with no course below a "C" and maintain an overall Northern Michigan University grade point average of 2.00.
2. Adhere to the university's Student Code and Practical Nursing Student Policies.
3. Demonstrate a pattern of safe clinical practice commensurate with his or her educational experience to date.
4. Successfully pass all required nursing courses after a maximum of two tries.

Practical Nursing Readmission Criteria

Practical nursing courses are sequential, and there is limited space in some courses. When a student wishes to be readmitted into the nursing sequence of courses after having a withdrawal or failure in a previously enrolled course, the student must apply for readmission to the department coordinator. Readmission for PN 122/126 Medical-Surgical Nursing I must be received before the start of the fall semester. Readmission requests for PN 132/136 Maternal/Child Nursing must be received by November 20 of the year before requested readmission.

The practical nursing student who is seeking readmission will be required to demonstrate proficiency in a series of nursing procedures that are part of the last successfully completed clinical nursing course.

Students who have failed any nursing courses more than once are ineligible for readmission. These courses include NE 212, PN 114, PN 116, PN 122, PN 126, PN 132, PN 136, PN 142 and PN 146.

CERTIFICATE PROGRAM

Practical Nursing Certificate

Required prerequisite courses may be taken on a full or part time basis.

Total Credits Required for Certificate	49
<hr/>	
Health Promotion	1
HP 200 Physical Well Being	1
<hr/>	
Required Prerequisite Courses	14
BI 104 Human Anatomy and Physiology	4
HN 210 Human Nutrition	4
PN 100 Introduction to Practical Nursing	2
AH 102 Growth and Development	3
PN 103 Basic Pharmacology Skills	1

Upon receiving notice of acceptance into the practical nursing program the following sequence of classes will be followed:

Fall Semester	18
PN 114 Fundamentals of Nursing-Lecture	4
PN 116 Fundamentals of Nursing-Clinical	4
PN 122 Medical-Surgical Nursing I-Lecture	4
PN 126 Medical-Surgical Nursing I-Clinical	4
NE 212 Pharmacology	2
Winter Semester	16
PN 132 Maternal/Child Nursing-Lecture	4
PN 136 Maternal/Child Nursing-Clinical	4
PN 142 Medical-Surgical Nursing II-Lecture	4
PN 146 Medical-Surgical Nursing II-Clinical	4

PHILOSOPHY

DEPARTMENT OFFICE

208 Cohodas Administrative Center

Phone: 906-227-2512

Fax: 906-227-2229

Web Page: www.nmu.edu/philosophy

Department Head: Russell M. Magnaghi •
rmagnagh@nmu.edu



Philosophy at NMU

Philosophy courses are designed to make students aware of major philosophical questions, the alternative answers proposed by philosophers and the ways answers are achieved, and to assist students in developing a view of life. In addition, philosophy courses help students achieve the goals common to all liberal arts studies.

The department offers course work leading to baccalaureate degrees in philosophy and minor programs in philosophy, applied ethics and religious studies.

Student Organization

- Student Philosophy Club

Department/Program Policies

Students are strongly recommended to work closely with their academic advisers in order to create the best possible individual programs in their majors and minors and successfully meet all other requirements for graduation.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Philosophy Major

This major offers useful preparation for any career in which the abilities to comprehend difficult material and to think and write clearly and logically are important. The major serves as an excellent foundation for postgraduate work in law and theology as well as in philosophy itself.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Major	32
PL 200 History of Ancient and Medieval Philosophy** [II]	4
PL 210 History of Modern Philosophy** [II]	4
Philosophy Electives*	24
Minor	20

*16 credit hours of 300-level courses are strongly recommended but not required.

**Recommended but not required.

Note: Students may substitute up to two courses from a different department to meet the major requirement in philosophy as long as they have a heavy philosophical content.

Any substitution must have the written approval of the student's adviser and the head of the department. A copy of the substitution(s) will be sent to the Degree Audits Office by the department.

MINOR PROGRAMS

Applied Ethics Minor

A minor in applied ethics provides students with a strong background in a number of business and medical fields. It is an excellent complement for students majoring in business and nursing, or for students in the pre-medical program.

Total Credit Required for Minor 20

PL 180 Fundamentals of Ethical Theory 4
 PL 310 Social and Political Philosophy 4

Philosophy Elective 4

Choose from the following:

PL 100 Introduction to Philosophy (4 cr.)
 PL 200 History of Ancient and Medieval (4 cr.)
 PL 210 History of Modern Philosophy (4 cr.)
 PL 280 Philosophy of Religion (4 cr.)

Ethics Electives 8

Choose from the following:

PL 181 Issues in Business (2 cr.)
 PL 182 Issues in Computer Ethics (2 cr.)
 PL 183 Issues in the History of Ethics (2 cr.)
 PL 184 Issues in Legal Ethics (2 cr.)
 PL 185 Issues in Medical Ethics (2 cr.)
 PL 186 Topics in Theoretical Ethics (2 cr.)

Note: If needed, the student may include a course from another department that deals with the implementation of theoretical norms for a maximum of four credits. If an elective course from another department is used for the applied ethics minor, it must be chosen in consultation with either Professor David Cooper or Professor James Greene of the Philosophy Department. When approved, the student's adviser will then file the name of the course with the Degree Audits Office.

Philosophy Minor

Total Credits Required for Minor 20

PL 200 History of Ancient and Medieval Philosophy *and/or* 4-8
 PL 210 History of Modern Philosophy* (4 cr.)

PL Electives** 12-16

**Recommended but not required.*

***Eight credit hours of 300-level courses are strongly recommended but not required.*

Religious Studies Minor

A minor in religious studies provides students with a strong background in religion and prepares them for graduate school in theology, religious studies and the seminary. It is an excellent complement to majors in history, sociology and English.

Total Credits Required for Minor 20

PL 280 Philosophy of Religion 4
 LB 121 Western Values: Greeks and Bible *and/or* 4-8
 EN 310 Literature and the Bible* (4 cr.)
 SO 312 Religion and Society 4

Other Approved Electives 4-8

**Recommended but not required.*

Note: A list of courses used in the religious studies minor, beyond those that are required, must be developed in consultation with Professor Donald Dreisbach of the Philosophy Department. When approved, he will then file a copy of the list in the Degree Audits Office.

PHYSICS

DEPARTMENT OFFICE

2515 New Science Facility

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Web Page: physics.nmu.edu

Department Head: David J. Lucas • dlucas@nmu.edu

Physics at NMU

The Physics Department provides courses and training designed for the preparation of physics majors and minors. It also offers courses that provide the background in physics required in other curricula such as engineering, allied health sciences, biology, chemistry and education. Additionally, the department offers courses appropriate for students to meet the liberal studies foundations of natural sciences/mathematics requirement.

The department offers programs leading to a bachelor of science or bachelor of arts degree in physics and secondary education physics, and minor programs in physics and physics education. The department also participates in offering a secondary education general science major. See the "Interdisciplinary and Individually Created Programs" section of this bulletin.

Students seeking careers in engineering, mathematics, chemistry and other physical sciences should take PH 220 and PH 221, which provide a one-year, calculus-based physics sequence with laboratory. Nonphysical science majors and other preprofessional students should plan on taking PH 201 and PH 202. This is a noncalculus-based sequence (including laboratory), which is also suitable for biology majors.

Student Organizations

- Physics Club
- Pre-Medical/Pre-Dental Club
- Student Michigan Education Association

Department/Program Policies

Physics Breakage Fee

Students enrolled in a physics laboratory must pay the cost of replacement for any broken glassware, broken equipment or lost tools in excess of one dollar. Records are maintained in the Physics Department, and students are notified of any amount due after the last laboratory meeting.

Prerequisite Work

Physics courses that indicate prerequisites may be taken only when the prerequisite work has been completed with a grade of "C" or higher.



Grade Point Average Requirements

A grade of "C" or better must be earned in all physics courses that apply to the non-teaching major or minor in physics.

Students majoring in secondary education physics or minoring in physics education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Physics Major

This major prepares students for technical or research positions in government or private industry, teaching or graduate study. Physics courses explain and describe physical interactions by utilizing conservation laws and the concepts of force and energy.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	35
PH 220 Introductory Physics I [III]	5
PH 221 Introductory Physics II [III]	5
PH 322 Modern Physics	4
PH 375 Analytical Mechanics <i>or</i>	3
PH 380 Intermediate Electricity and Magnetism	
PH 480 Senior Physics Seminar	1

Physics Electives 17
PH 370, PH 375, PH 380, PH 393, and PH 410 are strongly recommended.

Other Required Courses 10
 CH 111 General Chemistry I [III] 5
 CH 112 General Chemistry II [III] 5

Minor 21

Mathematics minor recommended as follows:

MA 161 Calculus I (5 cr.) [III]
 MA 163 Calculus II (4 cr.) [III]
 MA 211 Introduction to Matrix Theory and Linear Algebra (3 cr.)
 MA 265 Calculus III (3 cr.)
 MA 361 Differential Equations (3 cr.)
 Mathematics Elective (3 cr.)

Secondary Education Physics Major

Completion of the physics courses, a teaching minor and the professional education sequence leads to certification as a secondary teacher of physics. Advising for this major is provided by Carolyn J. Lowe in the School of Education.

Total Credits Required for Degree 150-152

Liberal Studies 30-40
Health Promotion 2

Required Courses in Major 32
 PH 220 Introductory Physics I [III] 5
 PH 221 Introductory Physics II [III] 5
 PH 322 Modern Physics 4

Physics Electives 18

Teaching Minor, minimum 23-25
Mathematics education or chemistry education recommended. If mathematics is not selected, appropriate mathematics courses must be taken as prerequisites for the required physics courses.

Other Required Courses 26
Choose from the following: 8
 AS 103 Observational and Solar System Astronomy (4 cr.) [III] *or*
 GC 255 Physical Geology (4 cr.) [III] *or*
 GC 385 Weather and Climate (4 cr.)
 BI 111 Introductory Biology: Principles [III] 4
 BI 112 Introductory Biology: Diversity [III] 4
 CH 111 General Chemistry I [III] 5
 CH 112 General Chemistry II [III] 5

Professional Education 37
 ED 201 Introduction to Education 2
 ED 231 Teaching and Learning in the Secondary Classroom 4
 ED 301 Dimensions of American Education 2
 ED 319 Teaching of Reading for Secondary Teachers 3
 MSED 340 Fundamental Concepts of Science 4
 ED 349 Teaching for Diversity, Equity and Social Justice
 in the Secondary School Community 2
 MSED 350 Methods and Materials in Teaching Science Education 4
 ED 361 Special Education and the General Classroom Teacher 2
 ED 483 Educational Media and Technology 2
 ED 430 Teaching in the Secondary School 11
 ED 450 Seminar in Teaching 1

MINOR PROGRAMS

Physics Minor

Total Credits Required for Minor 20

PH 220 Introductory Physics I 5
 PH 221 Introductory Physics II 5
 PH 322 Modern Physics 4
 PH 375 Analytical Mechanics *or* 3
 PH 380 Intermediate Electricity and Magnetism
 Physics Elective 3

Physics Education Minor

Total Credits Required for Minor 20-28

PH 220 Introductory Physics I 5
 PH 221 Introductory Physics II 5
 PH 322 Modern Physics 4
 PH 375 Analytical Mechanics *or* 3
 PH 380 Intermediate Electricity and Magnetism
 Physics Elective 3
 MSED 340 Fundamental Concepts of Science* 4
 MSED 350 Methods and Materials in Teaching* 4

**Not needed if major is biology education, chemistry education, earth science education or integrated science education.*

POLITICAL SCIENCE AND PUBLIC ADMINISTRATION

DEPARTMENT OFFICE

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Political Science and Public Administration at NMU

The Political Science and Public Administration Department has three major objectives. First, the department provides students with a traditional liberal arts education. The department's offerings in the university-wide liberal studies program create an awareness and understanding of national and international political processes. Second, the department's professional and preprofessional programs in political science, law, public administration and education facilitate the development of talented and ethical leaders and educators. Third, the department's faculty and students study and assist in the resolution of political and administrative problems in the local community, the Upper Peninsula region and the state.

The department offers majors in political science, public administration and political science/pre-law. Students interested in secondary teaching must apply for admittance to and pursue the professional education emphasis along with a political science major or minor. A political science minor and a public administration minor are available and can be arranged to complement a variety of majors. Interdisciplinary majors in social science and secondary education social studies are offered by the department, along with support courses in the international studies major. See the "Interdisciplinary Programs" and "International Studies" sections of this bulletin.

Internships in public administration and law are secured for qualified juniors and seniors. Internships are available at the local, state and national level. Competitive scholarships for student interns in the nation's capital are provided through NMU's Washington Center Internship Program.

Student Organizations

- College Republicans
- Young Democrats
- Model United Nations Club
- Political Science Film Forum



- Political Science Symposium
- Student Law Forum
- Student Michigan Education Association

Pre-law Advising

Pre-law students enroll in courses, work as legal interns and participate in mock trial competition and other law-related extracurricular activities. All students planning to attend law school should contact the Political Science and Public Administration Department for referral to one of our well-qualified pre-law advisers. A specific political science/pre-law major is available to students, but law schools will accept students with other majors, and our pre-law advisers will work with all students in selecting appropriate course work that prepares them for law school, in fulfilling other prerequisites for law school admission, and on making application to law schools.

Department/Program Policies

Students majoring in political science/pre-law must maintain a grade point average of 2.70 or greater with no grade below a "C" in courses for the major. Students with majors or minors in political science or public administration must not have any grade below a "C" in courses for the major or minor.

Students majoring in secondary education political science or minoring in political science secondary education must maintain a grade point average of 2.70 or greater with no grade below a "C" in the professional education sequence, the major and/or minors and required cognates combined.

Course Subject to Waiver

When courses within a major or minor are listed as subject to waiver, and the adviser has approved the waiver, the political science elective credit hours required in that block is increased by four.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Political Science Major

This major trains students in government, public policy and political theory, communication and analysis, independent thinking, and problem definition and solving.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	38
Politics Core	14
PS 101 Introduction to Political Science <i>or</i> PS 105 American Government	4
PS 203 Comparative Government and Politics <i>or</i> PS 206 International Relations	4
PS 207 History of Political Theory <i>or</i> PS 411 American Political Thought	4
PS 490 Senior Seminar	2
Political Science Electives (16 hours must be taken at the 300 level and above)	24
Minor	20

Political Science/Pre-Law Major

This major prepares students for law schools and legal careers. It emphasizes basic understanding in political science but also includes courses that focus on the law and judicial process.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	38
Politics Core	14
PS 101 Introduction to Political Science <i>or</i> PS 105 American Government	4
PS 203 Comparative Government and Politics <i>or</i> PS 206 International Relations	4
PS 207 History of Political Theory <i>or</i> PS 411 American Political Thought	4
PS 490 Senior Seminar	2

Other required courses	12
PS 215 Introduction to Law	4
PS 331 Judicial Process	4
PS 332 Administrative Law <i>or</i> PS 430 Constitutional Law	4
Political Science Electives	12
<i>Choose from the following:</i>	
PS 297 Mock Trial (2 cr.)	
PS 307 Public Administration (4 cr.)	
PS 309 State and Local Government (4 cr.)	
PS 332 Administrative Law (4 cr.) <i>or</i> PS 430 Constitutional Law (4 cr.)	
PS 411 American Political Thought (4 cr.)	
PS 491 Internship (2-8 cr.)	
PS 495 Special Problems in Political Science (1-4 cr.)	
PS 498 Directed Study (1-4 cr.)	

Minor 20

Public Administration Major

This major prepares students for careers in management in the public sector. Students analyze and discuss operations of all forms and levels of government and learn the basic principles of government, political philosophy, statistical analysis and computer literacy.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	38
Political Science Core	22
Politics Core	14
PS 101 Introduction to Political Science <i>or</i> PS 105 American Government	4
PS 203 Comparative Government and Politics <i>or</i> PS 206 International Relations	4
PS 207 History of Political Theory <i>or</i> PS 411 American Political Thought	4
PS 490 Senior Seminar	2
Other required courses	12
PS 201 Methods of Public Policy Analysis	4
PS 301 Seminar in Public Policy Analysis	4
PS 307 Principles of Public Administration	4
Political Science Electives	12
<i>Choose from the following (8 credits must be at the 300-400 level)</i>	
PS 295 Special Topics in Political Science (1-4 cr.)	
PS 298 Directed Study (1-4 cr.)	
PS 309 State and Local Government (4 cr.)	
PS 332 Administrative Law (4 cr.)	
PS 341 Social Welfare Policy Making (4 cr.)	
PS 402 Political Economy (4 cr.)	
PS 491 Internship (2-8 cr.)	
PS 495 Special Problems in Political Science (1-4 cr.)	
PS 498 Directed Study (1-4 cr.)	
Minor	20

Secondary Education Political Science Major

Completion of the required courses in this major, a teaching minor and the professional education sequence lead to certification as a secondary teacher of political science.

Total Credits Required for Degree	127-131
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	32
Political Science Core	28
PS 101 Introduction to Political Science [IV]	4
PS 105 American Government [IV]	4
PS 203 Comparative Government	4
PS 206 International Relations	4
PS 309 State and Local Government	4
PS 430 American Constitutional Law and Politics	4
PS 303 Public Opinion and Voting Behavior <i>or</i> PS 406 Legislative Politics	4
Political Science Electives	4
Teaching Minor, minimum	20-24
Professional Education	33
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
PS 350 Methods and Materials in Teaching Social Studies Education	4
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media and Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1

Political Science Education Minor

Total Credits Required for Minor	20-24
PS 101 Introduction to Political Science*	4
PS 105 American Government	4
PS 203 Comparative Government	4
PS 206 International Relations	4
PS 309 State and Local Government	4
PS 350 Methods and Materials in Teaching Social Studies Education**	4

**Subject to waiver with adviser's approval.*

***Not required if major is economics education, geography education, history education or social studies education.*

Public Administration Minor

Total Credits Required for Minor	20
PS 105 American Government	4
Political Science Electives	16
<i>Choose from the following:</i>	
PS 201 Methods of Public Policy Analysis (4 cr.)	
PS 301 Seminar in Public Policy Analysis (4 cr.)	
PS 307 Principles of Public Administration (4 cr.)	
PS 309 State and Local Government (4 cr.)	
PS 332 Administrative Law (4 cr.)	
PS 402 Political Economy (4 cr.)	

MINOR PROGRAMS

Political Science Minor

Total Credits Required for Minor	20
PS 101 Introduction to Political Science*	4
PS 105 American Government	4
PS 203 Comparative Government	4
Political Science Electives (any level)	8

**Subject to waiver with adviser's approval.*

PSYCHOLOGY

DEPARTMENT OFFICE

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Psychology at NMU

The Psychology Department promotes the discovery, communication and application of the scientific principles of psychology within the university and the community. The department offers courses and programs suitable for majors and minors interested in psychology, and students majoring in other areas needing or desiring psychological cognates and electives. Courses emphasize the research methodology and data of both human and lower animal behavior as well as its theoretical and applied implications. Students are encouraged to participate in the rigorous search for the how and why of behavior and the identification and potential resolution of significant problems.

The major programs in psychology can lead either to a bachelor of arts or bachelor of science degree. Students desiring a major in psychology choose one of four areas of emphasis: general psychology, graduate school preparation, behavior analysis, or early childhood. The department also offers minor programs in psychology and child care services.

Student Organizations

- Student Psychological Association
- Michigan Association for the Education of Young Children
- Psi Chi Honor Society

Department Facilities

The department maintains human and animal experimental laboratories, student research rooms, laboratory classrooms, computer labs, a small library for majors, and student study areas. Head Start facilities on campus and in the area, as well as private for-profit and non-profit child care facilities, provide laboratory experiences for applied child development and early childhood.

Department/Program Policies

To apply to the general psychology, psychology/ graduate school preparation and psychology/behavior analysis majors, all psychology courses, both transfer and NMU, must be completed with a grade of "C-" or higher. Courses comprising the psychology minor and the human services minor also must be completed with a grade of "C-" or higher.

Students enrolled in the early childhood major, the applied child development associate degree and the child care services minor must earn a minimum of 2.00 ("C") in each of the major/minor courses. Additionally, these programs require a 2.50 grade point average in the major/minor. Advanced placement score of four or higher on the AP-CEEB examination is accepted as credit for PY 100G.

All psychology majors are encouraged to become functional users of mathematics and computers and to sample natural sciences outside of psychology.

Talented freshmen and sophomores may petition the department to take advanced courses at or above the 300 level.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

General Psychology Major

This major can serve as a focal point in a general liberal arts education with an emphasis on psychology or as a second major to support a primary major in another field.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	40
PY 100S, L, or H, Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4
PY 203 Behavior Analysis <i>or</i> PY 211 Learning	4
PY 205 Research Methods in Psychology	4
PY 241 Child Psychology <i>or</i> PY 311 Thinking and Cognition	4
PY 302 Aggression <i>or</i> PY 335 Social Psychology	4
PY 303 Human Neuropsychology	4
PY 351 Psychology of Personality <i>or</i> PY 355 Abnormal Psychology	4
PY 441 Individual Differences	4
Psychology Electives	4
Psychology Electives (300 level or above)	4
Minor	20

Psychology/Graduate School Preparation Major

Graduate school preparation is designed for students who wish to enter advanced degree programs in psychology with the goal of university teaching or research, or becoming involved in human services delivery as clinical or counseling psychologists.

Total Credits Required for Degree	124
Liberal Studies	30-40
<i>Mathematics competence is required. Students must satisfy this requirement either by completing high school calculus, MA 103, MA 104 or MA 105 or equivalent with a grade of "C-" or higher.</i>	
Health Promotion	2
Required Courses in Major	44
PY 100S, L, H, Psychology as a Natural Science [III] or PY 100G Psychology as a Social Science [IV]	4
PY 205 Introduction to Research Methods in Psychology	4
<i>Choose from the following:</i>	20
PY 204 Physiological Psychology (4 cr.)	
PY 211 Learning (4 cr.)	
PY 335 Social Psychology (4 cr.)	
PY 311 Thinking and Cognition (4 cr.)	
PY 241 Child Psychology (4 cr.)	
PY 351 Psychology of Personality (4 cr.)	
 PY 305 Psychological Statistics	4
<i>MA 171 may be taken to meet this requirement, but will not be counted as PY credit hours.</i>	
PY 400 History and Systems	4
 <i>Choose from the following:</i>	8
PY 404 Advanced Physiological Psychology (4 cr.)	
PY 411 Learning Processes (4 cr.)	
PY 435 Advanced Social Psychology (4 cr.)	
Minor	20

Psychology/Behavior Analysis Major

This major is for students who wish either to enter graduate school in behavioral psychology or to improve the probability of gaining employment in areas related to psychologically oriented human services: e.g., as a classroom consultant or a program director in a group home for delinquent adolescents, halfway home for persons with mental illnesses or home for persons who are developmentally disabled. This option particularly stresses applied behavior analysis and behavioral assessment. This major requires two semesters of community placement, which requires instructor and departmental permission and is heavily supervised.

Total Credits Required for Degree	130
Liberal Studies	30-40
Health Promotion	2

Required Courses in Major	44
PY 100S, L, or H Psychology as a Natural Science [III] or PY 100G Psychology as a Social Science [IV]	4
PY 203 Applied Behavior Analysis	4
PY 204 Physiological Psychology [III] or PY 211 Learning	4
PY 241 Child Psychology	4
PY 305 Psychological Statistics [V]	4
<i>MA 171 may be taken to meet this requirement, but will not be counted as PY credit hours.</i>	
PY 320 Psychological Measurement	4
PY 355 Abnormal Psychology	4
PY 403 Behavior Assessment and Evaluation	4
PY 302 Causes and Control of Aggression or PY 436 The Psychology of Organizational Behavior or PY 455 Psychopathology or PY 458 Introduction to Small Group Processes	4
PY 492A Practicum	1-4
PY 492B Advanced Practicum	1-4
Other Required Course*	4
CIS 110 Principles of Computer Information Systems [V] or CS 120 Computer Science I [V]	4

Human Services Group Minor	24
<i>*Computer competence is required. Students satisfy this requirement by completing these courses or equivalent with a grade of "C-" or higher. The requirement can be waived by demonstrating equal levels of competence to the Psychology Department. Adviser must submit waiver in writing to the Degree Audits Office.</i>	

Early Childhood Major

This program prepares students to become child care professionals who understand and meet the needs of children from birth to eight years of age. It also trains students to network with families of young children in a variety of settings. The curriculum combines the study of child psychology with preparation for a career in a variety of early childhood settings. The program has field experiences and a series of supportive courses specializing in developing observational/assessment techniques, child guidance strategies and active learning teaching procedures.

Total Credits Required for Degree	125
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major*	58-59
PY 102 Individual and Family Relationships or SO 232 Marriage and the Family	3-4
PY 156 Developmental Child-Related Services	2
PY 170 Educating the Young Child	2
PY 241 Child Psychology**	4
PY 245 Infant/Toddler Development**	4
PY 247 Infant/Toddler Programming	2
PY 270 Activity Planning I: The Creative Arts	2
PY 272 Activity Planning II: The Sciences	2
PY 285 Developmentally Appropriate Program/ Practice (DAPP)**	4

PY 290 DAPP Field Experience**	4
PY 345 Psychology of Exceptional Children	4
PY 350 Observation/Assessment of Children	2
PY 352 Child Guidance Techniques	4
PY 358 Meaning and Development of Play	4
PY 460 Administration of Preschool Programs	2
PY 491 Practicum/Seminar	4
ED 306 Children's Literature	3
HL 242 Emergency Health Care	2
HM 100 Food Selection and Preparation <i>or</i> HN 210 Nutrition for Humans	4
Other Required Course	4
PY 100S, L or H Psychology as a Natural Science [III] <i>or</i> PY 100G Psychology as a Social Science [IV]	4

Minor 20-24

*2.00 "C" GPA required in each course in the major.

**Departmental advanced placement credit is available for these courses for students who hold the appropriate Child Development Associate (CDA) credential(s). Students need to demonstrate successful completion of the training programs and be enrolled at Northern Michigan University.

ASSOCIATE DEGREE PROGRAM

Applied Child Development *Associate of Applied Science*

This program is designed to establish a foundation of knowledge for the child care provider. Students have a variety of opportunities to examine the elements found in quality child care through class observations and a field experience. Incorporated in this program are significant aspects of the nationally recognized child development associate (CDA) curriculum. These courses "ladder" into the four-year early childhood program.

Total Credits Required for Degree	63
Liberal Studies	16
PY 100S, L or H Psychology as a Natural Science*	4
EN 111 College Composition I	4
Humanities Elective	4
Social Science Elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Required Courses in Major**	35
HM 100 Food Selection and Preparation <i>or</i> HN 210 Human Nutrition	4
PY 102 Individual and Family Relationships	3
PY 156 Developmental Child-Related Services	2
PY 170 Educating the Young Child	2
PY 241 Child Psychology***	4
HL 242 Emergency Health Care	2
PY 245 Infant and Toddler Development***	4
PY 247 Infant/Toddler Programming	2
PY 270 Activity Planning I: The Creative Arts	2
PY 272 Activity Planning II: The Sciences	2
PY 285 Developmentally Appropriate	4

Programs/Practices (DAPP)***	
PY 290 DAPP Field Experience***	4
General Electives	11
<i>*Students who have transfer credit for PY 100G Psychology as a Social Science must select another natural science elective, not PY 100 S, L, or H.</i>	
<i>**2.00 "C" minimum grade is required in each course.</i>	
<i>***Departmental advanced placement credit is available for these courses for students who hold the appropriate CDA credential(s). Students need to demonstrate successful completion of the training programs and be enrolled at Northern Michigan University.</i>	

MINOR PROGRAMS

Child Care Services Minor

Total Credits Required for Minor	20
PY 170 Educating the Young Child	2
PY 241 Child Psychology	4
HL 242 Emergency Health Care	2
PY 270 Activity Planning I: The Creative Arts	2
PY 272 Activity Planning II: The Sciences	2
PY 352 Child Guidance Techniques	4
PY 358 Meaning and Development of Play	4

Human Services Minor

Psychology/Behavior Analysis majors only.

Total Credits Required for Minor	24
<i>Psychology/behavior analysis majors must have a department approved group minor. The minor must be taken from one human service area or combined among several (e.g., criminal justice, social work, education, recreation, or communication disorders). A list of group minor courses must be submitted to the Degree Audits Office before the second semester of the student's junior year.</i>	

Psychology Minor

Total Credits Required for Minor	20
PY 100S, L, or H Psychology as a Natural Science <i>or</i> PY 100G Psychology as a Social Science	4
PY 204 Physiological Psychology <i>or</i> PY 211 Learning	4
Psychology Electives (300 level and above)	8
Psychology Elective	4

SOCIOLOGY AND SOCIAL WORK

DEPARTMENT OFFICE

130 Walter F. Gries Hall

Phone: 906-227-2706

Fax: 906-227-1212

Web Page: www.nmu.edu/departments/sociology

Department Head: Ira W. Hutchison • ihutchis@nmu.edu

Social Work Program Director: Billy P. Blodgett •
bblodget@nmu.edu



Sociology and Social Work at NMU

The Sociology and Social Work Department offers major programs in sociology, sociology in liberal arts and social work. The department offers minor programs in sociology, social welfare and research analysis. The department also participates in an interdisciplinary social science major and the interdisciplinary minors in gerontology and international studies. (See the "Interdisciplinary and Individually Created Programs" and "International Studies" sections of this bulletin.)

The sociology program at Northern increases the understanding of human social behavior. The program emphasizes both theory and methodology, particularly as these may be brought to bear on the study of human interaction, social institutions, or analysis of contemporary social problems. Students have the opportunity to investigate a variety of areas such as crime and deviance, family, minority groups, religion and social change.

The mission of the social work program is to prepare students for entry into beginning social work practice with individuals, families, groups, organizations, and communities. Students completing the social work program are uniquely prepared for generalist practice in the region of the Upper Peninsula of Michigan, and have developed a generalist practice base to continue their professional development through graduate study.

Northern's bachelor of social work program is fully accredited by the Council on Social Work Education (CSWE).

The BSW program has seven primary goals: (1) every BSW graduate shall be prepared for beginning generalist practice. All BSW students will be versed in content about practice with client systems of various sizes and types; (2) students shall be prepared to practice with diverse populations; (3) the program shall provide content about the contexts of social work practice, the changing nature of these contexts, the behavior of organizations and the dynamics of change; (4) the values and ethics that guide professional social work practice shall be infused throughout the curriculum and made evident in the operation of the social work program; (5) students shall be educated with an

awareness of their responsibility to continue their professional growth and development; (6) the program shall provide educational opportunities that reflect regional needs related to substance abuse and gerontology; and (7) the program shall promote an understanding of and application for a knowledge base in social welfare for students in other human service fields.

Student Organization

- Student Social Work/Sociology Organization

Department Facilities and Resources

The sociology and anthropology faculty have expertise in a range of areas within said fields. A full complement of library resources and audiovisual materials is available to students. The department also has microcomputer hardware and software enabling faculty and students to conduct complex applied research projects involving sophisticated data analysis and statistical procedures.

Social work program faculty members are fully qualified professionals with both practice and teaching experience. A wide range of community social work agencies cooperate with the program by serving as field instruction settings.

Department/Program Policies

Sociology

Students must earn at least a C- in any sociology course counted toward the sociology major, the sociology in liberal arts major, or the sociology concentration of the social science major, and achieve at least a 2.50 grade point average in all sociology courses (NMU and transfer) counted toward any of these three majors.

Social Work Transfer Credit

Transfer credit for practice method and field placement courses at the 300 level and above will be granted only for course work completed at other Council on Social Work Education (CSWE) accredited schools. As stipulated by the Council on Social Work Education, our program does not grant social work course credit for life experience or previous work experience.

Social Work Admission Requirements

The social work curriculum culminates in a BSW degree with an inherent “Human Behavior Cluster Minor.” Courses contained in the cluster minor are as follows: SO 101, PY 100, EC 101, BI 104, SO 208 (or other statistic course), SO 282, and PS 215. The first five courses may double-count as liberal studies requirements. All courses in the human behavior cluster must be completed or be in the process of being completed at time of admission into the social work program. A student must have a 2.50 grade point average in the cluster minor.

The social work curriculum contains three “lower-division” courses (SW 100, SW 230, and SW 240) that also must be completed (or be in the process of) prior to being admitted into the practice methods courses. A student must have a 2.50 grade point average in these courses and must maintain this minimum GPA for all social work courses (SW prefix).

Although a student may enroll in a few social work courses (SW 308, SW 331, SW 341) prior to applying for the upper division practice methods courses, the sequencing of courses becomes paramount. Practice methods courses (SW 370 and SW 372) are only offered in the winter semester prior to a student’s senior year. Consequently, application into these two courses only occurs in the fall semester (Oct. 1). Admission is restricted to qualified applicants and limited by faculty and field placement resources. Application forms will be provided through the social work program and may also be downloaded from the program’s Web site at www.nmu.edu/departments/sociology. A minimum grade of “C” must be earned in both practice methods courses. After the completion of these courses, students then enter the senior social work curriculum, where courses are scheduled into a one-day block, allowing ample time to complete the necessary field practicum requirements.

Retention Policy

Students in the bachelor of social work degree program must meet a set criteria for continuous retention in the program. Students must maintain a 2.50 grade point average in all course work applicable to the social work curricula, defined as all courses in the major, required minor(s) and other required courses. Students must provide evidence of compliance with the National Association of Social Workers (NASW) Code of Ethics and show progress toward possession of personal characteristics and competencies that personify the professional social worker.

Field Instruction

While completing the practice methods courses during the winter semester, students will also be required to submit their application for field placement (March 1). Necessary forms may be downloaded from the Social Work Web site at www.nmu.edu/departments/sociology. They may also be obtained from the social work

field coordinator. Students must complete a minimum of 400 clock hours of field instruction in their senior year (SW 480 in the fall and SW 481 in the winter). Schedules should be planned to allow for approximately 16 hours per week at the field site each semester. Students are expected to complete two consecutive semesters of senior field placement and will be admitted to placement in the fall term only.

Program Completion

Students must complete all course work comprising the social work curriculum as defined above with a minimum 2.50 grade point average, show evidence of compliance with the NASW Code of Ethics, be recommended by the BSW faculty and meet all other requirements established by the university for graduation.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the “Liberal Studies Program and Graduation Requirements” section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Sociology Major

This major is for students interested in careers that require an understanding of human social behavior. The program emphasizes both theory and methodology, and the major offers an opportunity to investigate a variety of areas such as crime and deviance, family, minority groups, religion and social change. The major is valuable in a variety of fields, including business, community work, corrections, government services, health services, public relations, research and social services. In addition, students who hold this degree are also well prepared for graduate study.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	40
<i>Minimum of 24 credit hours must be at the 300 level or above.</i>	
SO 101 Introductory Sociology [IV]	4
SO 208 Methods of Social Research I [V]	4
SO 308 Methods of Social Research II	4
SO 407 Sociological Theory	4
SO 408 Survey Research Design and Analysis	4

SO 322 Social Class, Power and Mobility [IV] <i>or</i>	4
SO 351 Social Change [IV] <i>or</i>	
SO 355 Introduction to Social Psychology [IV]	4
SO 312 Religion and Society <i>or</i>	
SO 232 Marriage and the Family [IV] <i>or</i>	
SO 382 Health, Society and Culture <i>or</i>	
SO 412 Sociology of Education <i>or</i>	
SO 432 Seminar in Changing American Family	

Sociology Electives **12**

Minor **20**

Sociology in Liberal Arts Major

This major is designed for students who wish to get a liberal education but with significant content on sociological perspectives relating to social structure, social institutions and social inequality.

Total Credits Required for Degree **124**

Liberal Studies **30-40**

Health Promotion **2**

Required Courses in Major **32**

Minimum of 20 credit hours must be at the 300 level or above.

SO 101 Introductory Sociology [IV] 4

SO 263 Criminology *or* 4

SO 343 Sociology of Deviant Behavior *or*

SO 473 Juvenile Delinquency

SO 312 Religion and Society *or* 4

SO 232 Marriage and the Family [IV] *or*

SO 382 Health, Society and Culture *or*

SO 412 Sociology of Education *or*

SO 432 Seminar in Changing American Family

SO 351 Social Change [IV] *or* 4

SO 355 Social Psychology [IV] *or*

SO 407 Sociological Theory

SO 362 Women, Men and Social Inequality *or* 4

SO 322 Social Class, Power and Mobility [IV] *or*

SO 372 Minority Groups [IV]

Sociology Electives **12**

Minor **20**

Social Work Major

Majors receive the bachelor of social work degree, which is recognized as the entry level credential for social work practice. Graduates are prepared as generalists for careers in mental health, health care, the court system, substance abuse and spouse abuse programs, among others.

Student interested in this major should refer to the program's admission and professional standards, retention policy and field instruction guidelines outlined above.

Total Credits Required for Degree **124**

Liberal Studies **30-40**

Health Promotion **2**

Required Courses in Major **50**

SW 100 Exploring Social Work 4

SW 230 Human Behavior and Social Environment I 4

SW 240 Social Welfare: Historical Perspectives 2

SW 308 Research Methods II 4

SW 331 Human Behavior and Social Environment II 4

SW 341 Social Welfare Policy Analysis 4

SW 370 Generalist Practice Methods I 4

SW 372 Generalist Practice Methods II 4

SW 440 Social Work and Social Policy 2

SW 461 Practice Evaluation I 2

SW 462 Practice Evaluation II 2

SW 472 Social Work and Diverse Populations 2

SW 473 Integrative Seminar I 2

SW 474 Integrative Seminar II 2

SW 480 Field Instruction I 4

SW 481 Field Instruction II 4

Human Behavior Cluster Minor* **28**

SO 101 Introductory Sociology [IV] 4

BI 104 Human Biology [III] 4

PY 100L, S, or H Psychology as a Natural Science [III] *or* 4

PY 100G Psychology as a Social Science [IV]

SO 372 Minority Groups [IV] 4

SO 208 Research Methods I [V] *or* 4

MA 171 Introduction to Probability and Statistics [V] *or*

PY 305 Psychological Statistics [V])

EC 101 American Economy [IV] *or* 4

EC 337 American Economic History [IV]

PS 215 Introduction to Law 4

**Transfer courses must be at least two-credit equivalents for each course; electives from any discipline in the cluster may be used to satisfy the 28 credit hour minimum.*

MINOR PROGRAMS

Gerontology Minor

This minor introduces students to the aging process, concerns of older adults and the service delivery system. Students interested in this minor should declare it by the second semester of their junior year, have a plan of study approved by the gerontology program coordinator, and have it forwarded to the Degree Audits Office. For additional information about this minor, contact Patricia Cianciolo at pciancio@nmu.edu.

Total Credits Required for Minor 22

Gerontology Core 5-8

GRN 101 Introduction to Gerontology (4 cr.)
 GRN 490 Gerontology Field Placement* (1-4 cr.)
 GRN 001 Gerontology Internship Completion (0 cr.)

Program Electives 10

Choose from the following:

BI 225 Physiology of Aging (3 cr.) *or*
 HL 211 Health Aspects of Aging (3 cr.)
 SL 460 Aging and Cognition (3 cr.)
 SO 201 Sociology of Aging (4 cr.)
 SW 405 Aging Public Policies and Programs (4 cr.)

Electives 4-7

Choose from the following:

HL 213 Death Education (2 cr.)
 PL 185 Issues in Medical Ethics (2 cr.)
 PY 353 Aging in the Family (4 cr.)
 PY 344 Lifespan Developmental Psychology (4 cr.)
 SO 382 Health, Society and Culture (4 cr.)

**Students in the gerontology minor must take at least 3 hours of field placement involving older adults. One of those hours must be GRN 490. The remaining 2 or more hours may come from a student's major or second minor. One field placement credit hour is equivalent to 50 clock hours, averaging between 3-4 hours in the field setting per week; four field placement credit hours is equivalent to 200 clock hours, averaging between 13-14 hours in the field setting per week.*

Research Analyst Minor

This minor is designed for students in a wide variety of majors who wish to develop significant skills in research, data analysis, interviewing, report presentation and report writing.

Total Credits Required for Minor 20

CIS 110 Principles of Computer Information Systems 4
 SO 208 Methods of Social Research I 4
 SO 308 Methods of Social Research II 4
 SO 408 Survey Research Design and Analysis 4
 SO 491 Internship in Applied Sociology 4

Sociology Minor

Total Credits Required for Minor 20

SO 101 Introductory Sociology 4

Sociology Electives 16

Eight credits must be at the 300 level or above.

Social Welfare Minor

This minor focuses on the institution of social welfare and the service delivery system. It is especially appropriate for students pursuing degrees in other human service curricula.

Note: Field instruction courses and 300-400 level practice method courses may not be included in the social welfare minor.

Total Credits Required for Minor 20

SW 100 Exploring Social Work 4

Program Electives 4-8

Choose from the following:

SW 230 Human Behavior and Social Environment I (4 cr.)
 SW 240 Social Welfare: Historical Perspectives (2 cr.)
 SW 331 Human Behavior and Social Environment II (4 cr.)
 SW 341 Social Welfare Policy Making (4 cr.)
 SW 440 Social Work Policy Analysis (2 cr.)

Program Electives 8-12

Choose from the following:

SW 401 Child Welfare (4 cr.)
 SW 405 Aging Public Policies and Programs (4 cr.)
 SW 411 Social Work in Health Fields (4 cr.)
 SW 412 Domestic Violence (4 cr.)
 SW 415 Addictions, Diagnosis, Treatment and Prevention (4 cr.)
 SW 416 Substance Abuse Counseling (4 cr.)
 SW 417 Social Work in Mental Health (4 cr.)
 SW 421 Family Intervention in Social Work Practice (4 cr.)
 SW 495 Special Topics in Social Work (1-4 cr.)
 SW 498 Directed Study in Social Work (1-4 cr.)

SPEECH, LANGUAGE AND HEARING SCIENCES

DEPARTMENT OFFICE

1513 West Science

Phone: 906-227-2125

Fax: 906-227-2178

Web Page: www.nmu.edu/comm_dis/comdis.htm

Department Head: To be named

Speech, Language and Hearing Sciences at NMU

The Speech, Language and Hearing Sciences Department offers an undergraduate program that emphasizes human communication processes in a multicultural society. Baccalaureate graduates are able to compete and experience success in their chosen careers, professions or graduate studies. The department encourages its majors to be active participants in their classes, in faculty research and other faculty professional development activities.

Professional/Graduate School Preparation

Courses in speech, language and hearing sciences are designed for students who wish to enter a graduate program in speech-language pathology and/or audiology. Preprofessional courses meet the requirements for the Council for Academic Accreditation of the American Speech-Language-and-Hearing Association.

Department Facilities

The department maintains laboratory classrooms, human experimental research laboratories, and a student study area. The Speech, Language and Hearing Clinic on the NMU campus serves the cognitive/communication needs of children and adults from Marquette and the surrounding area. The clinic also provides preprofessional clinical practice experience to students enrolled in the speech, language and hearing sciences major.

Department/Program Policies

In order to be successful in the speech, language and hearing sciences major, students should earn a letter grade of "B" or higher in the English composition courses (EN 111 and EN 211). The department requires a 2.0 grade point average in the major. However, it should be noted that most graduate programs require a minimum of an overall 3.00 grade point average. Therefore, all students are assigned a faculty adviser who will carefully monitor their progress throughout the program.

BACHELOR DEGREE PROGRAM

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Speech, Language and Hearing Sciences Major

This program provides the necessary preparation for graduate programs accredited by the Council for Academic Accreditation of the American Speech-Language-and-Hearing Association.

Total Credits Required for Degree	124
Liberal Studies	30-40
Health Promotion	2
Required Courses in Major	52
SL 150 Introduction to Speech, Language and Hearing	4
SL 160 Anatomy of the Speech and Hearing Mechanism	4
SL 200 Phonetics	4
SL 220 Speech and Voice Science	4
SL 351 Introduction to Audiology	4
SL 355 Language Development	4
SL 356 Language Disorders	4
SL 357 Fluency Disorders	4
SL 359 Introduction to Neuogenic Disorders	4
SL 400 Phonological Disorders	4
SL 459 Cognitive Neuroscience	4
SL 460 Cognition and Aging	4
SL 464 Methods of Diagnosis	4
Other Required Courses	15
BI 104 Human Anatomy and Physiology [III] <i>or</i>	4
BI 111 Introductory Biology: Principles [III]	
PH 101 Eureka: Einstein, the Universe and Everything [III] <i>or</i>	3
PH 102 Physics of Sound and Music [III]	
PY 100 S, L [III], H or G [IV] Psychology	4
PY 305 Psychological Statistics [V] <i>or</i>	4
MA 171 Introduction to Probability and Statistics [V]	
Minor	20

MINOR PROGRAM

Speech, Language and Hearing Sciences Minor

Total Credits Required for Minor	24
SL 150 Introduction to Speech, Language and Hearing	4
SL 200 Phonetics	4
SL 220 Speech and Voice Science	4
SL 351 Audiology	4
CD 355 Language Development	4
SL 356 Language Disorders	4

TECHNOLOGY AND OCCUPATIONAL SCIENCES

PROGRAM OFFICE

School of Technology and Applied Sciences

101 D. J. Jacobetti Center

Phone: 906-227-2067

Fax: 906-227-1549

Web Page: www.nmu.edu/technology

Department Head: To be named

Technology and Occupational Sciences at NMU

The School of Technology and Occupational Sciences offers a variety of one-, two- and four-year programs. The one- and two-year programs provide students with the knowledge and training necessary to assume skilled or technician-level positions in a variety of service or technical areas. These technical areas include automotive, aviation, collision repair, construction, cosmetology, electrical line technician, heating-air conditioning, hospitality, and industrial maintenance. In addition to offering technical programs traditionally identified with a community college, the department offers baccalaureate degree programs in construction and hospitality management.

The department's programs are designed to ladder into more advanced programs. Students in two-year certificate and associate degree programs can apply course work completed as part of the one- and two-year programs toward a bachelor's degree in the School of Technology and Applied Sciences.

The aviation maintenance technology associate degree and certificate programs are accredited by the Department of Transportation Federal Aviation Administration Certification.

Department Facilities and Equipment

- Airplanes (8)
- Auto Service Laboratory
- Collision Repair Laboratory
- Heating, Ventilation, Air Conditioning and Refrigeration Laboratory
- Helicopters (2)
- Industrial Maintenance Laboratory
- Professional Cosmetology Laboratory
- Professional Kitchen Laboratories

Hospitality management students operate and manage the white tablecloth restaurant Chez Nous during the winter semester as well as the Culinary Cafe during both the fall and winter semesters. In addition, students deliver several outstanding banquet and catering functions throughout the year.

Student Organizations

- American Culinary Federation Upper Michigan Chapter
- Aviation Maintenance Club
- Aviation Purchasing Co-op
- Culinary Students of NMU
- Hair Razors
- NMU Constructors
- Professional Aviation Maintenance Association

Department/Program Policies

Programs have substantial "hands-on" components; safety is a major responsibility. Students are expected to wear proper foot gear, safety glasses and dress for the lab environment. Tools are required for several programs. Students in AMT, CN, COS, CRT, HM, HV, PT, IM or WD courses are required to provide many of their own hand tools.

Aviation

All students are required to join the Aviation Purchasing Co-op. This co-op purchases the material and supplies students use in the lab section of the program over the standard two-year period. The purchase price is \$50 each semester (\$200 total). Students are required to have a basic tool set. Admission to AMT courses is limited to students majoring in aviation maintenance technology.

Cosmetology

The curriculum followed is set by the State of Michigan. Students must complete 1,500 clock hours for this program; attendance is mandatory. Successful completion of this program and the 1,500 requisite clock hours qualifies graduates to take the state board test for licensure in Michigan.

Students in baccalaureate degree programs may apply up to six credits of cosmetology (COS), practical nursing (PN) and surgical technology (ST) courses combined toward graduation unless otherwise prohibited. Students in associate degree programs may apply three credits of these courses combined toward graduation, and those in certificate programs other than cosmetology, practical nursing and surgical technology may apply two credits of these courses combined toward graduation unless otherwise prohibited.

Cosmetology Instructor

Entrance into this program requires a current Michigan license in cosmetology and two years of experience. The State of Michigan requires 500 hours of additional education for this certification.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Construction Management Major

This major prepares students to be competent in coordinating all phases of building construction including estimating, scheduling, writing contracts, purchasing materials and working with sub-contractors and material suppliers to ensure the job gets done on time and within budget. Graduates may begin as project managers, field engineers, estimators, assistant project managers or superintendents. Students are strongly urged to meet with their adviser to select a minor that will support their career goals.

Total Credits Required for Degree	129
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Liberal Studies	30-40
Health Promotion	2
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Technical Concentration	43
CN 107 Construction Documents	3
CN 151 Introduction to Construction	3
CN 154 Construction Surveying and Layout	3
CN 156 Construction Systems and Methods	3
CN 158 Concrete	3
WT 161 Wood Processing I	2
CN 251 Construction Field Operations	2
CN 252 Codes and Inspection	3
CN 278 Mechanical Systems	3
CN 283 Construction Estimating	3
CN 353 Soils and Foundations	3
CN 357 Legal Aspects of Construction	3
CN 358 Bidding Strategies	3
CN 450 Project Control	3
CN 459 Construction Management	3
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Other Required Courses	40
ACT 230 Principles of Accounting I	3
ACT 240 Principles of Accounting II	3
EN 211D Technical and Report Writing [I]	4
MA 104 College Algebra with Applications in the Sciences and Technologies [III]	4
MA 106 Trigonometry [III]	3
MET 211 Mechanics and Statics	4
MGT 240 Organizational Behavior and Management	3
MKT 230 Introduction to Marketing	3
PH 201 College Physics I [III]	5

CIS 110 Principles of Computer Information Systems [V] or IS 100 Introduction to Windows, E-mail and the Internet [V] and three other IS courses [V]	4
SP 100 Public Address	4

Minor, Contracted Minor or General Electives	20
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Hospitality Management Major

This program provides graduates with the background to assume supervisory or leadership positions in the hospitality industry. The curriculum includes courses that cover both classroom-based learning and hands-on learning experiences.

Total Credits Required for Degree	124
<hr/>	
Liberal Studies	30-40
Health Promotion	2
<hr/>	
Required Courses in Major	51
HM 111 Food Service Sanitation	2
HM 112 Introduction to the Hospitality Industry	4
HM 115 Professional Cooking I	4
HM 120 Professional Cooking II	4
HM 210 Supervision in the Hospitality Industry	4
HM 214 Cost Control for the Hospitality Industry	4
HM 221 Hospitality Service Management	4
HM 225 Banquets and Catering	4
HM 226 Purchasing for the Hospitality Industry	2
HM 240 Hotel and Lodging Operations	3
HM 310 Menu Analysis and Design	4
HM 330 Beverage and Bar Management	4
HM 450 Hospitality Operations Plan and Design	4
HM 480 Current Issues in the Hospitality Industry	4
<hr/>	
Technical Electives	6
<i>Choose from the following:</i>	
HM 100 Food Preparation and Selection (4 cr.)	4
HM 315 Multi-Cultural Foods (4 cr.)	4
HM 318 Resort Development (4 cr.)	4
HM 401 Internship (1-4 cr.)	4
HM 495 Special Topics in Hospitality (4 cr.)	4
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Other Required Courses	18
ACT 201 Practical Accounting Procedures (or higher)	4
HN 210 Nutrition for Humans	4
MA 100 Intermediate Algebra (or higher)	4
MGT 221 Business Law I: Legal Environment of Business	3
MKT 230 Introduction to Marketing	3

ASSOCIATE DEGREE PROGRAMS

Automotive Service Technology

Associate of Technology

Students in this program gain an overall technical foundation of theory and practical applications in engine repair, automatic transmissions, chassis systems, power trains, vehicle electrical systems, fuel and ignition systems and computer control systems. State certification tests are offered at the end of each semester.

Total Credits Required for Degree **62**

Liberal Studies	8
EN 111 College Composition I	4
CIS 110 Principles of Computer Information Systems	4

Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	40
PT 162 Steering, Suspension and Alignment	4
PT 163 Vehicle Brake Systems	4
PT 164 Major Engine Repair	4
PT 166 Automotive Power Trains	4
PT 170 Basic Automotive Electricity	4
PT 260 Automatic Transmission Repair	4
PT 262 Automotive Fuel and Emission Control Systems	4
PT 264 Engine Performance and Diagnostics	4
PT 268A Automotive Service Repair <i>or</i>	4
PT 268B Automotive Service Repair Internship	
PT 272 Advanced Automotive Electrical and Electronics	4

Other Required Course	4
MA 100 Intermediate Algebra (or higher)	4

General Electives **9**

Aviation Maintenance Technology

Associate of Applied Science

This program prepares students to be aviation maintenance technologists. All training takes place in state-of-the-art facilities and is designed to meet airline industry standards. Students work in the following five lab areas: power plant, airframe, non-destructive testing, composite and sheet metal. Students do engine runups, repair, and restoration of the operational status of the aircraft. Students typically take between 16 and 20 credits for five semesters, receiving their degree after 2 1/2 years of study. Ninety-five percent of graduates from this program are employed in the aviation industry.

Total Credits Required for Degree **89**

Liberal Studies	12
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
CIS 110 Principles of Computer Information Systems	4

Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	72
AMT 101 Introduction to Aviation Maintenance	6
AMT 102 Aircraft Basic Science	6
AMT 103 Aviation Shop Practices	6
AMT 104 Aircraft Electrical Systems	6
AMT 200 Aircraft Sheet Metal/Non-Metallic Structures	6
AMT 201 Reciprocating Engines and Propellers	6
AMT 202 Aircraft Assembly and Rigging	6
AMT 203 Reciprocating Engine Overhaul	6
AMT 204 Turbine Engine Theory	6
AMT 205 Hydraulics, Pneumatics and Landing Gear	6
AMT 206 Cabin Atmosphere and Information Systems	6
AMT 207 Turbine Engine Maintenance and Inspection	6

Other Required Course	4
MA 100 Intermediate Algebra	4

Building Technology

Associate of Applied Science

This program is designed to provide the student with a technical foundation with specialization in the areas of project design, building materials, construction systems and related documents.

Total Credits Required for Degree **65**

Liberal Studies	21
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
MA 104 College Algebra with Applications in the Sciences and Technologies	4
PH 201 College Physics I	5
CIS 110 Principles of Computer Information Systems <i>or</i>	4
IS 100 Introduction to Windows, E-mail and the Internet (1 cr.) <i>and</i> three other IS courses	

Health Promotion	1
HP 200 Physical Well Being	1

Technical Concentration	28
CN 107 Construction Documents	3
CN 151 Introduction to Construction	3
CN 154 Construction Surveying and Layout	3
CN 156 Construction Systems and Methods	3
CN 158 Concrete	3
WT 161 Wood Processing I	2
CN 251 Construction Field Operation	2
CN 252 Codes and Inspection	3
CN 278 Mechanical Systems	3
CN 283 Construction Estimating	3

Other Required Courses	7
MA 106 Trigonometry	3
SP 100 Public Address	4

General Electives **8**

Climate Control Technology
Associate of Applied Science

Professionals in the heating, ventilation, air condition and refrigeration (HVACR) industry are specialists who create comfortable, healthy and energy-efficient indoor environments for the storage of food and medicine, and for transportation, warehouses, factories and many other essential services. The climate control degree program offers instruction in both technical theory and practical knowledge.

Total Credits Required for Degree	63
Liberal Studies	12
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
CIS 110 Principles of Computer Information Systems	4
Health Promotion	1
HP 200 Physical Well Being	1
Technical Concentration	40
HV 170 Applied Electricity for Trades	4
HV 171 Basic Heating	4
HV 172 Basic Refrigeration	4
HV 173 Heating Systems I	4
HV 174 ACR Systems I	4
HV 175 Air Delivery Systems	4
HV 270 Heating Systems II	4
HV 271 ACR Systems II	4
HV 273 Comfort Systems Design	4
HV 275 HVACR Technical Problems <i>or</i> HV 291 HVACR Internship	4
Other Required Courses	4
MA 100 Intermediate Algebra (or higher)	4
General Electives	6

Food Service Management
Associate of Technology

This program prepares the student for entry-level management positions in the hospitality industry. According to the National Restaurant Association, 40,000 new entry-level managers will be needed in the near future, making this one of the fastest growing career fields.

Total Credits Required for Degree	62
Liberal Studies	8
EN 111 College Composition I	4
Liberal Studies Elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Technical Concentration	32
HM 111 Food Service Sanitation	2
HM 112 Introduction to the Hospitality Industry	4
HM 115 Professional Cooking I	4

HM 120 Professional Cooking II	4
HM 210 Supervision in the Hospitality Industry	4
HM 214 Cost Control for the Hospitality Industry	4
HM 221 Hospitality Service Management	4
HM 225 Banquets and Catering	4
HM 226 Purchasing for the Hospitality Industry	2
Other Required Courses	12
ACT 201 Practical Accounting Procedures (or higher)	4
HN 210 Nutrition for Humans	4
MA 100 Intermediate Algebra (or higher)	4
General Electives	9

Industrial Maintenance Technology
Associate of Applied Science

Industrial maintenance technicians install, maintain and repair all types of machinery used in an endless array of modern power transmission applications. Mines, paper mills, hospitals and manufacturing companies of all sorts require the services of skilled industrial maintenance technicians to keep their operations running smoothly. Industrial maintenance technicians are often employed in machine repair departments or may be referred to as millwrights.

Total Credits Required for Degree	63
Liberal Studies	8
EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
Health Promotion	1
HP 200 Physical Well Being	1
Technical Concentration	30
HV 170 Applied Electricity for Trades <i>or</i> ET 100 Fundamentals of Electricity (2 cr.) <i>and</i> ET 101 Principles of Electrical Wiring (2 cr.)	4
IM 110 Industrial Measurement and Fabrication	2
IM 214 Alignment, Power Transmissions and Conveyors	4
IM 220 Pumps, Piping and Valves	4
IT 180 Introduction to Fluid Power	3
IT 215 General Industrial Safety	2
IT 265 Total Productive Maintenance	1
WD 140 Introduction to Welding	4
WD 147 Construction Rig and Equipment Installation	2
WD 243 Advanced Arc Welding	3
WD 244 Welding Inspection and Assessment	1
Other Requirements	8
MA 100 Intermediate Algebra (or higher)	4
CIS/IS Electives	4

Technical Electives

Choose from the following:

- CN 154 Construction Survey and Layout (3 cr.)
- CN 156 Construction Systems and Methods (3 cr.)
- HV 175 Air Delivery Systems (4 cr.)
- MET 213 Materials Science I (3 cr.)
- MF 134 Manufacturing Processes (4 cr.)
- PT 160 Basic Automotive Repair (4 cr.)

General Electives **10**

Mining Option

Students considering future employment with Michigan Mining Company-Cliffs Incorporated should make the following course selections in their program: MA 104 College Algebra with Applications in the Sciences and Technologies, in place of MA 100 Intermediate Algebra, PH 201 College Physics I as a general elective and MET 213 Material Science I as a technical elective.

CERTIFICATE PROGRAMS

Automotive Service Certificate

This program develops quality repair and service technicians for the transportation industries. The automotive service certificate prepares students for positions in automotive servicing, parts sales, and service.

Total Credits Required for Certificate **41**

Health Promotion **1**
 HP 200 Physical Well Being **1**

Technical Concentration **40**
 PT 162 Steering, Suspension and Alignment **4**
 PT 163 Vehicle Brake Systems **4**
 PT 164 Major Engine Repair **4**
 PT 166 Automotive Power Trains **4**
 PT 170 Basic Automotive Electricity **4**
 PT 260 Automatic Transmission Repair **4**
 PT 262 Automotive Fuel and Emission Control Systems **4**
 PT 264 Engine Performance and Diagnostics **4**
 PT 268A Automotive Service Repair **4**
 PT 268B Automotive Service Repair Internship (4 cr.)
 PT 272 Advanced Automotive Electrical and Electronics **4**

6 Aviation Maintenance Technology Certificate

Students work in five lab areas: power plant, airframe, nondestructive testing, composite and sheet metal. Certificate students attend class for four semesters (two academic years) and receive all of the necessary preparation to take the FAA exam to become an A & P aviation mechanic.

Total Credits Required for Certificate **73**

Health Promotion **1**
 HP 200 Physical Well Being **1**

Technical Concentration **72**
 AMT 101 Introduction to Aviation Maintenance **6**
 AMT 102 Aircraft Basic Science **6**
 AMT 103 Aviation Shop Practices **6**
 AMT 104 Aircraft Electrical **6**
 AMT 200 Aircraft Sheet Metal/Non-Metallic Structures **6**
 AMT 201 Reciprocating Engine and Propellers **6**
 AMT 202 Aircraft Assembly and Rigging **6**
 AMT 203 Reciprocating Engine Overhaul **6**
 AMT 204 Turbine Engine Theory **6**
 AMT 205 Hydraulics, Pneumatics and Landing Gear **6**
 AMT 206 Cabin Atmosphere and Information Systems **6**
 AMT 207 Turbine Engine Maintenance and Inspection **6**

Carpentry Certificate

The carpentry certificate is temporarily suspended. New students will not be accepted into the program during the 2006-2007 academic year.

Cosmetology Certificate

This program combines the theory and practical application needed to prepare graduates for entry-level positions in the cosmetology profession. Scientific principles are applied through grooming of patrons. Cosmetologists perform such services as shaping and tinting eyebrows and lashes, applying makeup, permanent waving, coloring and straightening hair, manicuring and giving scalp and facial treatments. Graduates may find employment in independent shops and salons, in hair styling departments of large firms and hotels, or with manufacturers of cosmetic or hair products. Some graduates open their own shops.

Total Credits Required for Certificate **65**

Health Promotion **1**
 HP 200 Physical Well Being **1**

Technical Concentration **64**
 COS 111 Fundamentals of Cosmetology I **4**
 COS 112 Fundamentals of Cosmetology II **4**
 COS 113 Fundamental Application of Physical Services **8**
 COS 121 Intermediate Cosmetology I **4**
 COS 122 Intermediate Cosmetology II **4**
 COS 123 Intermediate Application of Physical Services **8**

COS 131 Advanced Cosmetology I	4
COS 132 Advanced Cosmetology II	4
COS 133 Advanced Application of Physical Services	8
COS 141 Master Level of Cosmetology I	4
COS 142 Master Level of Cosmetology II	4
COS 143 Master Level Application of Physical Services	8

Heating, Ventilation, Air Conditioning and Refrigeration Certificate

This program teaches students to master the skills needed to install, troubleshoot, and repair heating, ventilating, air conditioning and refrigeration (HVACR) systems.

Total Credits Required for Certificate	45
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Health Promotion	1
HP 200 Physical Well Being	1
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Technical Concentration	36
HV 170 Applied Electricity for Trades	4
HV 171 Basic Heating	4
HV 172 Basic Refrigeration	4
HV 173 Heating Systems I	4
HV 174 ACR Systems I	4
HV 175 Air Delivery Systems	4
HV 270 Heating Systems II	4
HV 271 ACR Systems II	4
HV 275 HVACR Technical Problems <i>or</i>	4
HV 291 HVACR Internship	
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Other Required Courses	4
EN 090 Basic Composition (or higher)	4
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General Electives	4

MINOR PROGRAMS

Automotive Service Technology Minor

Total Credits Required for Minor	24
PT 162 Steering Suspension and Alignment	4
PT 164 Major Engine Repair	4
PT 166 Auto Power Train	4
PT 170 Basic Automotive Electricity	4
PT 262 Auto Fuel and Emission Control Systems	4
PT 264 Engine Performance and Diagnostics	4

Construction Systems Minor

Total Credits Required for Minor	20
CN 107 Construction Documents	3
CN 154 Construction Surveying and Layout	3
CN 156 Construction Systems and Methods	3
CN 158 Concrete	3
CN 251 Construction Field Operations	2
CN 252 Codes and Inspections	3
CN 283 Construction Estimating	3

Hospitality Service Management Minor

Total Credits Required for Minor	20
HM 112 Introduction to the Hospitality Industry	4
HM 111 Food Service Sanitation	2
HM 226 Purchasing for the Hospitality Industry	2
HM 214 Cost Control for the Hospitality Industry	4
HM 240 Hotel and Lodging Operations	3
Hospitality Management Electives 300 or above	5

HVACR Minor

Total Credits Required for Minor	20
HV 170 Applied Electricity for Trades	4
HV 171 Basic Heating	4
HV 172 Basic Refrigeration	4
HV 175 Air Delivery Systems	4
HV 273 Comfort Systems Design	4

Industrial Maintenance Minor

Total Credits Required for Minor	20
IM 110 Industrial Measurement and Fabrication	2
IM 214 Alignment, Power Transmission and Conveyors	4
IM 220 Pumps, Piping and Valves	4
WD 140 Introduction to Welding	4
WD 147 Construction Rigging and Equipment Installation	2
WD 243 Advanced Arc Welding	3
WD 244 Welding Inspection and Assessment	1

DIPLOMA PROGRAMS

Advanced Law Enforcement Diploma

This program is intended for certified law enforcement officers. The curriculum includes course work and hands-on experiences to enhance the officers' training. In-service training is offered through the Public Safety Institute, Northern Michigan University.

Total Credits Required for Diploma	16
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Technical Concentration	16

The advanced law enforcement diploma may be earned through the satisfactory completion of any 16 credit hours of unduplicated PSLE prefix courses. However, PSLE 010 Legal Update Training may be counted for a maximum of two of the 16 required credits hours.

Collision Repair Technology Diploma

This program prepares graduates for employment in the field of collision repair. The curriculum includes coursework and hands-on experiences in the areas of component repair and replacement, along with work in areas of paint-prep and refinishing. Students are exposed to contemporary skills and current industry practices.

Total Credits Required for Diploma	36
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Technical Concentration	24
CRT 011 Fundamentals of Collision Repair	4
CRT 012 Component Analysis and Replacement	4
CRT 021 Intermediate Collision Repair	4
CRT 022 Automotive Paint-prep and Application	4
CRT 031 Advanced Collision Repair	4
CRT 032 Advanced Refinishing	4
Technical Electives	12
<i>Choose any courses from AMT, IM, PT and WD</i>	<i>12</i>

Electrical Line Technician Diploma

This program prepares graduates for employment as line technicians employed by public utilities, electrical transmission contractors and related employers.

Total Credit Required for Diploma	31
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Technical Concentration	31
EL 010 Line Electrician Field Practicum I	6
EL 011 Fundamentals of Electricity	2
EL 012 Introduction to Line Electrician Safety	2
EL 013 Electrical Formulas	4
EL 014 Computer Skills for Electrical Trades	2
EL 020 Line Electrician Field Practicum II	6
EL 021 Applied Electricity for Linepersons	3
EL 022 Advanced Line Electrician Safety	2
EL 023 Line Electrician Career Seminar	2
EL 024 Construction Standards for Line Electricians	2

Local Corrections Diploma

This program is intended for persons employed as local corrections officers. The curriculum includes course work and hands-on experiences to update the officers in the required areas of the corrections field. In-service training is offered through the Public Safety Institute, Northern Michigan University.

Total Credits Required for Diploma	16
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Technical Concentration	16
<i>The local corrections diploma may be earned through the satisfactory completion of any 16 credit hours of unduplicated PSCR prefix courses. However, PSCR 011 Legal Update Training may be counted for a maximum of two of the 16 required credits hours.</i>	

CERTIFICATION PROGRAMS

Cosmetology Instructor Certification

This program trains the professional in Michigan law, teaching techniques, record keeping, and administration of a school of cosmetology.

Total Credits Required for Certification	18
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Technical Concentration	18
HR 060 Theory of Cosmetology Fundamentals	4
HR 061 Theory of Cosmetology Supervision	4
HR 062 Theory of Cosmetology Administration	2
HR 063 Practice of Cosmetology Fundamentals	4
HR 064 Practice of Cosmetology Supervision	4

INTERDISCIPLINARY AND INDIVIDUALLY CREATED PROGRAMS

Interdisciplinary and Individually Created Programs at NMU

Interdisciplinary programs are those that are co-sponsored by two or more departments. Generally a student chooses an adviser from one of the sponsoring departments. Individually created programs are developed by a student and a faculty member to meet an individual need or interest not offered in a formalized program.

Northern offers three interdisciplinary baccalaureate degree programs: secondary education integrated science, social science and technical communications.

Also within the interdisciplinary area are a two-year associate degree in general university studies, two minor programs in gender studies and labor studies, and a one-year certificate in labor leadership.

Northern offers students two opportunities to individually create programs: a baccalaureate degree and a certificate.

BACHELOR DEGREE PROGRAMS

Liberal Studies: Complete information on the liberal studies requirements and additional graduation requirements, including the health promotion requirement, is in the "Liberal Studies Program and Graduation Requirements" section of this bulletin.

Courses within each major that can be used to satisfy liberal studies requirements are listed with the Roman numeral (in brackets) that coincides with the liberal studies division the course falls under.

Secondary Education Integrated Science Major

The Biology, Chemistry, Education, Geography and Physics departments cooperatively offer this program to students interested in certification to teach science at the secondary-school level from an integrated science perspective. Students with this major must minor in either biology education, chemistry education, earth science education or physics education. The major prepares students to be endorsed both in integrated science and in the specific discipline of the major.

Advising for this major is provided by Dr. Mitchell D. Klett (earth science and chemistry) and Dr. Carolyn J. Lowe (biology, physics) in the School of Education.

Students in this program must maintain a minimum grade

point average of 2.70 with no grade below a "C" in the professional education sequence, the major and/or minor and required cognates combined.

Secondary Education Integrated Science Major

Total Credits Required for Degree	127-133
Liberal Studies	30-40
Health Promotion	2
General Science Major/Minor <i>(See options I-IV below)</i>	56-62
Professional Education	37
ED 201 Introduction to Education	2
ED 231 Teaching and Learning in the Secondary Classroom	4
ED 301 Dimensions of American Education	2
ED 319 Teaching of Reading for Secondary Teachers	3
ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community	2
ED 361 Special Education and the General Classroom Teacher	2
ED 483 Educational Media Technology	2
ED 430 Teaching in the Secondary School	11
ED 450 Seminar in Teaching	1
MSED 340 Fundamental Concepts in Science	4
MSED 350 Methods and Materials in Teaching Science Education	4
<i>MA 104 College Algebra with Applications or MA 105 College Algebra for Calculus Preparation is required for many of the courses in this program.</i>	

Depending upon the minor chosen, students complete their 56-62 credits of general science curriculum as follows:

Option I: Integrated Science Major with Biology Minor

Total Credits Required for Major	56
Biology Education Minor	20
Chemistry Electives	
CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 215 Chemistry of the Elements	4
Earth Science Electives	
AS 103 Observational and Solar System Astronomy [III]	4
GC 255 Physical Geology [III]	4
GC 385 Weather and Climate	4
Physics Electives	
PH 201 College Physics I [III]	5
PH 202 College Physics II [III]	5

Option II: Integrated Science Major with Chemistry Minor

Total Credits Required for Major **60**

Chemistry Education Minor **22**

Biology Electives

BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 312 Genetics	4

Physics Electives

PH 201 College Physics I (or PH 220) [III]	5
PH 202 College Physics II (or PH 221) [III]	5

Earth Science Electives

AS 103 Observational and Solar System Astronomy [III]	4
GC 255 Physical Geology [III]	4
GC 385 Weather and Climate	4

Option III: Integrated Science Major with Earth Science Minor

Total Credits Required for Major **62**

Earth Science Education Minor **22**

Biology Electives

BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 312 Genetics	4

Chemistry Electives

CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 215 Chemistry of the Elements	4

Physics Electives

PH 201 College Physics I [III]	5
PH 202 College Physics II [III]	5

Option IV: Integrated Science Major with Physics Minor

Total Credits Required for Major **62**

Physics Education Minor **20**

Biology Electives

BI 111 Introductory Biology: Principles [III]	4
BI 112 Introductory Biology: Diversity [III]	4
BI 210 Principles of Ecology	4
BI 312 Genetics	4

Chemistry Electives

CH 111 General Chemistry I [III]	5
CH 112 General Chemistry II [III]	5
CH 215 Chemistry of the Elements	4

Earth Science Electives

AS 103 Observational and Solar System Astronomy [III]	4
GC 255 Physical Geology [III]	4
GC 385 Weather and Climate	4

Social Science Major

The Economics, Geography, History, Political Science and Public Administration, and Sociology and Social Work departments cooperate to offer this major. Areas of concentration correspond with each cooperating department. Advisement is provided to students by the department selected as the concentration.

Total Credits Required for Degree **124**

Liberal Studies **30-40**

Health Promotion **2**

Major

Choose one of the following concentrations:

Economics Concentration 36

EC 201 Microeconomic Principles	4
EC 202 Macroeconomic Principles	4
Economics Electives	12
Electives	16

Choose 8 credits from two of the following four areas: geography*, history, political science or sociology

Geography Concentration 36

GC 164 Human Geography [IV]	4
GC 200 North America	4
GC 220 Economic Geography	4

Choose from the following: **8**

GC 300 Regional Studies: World Cultures [IV]

GC 310 Urban Geography

GC 360 Population Geography [IV]

GC 435 Geography of Michigan

Electives **16**

Choose 8 credits from two of the following four areas: economics, history, political science or sociology.

History Concentration 36

HS 200 Historical Thinking and Writing **4**

History Electives from 100 or 200 level **8**

History Electives from 300 or 400 level **8**

Electives **16**

Choose 8 credits from two of the following four areas: economics, geography*, political science, or sociology.

Political Science Concentration 36

PS 101 Introduction to Political Science [IV] **4**

PS 105 American Government [IV] **4**

PS 203 Comparative Government and Politics **4**

PS 206 International Relations **4**

PS 207 History of Political Theory **4**

Electives **16**

Choose 8 credits from two of the following four areas: economics, geography*, history, or sociology.

Sociology Concentration **	36
SO 101 Introductory Sociology [IV]	4
Sociology Electives (including 8 credits at 300-400 level)	16
Electives	16

Choose 8 credits from two of the following four areas: economics, geography, history or political science.*

Minor 20

**Note: Geography electives for economics, history, political science and sociology concentrations must be selected from courses listed in the geography concentration above.*

*** Students selecting the sociology concentration must receive at least a "C-" in each sociology course and achieve at least a 2.50 grade point average in all sociology courses. (NMU and transfer).*

Technical Communications Major

This program is tailored to meet the needs of contemporary technical communicators. It emphasizes both the practical ends of the major, such as graphic arts, writing and desktop publishing and theoretical considerations implicit in an ever-evolving, technological workplace, such as global communications, message design and argumentation. In consultation with an adviser, students may select a minor that best suits individual needs, but a minor is not required. The Art and Design, Communication and Performance Studies and the English departments provide student advisement.

Total Credits Required for Degree 128

Liberal Studies	30-40
Health Promotion	2

Required Courses in Major 59

AD 118 Introduction to Graphic Communication	4
AD 134 Electronic Imaging: Introduction	4
AD 175 Visual Structures and Concepts	4
AD 218 Graphic Communication: Studio Practices	4
BC 165 Introduction to Mass Media	4
EN 303 Technical and Professional Writing	4
EN 306 Journalism Editing and Design	4
EN 405 Technical Writing Seminar	4
IS 100 Introduction to Windows, E-mail and the Internet [V]	1
IS 105 Presentation/Multimedia Software [V]	1
IS 107 Beginning Desktop Publishing [V]	1
IS 207 Intermediate Desktop Publishing [V]	1
IS 208 Web Page Development [V]	1
MGT 344 Managerial Communications	3
OIS 450 Advanced Desktop Publishing	3
PR 250 Research in Public Relations	4
PR 330 Public Relations Message Design	4
SP 200 Argumentation	4
SP 300 Rhetorical Theory	4

Other Required Courses 8

EN 211D Technical and Report Writing [I]	4
TE 351 Humanity and Technology [II]	4

ASSOCIATE DEGREE PROGRAM

**General University Studies
Associate of Applied Science**

This program provides a point of access into the university for individuals seeking a post-secondary education at the two-year level. It also provides maximum flexibility for students who are either undecided about their career plans or who wish to create a program that suits their unique interests. The degree also provides an opportunity for individuals wishing to build their academic skills in preparation for admittance into a restricted program.

Total Credits Required for Degree 62

Liberal Studies 18	
EN 111 College Composition	4
Natural Science Elective	4
Humanities Elective	4
Social Science Elective	4
CIS/IS Electives	2

Health Promotion 1	
HP 200 Physical Well Being	1

Concentration or Contracted Minor* 20

Other Required Courses 4
MA 100 Intermediate Algebra (or higher or placement test above MA 100)

Electives 19

**Concentration must be one of the approved minors listed below.*

List of Approved Minors for Concentrations in the AAS in General University Studies

- Applied Ethics
- Art and Design
- Art History
- Auto Service Technology
- Biology
- Business Administration
- Chemistry
- Clinical Lab Techniques
- Construction Systems
- Contracted Minor
- Criminal Justice
- Industrial Electrical Technology
- Electronic Journalism
- Electronics
- Emergency Medical Services
- Engineering Design
- Environmental Conservation
- Gender Studies
- Health and Nutrition
- History
- Hospitality Service Management
- Human Biology
- Human Geography
- HVACR

Industrial Maintenance Technology
 International Studies
 Manufacturing
 Media Production and New Technology
 Music
 Office Services
 Physical Geography
 Planning
 Political Science
 Psychology
 Social Welfare
 Sociology
 Speech Communication

MINOR PROGRAMS

Gender Studies Minor

This minor explores the meaning and significance of gender in human experience, including the roles, status and accomplishments of women and men within a number of academic fields. Courses bring new scholarship on gender studies and related feminist theory into the university curriculum and offer students an opportunity to integrate the perspective of several disciplines into their program.

A list of courses used in this minor must be developed in consultation with Maya Sen of the Psychology Department, director of the minor. When approved, a copy of the list will be filed in the Registrar's Office. Students may not take more than eight credits from any one department.

Total Credits Required for Minor	24
UN 200 Introduction to Gender Studies*	4
Electives	20
<i>Choose from the following:</i>	
EN 250 Images of Women (4 cr.)	
EN 440 Topics in Gender in Literature (4 cr.)	
HS 283 The American Woman (4 cr.)	
PY 235 Psychology of Gender (4 cr.)	
PY 255 Sexual Behavior: Psychological Perspectives (4 cr.)	
SO 362 Women, Men and Social Inequality (4 cr.)	
AN, EN, HS, NE, PY or SO 498 Directed Study** (1-4 cr.)	1-4

Note: Students may substitute one of the following four credit courses for one of the courses listed above.

AN 100 Introduction to Socio-Cultural Anthropology
 HS 293 Minorities in American History
 SO 232 Marriage and the Family
 SO 372 Minority Groups

**Students are encouraged to take UN 200 as early as possible.*

***If chosen, the directed study course should be taken as the final course in the program. Students may count only one directed study course toward the minor.*

Labor Studies Minor

This minor provides students with the knowledge of labor organizations, their functions, their roles in society and their future prospects. The program focuses on the areas of collective bargaining, grievance processing, contract administration, arbitration, labor history, social inequality, labor law, and leadership skills. Students completing the core courses are also awarded the certification in labor leadership. Advisement is provided by Dr. Russ Magnaghi in the History Department.

Total Credits Required for Minor	20-21
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Core Courses	17
LSP 101 Introduction to Labor Studies <i>or</i>	4
LSP 101A Introduction to Labor Studies (2 cr.) <i>and</i>	
LSP 101B Introduction to Labor Studies (2 cr.)	
HS 244 The American Labor Movement	2
SO 322 Social Class, Power, and Mobility	4
HS 444 Research in Labor History	2
MGT 424 Collective Bargaining	3
LSP 490 Seminar in Labor Leadership	2
Electives	3-4
<i>Choose from the following:</i>	
EC 101 The American Economy (4 cr.)	
EC/HS 337 American Economic History (4 cr.)	
EC 415 Labor Economics (4 cr.)	
EC 420 Capitalism, Socialism, and Democracy (4 cr.)	
MGT 240 Organizational Behavior and Management (3 cr.)	
MGT 343 Human Resource Management (3 cr.)	
MGT 412 Compensation Administration (3 cr.)	
MGT 421 Labor Law (3 cr.)	
PS 309 State and Local Government (4 cr.)	
PS 341 Social Welfare Policy (4 cr.)	
PS 402 Political Economy (4 cr.)	
PY 436 The Psychology of Organization Behavior (4 cr.)	
SO 372 Minority Groups (4 cr.)	
SO 472 Occupational Stress (4 cr.)	
SP 421 Organizational Communication (4 cr.)	
LSP 295 Special Topics in Labor Studies (1-4 cr.)	
LSP 495 Special Topics in Labor Studies (1-4 cr.)	
HS/PS/SO 491 Internship (1-12 cr.)	
HS/PS/SO 498 Directed Study (1-4 cr.)	

CERTIFICATION PROGRAM

Labor Leadership Certification

This certificate program is intended for union members and officers, potential union members and aspiring union leaders who are interested in developing their knowledge, leadership skills and perspective of unions and the labor movement. An advisory committee made up of labor leaders in cooperation with NMU faculty members and administrators determine the nature of this program.

Total Credits Required for Certification	17
LSP 101 Introduction to Labor Studies <i>or</i>	4
LSP 101A Introduction to Labor Studies (2 cr.) <i>and</i>	
LSP 101B Introduction to Labor Studies (2 cr.)	
HS 244 The American Labor Movement	2
SO 322 Social Class, Power, and Mobility	4
HS 444 Research in Labor History	2
MGT 424 Collective Bargaining	3
LSP 490 Seminar in Labor Leadership	2

INDIVIDUALLY CREATED PROGRAMS (ICP)

ICP Baccalaureate Degree

Students with clearly defined educational goals that do not correspond with existing programs at NMU can choose this bachelor of arts or bachelor of science degree with the phrase "Individualized Studies" appearing in place of the major on the transcript. In consultation with their advisers, students develop a program of individualized concentration which is then submitted to the Committee for Undergraduate Programs. Students can select their own advisers or obtain advice in the Registrar's Office about which advisers might be most suitable.

Once the program is drawn up and approved by the Committee for Undergraduate Programs, the approved outline is filed with the Registrar's Office as an official contract. Any changes in the contract are submitted to the Committee for Undergraduate Programs and filed. The committee may withdraw approval on the recommendation of the adviser in cases where the student's academic capacities clearly fall short of the stated goals.

Total Credits Required for Degree	124
Liberal Studies*	40
Health Promotion	2
Concentration	52
General Electives	30

**This program does not permit double counting between liberal studies, the concentrations and electives.*

The following guidelines apply to the degree:

1. Students must obtain a "C" (2.00) or better in all courses in the concentration.
2. Students must complete 40 credits after the program is approved.
3. The program must include 40 credits at the upper-division (300-400) level.
4. Liberal studies: Students must complete a minimum of 40 credits for all degrees.
5. The program may not include courses that would comprise more than 80 percent of any approved departmental major.
6. Students interested in an individually created program within the College of Business will coordinate with a College of Business adviser. If it is determined that more than 25 percent of the individually created program is appropriate in business, the adviser will make certain that the courses chosen meet the common body of knowledge requirements of The American Assembly of Collegiate Schools of Business.
7. Students with a concentration outside of the College of Business may not take more than 25 percent of their program from courses taught by the College of Business.
8. Admission into an individually created program begins the semester following approval of the committee.

CERTIFICATE PROGRAM

Special Studies Certificate

This is a one-year program leading to a certificate for those students whose immediate goal is not an associate or baccalaureate degree. If they wish, students can later use this program as a basis for meeting the requirements of a degree program. Students develop a course of study in conjunction with an adviser using a form provided by the Registrar's Office. The area of concentration emphasizes a specific area of interest or professional development. The student, with the approval of the adviser, chooses courses from either a single discipline or a combination of disciplines. The student uses courses from one or more disciplines as cognates to support the area of concentration. Students must obtain a grade of "C" (2.00) or better in the area of concentration in order to graduate.

Total Credits Required for Certificate	33
Liberal Studies	8
Natural Science/mathematics elective	4
Humanities or social science elective	4
Health Promotion	1
HP 200 Physical Well Being	1
Area of Concentration	12
Cognates	8
Other Required Course	4
EN 090 Basic Composition <i>or</i>	4
EN 111 College Composition I	

PREPROFESSIONAL PROGRAMS

Pre-Professional Programs at NMU

Northern Michigan University provides non-degree, pre-professional programs of study. These programs have been developed to prepare students with specific professional goals to meet the admission qualifications of other colleges and universities. Some professional schools require students to complete a baccalaureate degree prior to admission. In some cases students may elect to enter one of NMU's degree programs while still receiving advising toward one of the pre-professional programs. Information about each of the pre-professional programs can be obtained from the department listed below as the administrative and advising department.

<u>Program</u>	<u>Department</u>
Pre-Architecture	Art and Design
Pre-Dentistry	Physics
Pre-Engineering	Physics
Pre-Law	Political Science and Public Administration
Pre-Medical	Physics
Pre-Optometry	Biology
Pre-Pharmacy	Chemistry
Pre-Veterinary Medicine	Biology

The university has a Pre-dental Advisory Board as well as a Pre-medical Advisory Board, which oversee the pre-dental and pre-medical programs. The boards are made up of practicing dentists, physicians and professors. Board members provide information to pre-dental and pre-medical students regarding application procedures, the profession of dentistry or medicine, and the Dental Admission Test (DAT) or the Medical College Admission Test (MCAT).

When students apply to their professional schools, the appropriate board may write a letter of evaluation that assesses the suitability of a student for the profession. This letter is written if a student has been granted a board interview, based on the student's grade point average and Dental Admission Test (DAT) or Medical College Admission Test (MCAT) scores. In writing the letter the board considers such information as DAT or MCAT scores, grade point average, letters of reference and responses to questions during the personal interview.

PRE-PROFESSIONAL PROGRAMS

Pre-Architecture

Students intending to enter an architectural program at another institution may select an academic foundation at Northern Michigan University by completing the following courses.

EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
CS 120 Computer Science I	4
EC 202 Macroeconomic Principles	4
MA 115 Pre-Calculus	4
MA 161 Calculus I	5
PH 220 Introductory Physics I	5
PH 221 Introductory Physics II	5
PY 100L Psychology as a Natural Science w/ Lab	4
<i>Choose two courses from the following:</i>	8
AD 116 Sculpture	
AD 111 Human Centered Design: Shelters	
AD 211 Human Centered Design: Social Goods	
<i>Choose two courses from the following:</i>	8
AD 260 Why America Looks This Way	
AD 265 Art and Architecture of Japan	
AD 355 Twentieth Century Art and Architecture	

Beyond the course and distribution requirements specified above, students may freely select other courses to earn a total of 60 minimum (64 recommended) credit hours. Since the emphasis in pre-professional studies is on liberal arts, no more than 7 credits in nonacademic or technical areas can be applied toward the 60-credit requirement.

Pre-Dental Program

Students pursuing this program are assigned to the pre-dental adviser who assists students in selecting the courses required or recommended for admission into dental school. Students must declare a major sometime during their freshman year. Although the choice of major is not restricted and students should choose a major that will interest them and provide a possible career for them, most pre-dental students graduate with a bachelor's degree in biology, biochemistry or chemistry. Such majors not only provide the necessary prerequisites for dental school but also ensure the student has a strong science background. A pre-dental handbook is available from the pre-dental adviser and is also located on the pre-medical/pre-dental Web page which is accessible via www.nmu.edu.

EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
Humanities Electives	8
Social Science Electives	8
BI 111 Introductory Biology: Principles*	4
BI 112 Introductory Biology: Diversity*	4
BI 312 Genetics	4

BI 313 Cell Biology <i>or</i>	
BI 202 Human Physiology (5 cr.) <i>or</i>	
BI 222 Animal Physiology <i>or</i>	
BI 431 Plant Physiology	
BI 303 General Microbiology	5
CH 111 General Chemistry I*	5
CH 112 General Chemistry II*	5
CH 321 Organic Chemistry I*	4
CH 322 Organic Chemistry II*	4
CH 450 Introductory Biochemistry	4
PH 201 College Physics I* <i>and</i>	5
PH 202 College Physics II* <i>or</i>	5
PH 220 Introductory Physics I* <i>and</i>	
PH 221 Introductory Physics II*	

*These courses are to be completed in addition to those required for any particular major. Students majoring in biology/physiology, chemistry or biochemistry will be taking most of these courses in their major. The remaining courses listed are recommended.

Pre-Engineering Program

Students interested in engineering who plan to transfer to an engineering school should contact the Physics Department to get program details and be assigned an academic adviser. NMU offers courses in several departments that provide the program needs of engineering students, exclusive of professional engineering courses, which comprise the first two years of engineering programs.

EN 111 College Composition I	4
EN 211D Technical and Report Writing	4
Humanities Electives	8
Social Science Electives	8
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CS 120 Computer Science I	4
MA 161 Calculus I	5
MA 163 Calculus II	4
MA 265 Calculus III	3
MA 211 Introduction to Matrix Theory and Linear Algebra	3
MA 361 Differential Equations	3
PH 220 Introductory Physics I	5
PH 221 Introductory Physics II	5

Pre-Law Program

Students interested in a career in the legal profession should contact the Political Science and Public Administration Department for referral to one of the pre-law advisers who have significant experience assisting students who wish to prepare for law school. There is a specific political science/pre-law major available to students, but law schools will accept students with other majors. Pre-law advisers help students select appropriate course work to prepare them for law school, fulfill other prerequisites for law school admission and assist students in applying to law schools.

4-5 Pre-Medical Program

Students pursuing the premedical program are assigned to the premedical adviser who assists students in selecting the courses required or recommended for admission into medical school. Students must declare a major sometime during their freshman year. Although the choice of major is not restricted and students should choose a major that will interest them and provide a possible career for them, most premedical students graduate with a bachelor's degree in biology, biochemistry or chemistry. Such majors not only provide the necessary prerequisites for medical school but also ensure the student has a strong science background. The recommended courses for students interested in medical careers are the same as the courses recommended for students interested in dental careers (see above).

Pre-Optometry Program

Pre-optometry students who are residents of Michigan normally plan an academic program of three or more years to meet requirements for admission to the College of Optometry at Ferris State University. Those requirements can be completed at Northern Michigan University, specifically courses in biology, chemistry, mathematics, physics, psychology, behavioral science, English and humanities. Preprofessional course requirements for the other American optometry schools can also be completed at NMU.

Students are encouraged to complete a bachelor's degree at Northern by pursuing a regular major in fields related to optometry, such as biochemistry, biology, mathematics, physics, chemistry or psychology. Students interested in the pre-optometry program should contact an adviser in the Biology Department.

EN 111 College Composition I	4
EN 211 College Composition II	4
EN 303 Technical and Professional Writing	4
Humanities Electives	5
SP 110 Interpersonal Communication	4
BI 111 Introductory Biology: Principles	4
BI 112 Introductory Biology: Diversity	4
BI 201 Human Anatomy	3
BI 202 Human Physiology	5
BI 203 Medical Microbiology	5
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 450 Introductory Biochemistry	4
MA 105 College Algebra for Calculus Preparation	4
MA 106 Trigonometry	3
MA 115 Pre-Calculus	4
MA 161 Calculus I	5
MA 171 Introduction to Probability and Statistics	4

PH 201 College Physics I and	5
PH 202 College Physics II or	5
PH 220 Introductory Physics I and	
PH 221 Introductory Physics II	
PY 100 S/L Psychology as a Natural Science	4
Behavioral Science Electives	5
<i>An introductory management course (MGT 240 Organizational Behavior and Management, 3 cr.) or accounting course (ACT 201 Practical Accounting Procedures, 4 cr., or ACT 230 Principles of Accounting 3 cr.) is highly recommended but not required. The recommended courses are solely designed for completion of the pre-optometry requirements of the Michigan College of Optometry at Ferris State University. Course application to other programs may vary.</i>	

Pre-Pharmacy Program

Students wishing to pursue a career in pharmacy must fulfill a six-year doctor of pharmacy program. The first two years' requirements may be met by majoring in the chemistry program at Northern Michigan University; the latter four years' requirements must be fulfilled at one of the nation's pharmacy schools. Within Michigan, the doctor of pharmacy degree (Pharm.D.) is available from Ferris State University, the University of Michigan and Wayne State University. Another option, the Ph.D. in pharmacy, is also available from the University of Michigan and Wayne State University, but these usually require earning the bachelor's degree in chemistry or pharmacy first.

The pre-pharmacy program at Northern Michigan University is composed of a tightly structured two-year sequence, or a slower paced three-year schedule that includes four courses in chemistry, three in biology and additional course work that is dependent upon the intended pharmacy school.

Specific requirements, substitutions and pharmacy school admission procedures can be explained in detail by an adviser from the Chemistry Department.

EN 111 College Composition I	4
BI 111 Introductory Biology: Principles	4
BI 112 Introductory Biology: Diversity	4
BI 203 Medical Microbiology	5
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
MA 161 Calculus I	5

Additional course work* 29

**Additional course work is dependent upon the intended pharmacy school.*

Pre-Veterinary Medicine Program

Pre-veterinary students who are residents of Michigan normally plan an academic program to meet requirements for admission to the College of Veterinary Medicine at Michigan State University. Those requirements can be met at Northern Michigan University, where students take specified courses in biology, chemistry, mathematics, physics, college composition, social science and humanities. Students are encouraged to earn a bachelor's degree at Northern Michigan University by completing a regular major and minor in such fields as biology, biochemistry, chemistry, mathematics or psychology.

Specific advisement information is found in the *Pre-veterinary Medicine Handbook*, available from the Biology Department.

Factors considered in acceptance of students into the College of Veterinary Medicine at Michigan State University include legal residency, grade point average in all college course work, grade point average in required pre-veterinary science courses, results of the Medical College Admissions Test (MCAT) or Graduate Record Examination (GRE), total college course credits completed, average course load per semester, a personal interview, essay, veterinary experience and animal exposure, and extracurricular activities. Students interested in the pre-veterinary program should contact an adviser in the Biology Department.

EN 111 College Composition I	4
EN 211 College Composition II	4
Humanities Electives	8
Social Science Electives	8
BI 111 Introductory Biology: Principles	4
BI 112 Introductory Biology: Diversity	4
CH 111 General Chemistry I	5
CH 112 General Chemistry II	5
CH 321 Organic Chemistry I	4
CH 322 Organic Chemistry II	4
CH 450 Introductory Biochemistry	4
MA 105 College Algebra	4
<i>Choose one course from the following:</i>	3-4
MA 106 Trigonometry (3 cr.)	
MA 115 Pre-Calculus (4 cr.)	
MA 161 Calculus I	5
PH 201 College Physics I and	5
PH 202 College Physics II or	5
PH 220 Introductory Physics I and	
PH 221 Introductory Physics II	

SPECIAL-PURPOSE CENTERS

Centers of Excellence at NMU

Northern Michigan University is home to several special purpose centers, which provide and coordinate educational outreach programming to K-12 educators and community members throughout the Upper Peninsula. Several centers also coordinate undergraduate programs at NMU.

Center for Economic Education and Entrepreneurship

203 Cohodas Administrative Center

Director: Tawni Ferrarini • tferrari@nmu.edu

The center consults with educators and promotes, develops and implements economic education courses, workshops, materials and programs across the Upper Peninsula. Through a coordinated effort between the center, a strong network of K-12 Michigan Development Economic Evaluation Partners and a consortium of school districts, the CEEE strives to advance the understanding of the economic way of thinking and its applications in order to foster a growing population of responsible, knowledgeable and effective participants in the global marketplace.

Center for Gerontological Studies

118 Gries Hall

Director: Patricia Cianciolo • pciancio@nmu.edu

The center's mission is to promote research and educational opportunities for faculty, students and community members focusing on the needs of older adults living in the Upper Peninsula. The center seeks to involve these stakeholders in the development and implementation of public policies that will enhance the lives of older adults in rural communities. It also helps develop educational programming related to aging, including an interdisciplinary minor in gerontology.

Center for Native American Studies

112 Whitman Hall

Interim Director: April Lindala • alindala@nmu.edu

The center aims to enrich the knowledge and understanding of the indigenous peoples of North America from a Native American perspective by providing an academic setting where Native American history, culture, and current issues can be viewed through multiple lenses. The center oversees a minor in Native American Studies.

The Center for Upper Peninsula Studies

112 Whitman Hall

Director: John B. Anderton • janderto@nmu.edu

The purpose of the center is to promote a greater understanding of the people, culture, history and environment of Michigan's Upper Peninsula through a variety of research,

teaching and outreach programs. The center aims to develop an understanding and appreciation of the U.P. as a distinctive region; to develop and support a community of people studying the area; to initiate, undertake, encourage and support research and scholarly work on all aspects of the region, its people and its resources; and to provide services to regional institutions and researchers.

Glenn T. Seaborg Center for Teaching and Learning Science and Mathematics

2805 West Science Building

Director: Ann Joyal • ajoyal@nmu.edu

The mission is to enrich the knowledge and understanding of the general public in the areas of science and mathematics, particularly that of students and teachers from preschool through college. The objectives of the Seaborg Center are to provide programs that support the teaching and learning of science and mathematics at all levels, but particularly in the elementary and secondary schools of the Upper Peninsula; curriculum support to the schools; mathematics and science teacher education; professional development opportunities for teachers; and enrichment experiences for students.

Multicultural Education and Resource Center

2001 C.B. Hedgcock Student Service Center

Director: Darnell Bradley • dbradley@nmu.edu

This center takes a proactive role in the education and preparation of all of the university's students for life in an increasingly multicultural world. The center fosters a vibrant, stimulating, safe learning community in which cultural diversity is valued, differences are respected, and people from all cultures and backgrounds can flourish. The wide variety of services provided are designed to enhance opportunities for personal growth, academic success and social interaction.

Upper Peninsula Center for Educational Development

2805 West Science Building

Director: Douglas Russell • dorussel@nmu.edu

This is a consortium of the seven intermediate school districts in the U.P., Michigan Technological University and Northern Michigan University. The mission of the Center is to increase educational achievement and citizenship among regional learners through educational development and technical assistance, resource development and coordination, and collaboration among intermediate school districts, universities, colleges and local school districts.

COURSE DESCRIPTIONS

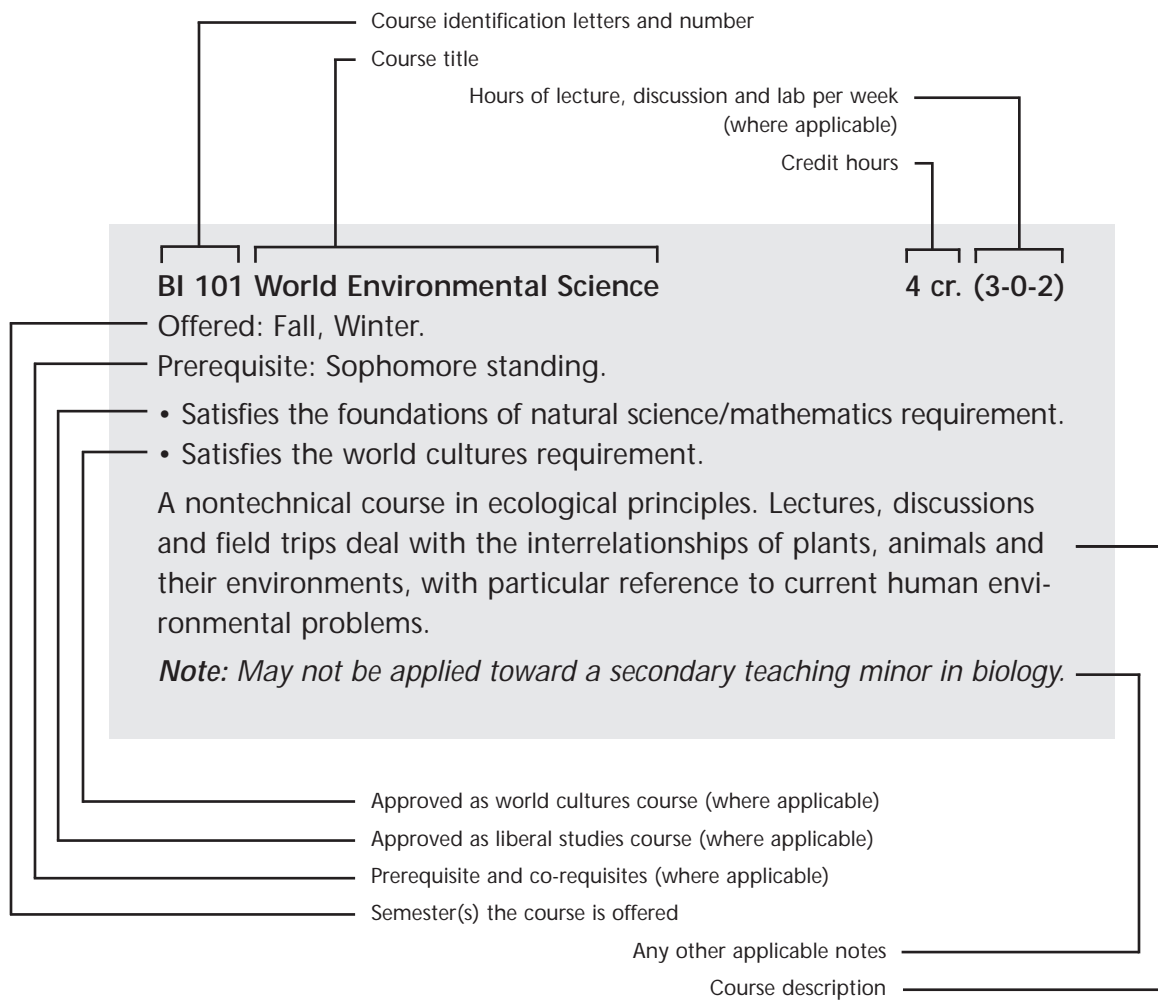
This section lists updated descriptions for all university courses; the descriptions appear in alphabetical order according to their course letter designations. These descriptions include any pre-requisites (requirements students must satisfy before registering for the course), co-requisites (requirements students must satisfy while taking the course), the amount of credit hours applied for each course, and, where relevant, the hours devoted to lecture, discussion and laboratory (see applicable department sections for the total credits required for each major or program). If no indication exists for lecture, discussion and laboratory hours, then the course is considered a lecture.

The courses listed here are subject to change. Many courses are regularly offered in the fall, while others are offered in the win-

ter or summer. However, semester enrollment, course demand, changes in faculty and other factors will sometimes affect the offering of courses. In addition, new courses may have been added, and changes in existing courses may have occurred since the printing of this bulletin.

When planning a semester program, students should contact the applicable departments for information regarding course offerings.

Some of the upper-level courses listed here can also apply toward graduate credit. See the *Northern Michigan University Graduate Bulletin* or contact the College of Graduate Studies for more information.



2006-2007 COURSE DESCRIPTIONS

Course Abbreviation Listing

Academic Information Services.....	AIS	Information Systems.....	IS
Accounting.....	ACT	International Studies.....	IP
Allied Health.....	AH	Labor Studies.....	LSP
Anthropology.....	AN	Languages.....	LG
Art and Design.....	AD	Liberal Studies.....	LB
Astronomy.....	AS	Manufacturing Technology.....	MF
Athletic Training.....	ATR	Management.....	MGT
Aviation Maintenance Technology.....	AMT	Marketing.....	MKT
Biology.....	BI	Mathematics.....	MA
Broadcasting.....	BC	Mechanical Engineering Technology.....	MET
Chemistry.....	CH	Military Science.....	MS
Chinese.....	CHN	Music.....	MU
Clinical Laboratory Science.....	CLS	Native American Studies.....	NAS
Collision Repair Technology.....	CRT	Nursing.....	NE
Commencement and Graduation.....	CA	Occupational Studies.....	OC
Computer Information Systems.....	CIS	Office Information Systems.....	OIS
Computer Science.....	CS	Philosophy.....	PL
Construction Systems.....	CN	Physical Education.....	PMD
Cosmetology.....	COS	Physics.....	PH
Cosmetology Instructor.....	HR	Political Science.....	PS
Criminal Justice.....	CJ	Portuguese.....	POR
Drawing and Design.....	DD	Power and Transportation.....	PT
Economics.....	EC	Practical Nursing.....	PN
Education.....	ED	Pre Medical/Dental.....	PMD
Electrical Line.....	EL	Psychology.....	PY
Electronic Technology.....	ET	Public Relations.....	PR
English.....	EN	Public Safety/Law Enforcement.....	PSLE
Entertainment and Sports Promotion.....	ESPR	Public Safety/Local Corrections.....	PSCR
Environmental Science.....	ENV	Recreation.....	RE
Finance.....	FIN	Science Education.....	MSED
French.....	FR	Social Work.....	SW
Geography.....	GC	Sociology.....	SO
German.....	GR	Spanish.....	SN
Gerontology.....	GRN	Speech.....	SP
Health.....	HL	Speech, Language and Hearing Sciences.....	SL
Health Promotion.....	HP	Surgical Technology.....	ST
Heating and Ventilation.....	HV	Technical Education.....	TE
History.....	HS	Theatre.....	TH
Honors.....	HON	Traffic Safety.....	TS
Hospitality Management.....	HM	University Studies.....	UN
Human Nutrition.....	HN	Welding.....	WD
Industrial Maintenance.....	IM	Wood Technology.....	WT
Industrial Technologies.....	IT		

ACT-ACCOUNTING

College of Business

<p>ACT 201 Practical Accounting Procedures 4 cr. Offered: Fall, winter</p> <p>Study of basic principles and procedures in clerical, technical or secretarial fields. This course will emphasize recording business transactions and completing the accounting cycle, using special journals, and preparing financial statements, worksheets, payroll and other records.</p> <p><i>Note: Not acceptable as an elective for students who complete ACT 230 and ACT 240.</i></p>	<p>ACT 321 Federal Income Taxation 4 cr. Offered: Fall, winter Prerequisite: ACT 240.</p> <p>Basics of individual federal income taxation. Major topics include basic tax model, gross income, deductions, alternative minimum tax, property, non-taxable exchanges, capital gains/losses, depreciation and deferred compensation. Policy and historical developments are studied to aid comprehension of current law.</p>
<p>ACT 202 Accounting Concepts for Management 4 cr. Offered: Contact department for information</p> <p>Introduction to accounting concepts and the utilization of accounting in the decision-making process.</p> <p><i>Note: Not acceptable as an elective for students who complete ACT 230 and ACT 240.</i></p>	<p>ACT 325 Financial Management for Entrepreneurship 3 cr. Offered: Every other fall Prerequisites: Completion of the business core, relevant business experience or approval of the Entrepreneurship Development Program Committee and junior standing.</p> <p>Builds upon the basic introductory material of Principles of Accounting I and II. Topics include business taxes, cash flow forecasting and cost analysis.</p> <p><i>Note: This course is not an appropriate elective for an accounting major.</i></p>
<p>ACT 230 Principles of Accounting I 3 cr. Offered: Fall, winter, summer Prerequisite: MA 103 or equivalent.</p> <p>Study of basic accounting principles and recording procedures with in-depth analysis of income and expense recognition and the non-owners' equity portions of the balance sheet.</p>	<p>ACT 403 Accounting III 4 cr. Offered: Fall Prerequisites: ACT 302, ACT 311, and ACT 321 and junior standing.</p> <p>Third course in the financial accounting sequence covers special problem areas: introduces students to accounting for governmental units, hospitals, colleges and universities; and accounting for business combinations, partnerships, branch accounting, and multinational accounting problems.</p>
<p>ACT 240 Principles of Accounting II 3 cr. Offered: Fall, winter, summer Prerequisite: ACT 230.</p> <p>Further study of financial accounting including owners' equity, income tax accounting, changes in financial position statements and statement analysis/interpretation. Managerial accounting is introduced: cost accounting systems, responsibilities accounting, budgeting concepts, cost-volume-profit analysis and capital budgeting are covered.</p>	<p>ACT 412 Advanced Cost Accounting 3 cr. Offered: Contact department for information. Prerequisites: ACT 311 and junior standing or instructor's permission.</p> <p>Study of managerial accounting as an information system designed to provide data for non-routine decisions, policy making and long-range planning.</p>
<p>ACT 301 Financial Accounting I 4 cr. Offered: Fall, winter Prerequisite: ACT 240 and junior standing.</p> <p>Intensive study of the accounting cycle and the asset section of the balance sheet.</p>	<p>ACT 422 Advanced Federal Taxation 3 cr. Offered: Winter Prerequisites: ACT 321 and junior standing or instructor's permission.</p> <p>This course applies the basics of income taxation learned in the first tax course to corporations, partnerships, estates and trusts. Topics also include professional tax practice considerations and family tax planning. Practical experience in the preparation of tax forms will also be gained.</p>
<p>ACT 302 Financial Accounting II 4 cr. Offered: Fall, winter Prerequisite: ACT 301 and junior standing.</p> <p>Intensive study of the liability and owners' equity sections of the balance sheet and the treatment of special problem areas in accounting.</p>	<p>ACT 431 Accounting Information Systems 3 cr. Offered: Fall Prerequisites: ACT 240, CIS 110 and junior standing.</p> <p>Information and systems approaches as well as systems analysis/design. Emphasis is on transaction processing, controls, flow-charting techniques and accounting situations involving electronic computing systems. The problems and cases are like those on CPA and CMA examinations.</p>
<p>ACT 311 Cost Accounting 4 cr. Offered: Fall, winter Prerequisite: ACT 240 and junior standing.</p> <p>Development of an understanding of cost accounting as an information system designed to provide data for inventory valuation and income determination, planning and controlling routine operations, and non-routine decisions.</p>	<p>ACT 441 Auditing 4 cr. Offered: Winter Prerequisites: ACT 302, ACT 311 and junior standing.</p> <p>Review of audit concepts, standards and procedures; ethics and legal requirements; scope, objectives and nature of audits; management of an audit and modern audit techniques. Statistical sampling in auditing, electronic systems audits and the auditor's role in tax and management advisory services are also covered.</p>

ACT 443 Fraud Examination 4 cr.

Offered: Contact department for information.

Prerequisite: ACT 441 and junior standing.

To raise students' awareness of the accountant's opportunities in fraud investigation and detection and to help students reach an informed decision whether or not to pursue a career as a certified fraud examiner.

ACT 482 Accounting for Non-Profit Enterprises 3 cr.

Offered: Winter

Prerequisites: ACT 301 and junior standing or instructor's permission.

Accounting principles and procedures for governmental units, hospitals, colleges and universities.

ACT 484 Current Developments in Accounting 3 cr.

Offered: Contact department for information.

Prerequisites: Senior standing accounting major or instructor's permission.

Historical and current developments in accounting research and theory. Controversial topics related through contemporary literature.

ACT 488 CPA/CMA Problems 3 cr.

Offered: Contact department for information.

Prerequisites: Senior standing, accounting major and College of Business permission.

Selected problems from CPA examinations; analysis and revision of statements, partnerships, corporations, quasi-organizations, mergers and conglomerates; financial accounting theory, ethics, auditing, law, advanced cost and marginal analysis; and federal taxation programs.

ACT 491 Internship in Accounting 1-4 cr.

Offered: Fall, winter, summer

Graded S/U.

Prerequisites: College of Business permission and junior standing.

Professional experience for qualified accounting or finance majors.

Working with accounting or other business firms. Written paper required; students are evaluated by the faculty supervisor in consultation with the employer.

Note: Credit hours are beyond accounting degree requirements.

ACT 495 Variable Topics in Accounting 1-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

Variable topics of current interest.

Note: May be repeated if topic differs.

ACT 498 Directed Study in Accounting 1-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

Independent study of some special problem in accounting under the guidance of a faculty member. This study is limited to students with superior grade point averages.

AD-ART AND DESIGN

Art and Design Department

Cognate Courses

AD 160 Physical Structures and Concepts 4 cr.

Offered: Fall, winter

Introduction to the methods of construction and production of art forms within a societal context. The course includes the study of materials, tools, assembly procedures and the application of such forms.

AD 175 Visual Structures and Concepts 4 cr.

Offered: Fall, winter

Study of pattern and color in relation to visual perception and communication. Visual patterns, color qualities and their application are examined.

AD 270 Social Structures and Concepts 4 cr.

Offered: Fall, winter

Prerequisites: AD 160 and AD 175.

Comparative study of cultural products, social structures and visual conditioning and its evolution in contemporary society. Students are required to participate in a class field trip to Chicago or Minneapolis. The trip involves a substantial fee to cover travel expenses.

AD 360 Methodology and Visual Form 4 cr.

Offered: Fall

Prerequisites: AD 203 and AD 270.

Examination of mechanics, optics and material characteristics and their relationship to the physical form of objects.

AD 375 Perception and Visual Form 4 cr.

Offered: Winter

Prerequisites: AD 203 and AD 270.

Examination of the interaction of psychological and social psychological data and how it applies to visual communication. Students analyze concepts of color, form and social meaning in relation to their major studio area and production of studio work.

AD 470 Value and Visual Form 4 cr.

Offered: Winter

Prerequisites: AD 203, AD 270 and junior standing.

The identification of personal and social values as they relate to the production of art derived from critical, theoretical and philosophical sources.

Art History Courses

AD 200 Native American Art and Architecture 4 cr.

Offered: Fall

Prerequisite: EN 111 recommended.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the world cultures requirement.

A study of Native art and architecture from the pre-contact period to the present. A contextual approach is used to analyze material produced by the Anishinaabe, the Haudenosaunee and other indigenous peoples of North America.

AD 250 History of Western Art and Architecture 4 cr.

Offered: Fall, winter, summer

- Satisfies the foundations of visual and performing arts requirement.

Surveys the visual arts in the Western world from ancient times through the first half of the 19th century. The social, formal and philosophical aspects of art are examined.

AD 260 Why America Looks This Way 4 cr.

Offered: Fall, winter

- Satisfies the foundations of visual and performing arts requirement.

Survey of the ideas and events determining the development of American architecture.

AD 265 Art and Architecture of Japan 4 cr.

Offered: Every other fall.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the world cultures requirement.

Survey of the visual arts and architecture of Japan from prehistory to the present. Includes consideration of the core values that are expressed through Japanese art.

AD 300 Japan and the West: Crosscurrents in Art and Architecture 4 cr.

Offered: Every other fall.

Prerequisites: Completion of the foundations of communication requirement and junior standing.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the upper division liberal studies requirement.
- Satisfies the world cultures requirement.

Investigates technical, formal and philosophical dimensions of mutual influence in Japanese and Western art. Focus is on the context of modernism.

AD 355 Twentieth Century Art and Architecture 4 cr.

Offered: Winter

Prerequisites: Completion of the foundations of communication requirement and junior standing.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the upper division liberal studies requirement.

Survey of visual art and architecture in the Western world from the second half of the 19th century through the present decade. The conceptual basis of the arts and their place in society is examined within a historical framework.

AD 365 History of Modern Craft and Design 4 cr.

Offered: Winter

Prerequisites: Completion of the foundations of communication requirement and junior standing.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the upper division liberal studies requirement.

Considers progressive craft and design from the mid-19th century to the present. Investigates major movements in the applied arts and social issues affecting their production.

Areas of Concentration**Ceramics****AD 122 Ceramics: Handbuilding Techniques** 4 cr.

Offered: Fall, winter

Introduction to the methods and techniques of producing ceramic objects covering the various forming, finishing and firing techniques. Students experience techniques ranging from pinch, coil and slab construction.

AD 222 Ceramics: Wheel Forms 4 cr.

Offered: Fall

Development of the traditional skills of throwing, along with glazing and firing procedures. Supporting information is derived from historical and contemporary wheel-thrown forms.

AD 322 Ceramics: Seminar 4 cr.

Offered: Winter

Prerequisites: AD 203, AD 122 and AD 222.

Production of a collection of ceramic pieces that combine traditional and experimental techniques to develop a personal approach toward the ceramic material. Emphasis is on finishing and technical concerns related to clay/glaze formulation and firing procedures.

AD 422 Ceramics: Seminar 4 cr.

Offered: Fall

Prerequisites: AD 322 and junior standing or instructor's permission.

Production of a body of work that supports the student's personal concern for form. Individual solutions for construction and finishing are stressed with a focus on current trends and issues in ceramics.

AD 459 Ceramics: BFA Seminar 4 cr.

Offered: Fall, winter

Prerequisites: AD 303, AD 422 and junior standing or instructor's permission.

Continuation of the study of the ceramic process to develop a body of work representing a personal approach supported by ideological and theoretical sources.

Digital Cinema**AD 121 Digital Cinema: Introduction** 4 cr.

Offered: Fall, Winter

Introduction to the physical aspects of digital video production. Screenings emphasize narrative features and shorts. Equipment is provided.

AD 221 Digital Cinema: Animation 4 cr.

Offered: Winter

Continued development of digital video production skills and knowledge emphasizing animation forms. Equipment is provided.

AD 321 Digital Cinema: Seminar 4 cr.

Offered: Fall

Prerequisites: AD 203 and AD 221.

Continued development of digital video production skills and knowledge emphasizing documentary forms. Students must have access to a camcorder.

AD 421 Digital Cinema: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 321 and junior standing or instructor's permission.
 Continued development of digital video production skills and knowledge emphasizing a seminar project. Students must have access to a camcorder.

AD 458 Digital Cinema: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 421 and junior standing or instructor's permission.
 Development of a portfolio presentation and an ideological statement.

Drawing and Painting

AD 114 Painting 4 cr.
 Offered: Fall
 Introduction to relevant concepts and techniques. A body of work is produced exploring several painting media, with an emphasis on oils.

AD 120 Drawing/Illustration 4 cr.
 Offered: Fall, winter
 Introduction to methods and knowledge needed to create various types of spatial illusions and to provide cognate support for drawing.

AD 220 Drawing/Painting 4 cr.
 Offered: Fall, winter
 Prerequisite: AD 120.
 Development of techniques and skills related to all aspects of spatial illusions. Emphasis is placed on the importance of drawing as a basis for visual growth.

AD 320 Drawing/Painting/Papermaking: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 203 and AD 220.
 Production of a body of work demonstrating the student's understanding of psychological and social aspects. Students may produce work in any combination of drawing, painting or papermaking.

AD 420 Drawing/Painting/Papermaking: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 320 and junior standing or instructor's permission.
 Development of a body of work using a personal approach to image construction and emphasizing the ideological sources supporting the activity.

AD 457 Drawing/Painting: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 420 and junior standing or instructor's permission.
 Production of a body of work that continues the development of ideological concerns.

Electronic Imaging

AD 134 Electronic Imaging: Introduction 4 cr.
 Offered: Fall, winter, summer
 Introduction to computer graphics hardware and software with the development of knowledge and skill in electronic image production.

AD 234 Electronic Imaging: Web Design 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 134 and AD 175.
 Development of concepts and methods for interactive multimedia and Web site design using a variety of software. Considerations for navigation, interactivity and visual communication will be presented.

AD 334 Electronic Imaging: 3D 4 cr.
 Offered: Fall
 Prerequisites: AD 203 and AD 234.
 Development of concepts and methods for the modeling, texturing and animation of three-dimensional forms. Industry uses of modeling such as gaming and time-based narrative will be presented.

AD 434 Electronic Imaging: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 203, AD 334 and junior standing or instructor's permission.
 Development of concepts and methods for electronic imaging using a variety of software. Contemporary techniques using resources from traditional media such as graphic design, illustration, painting, photography and video are incorporated. Ideological issues concerning electronic imaging are presented.

AD 467 Electronic Imaging: BFA Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 303, AD 434 and junior standing or instructor's permission.
 Development of an electronic imaging portfolio presentation and ideological statement. Self promotion with an emphasis on job search will be explored through the development of interactive media such as a Web site.

Furniture Design

AD 124 Woodworking: Joinery and Greenwood 4 cr.
 Offered: Fall
 Introduction to traditional hand tool joinery and greenwood process through the production of social goods and the identification of a personal mode of practice.

AD 224 Woodworking: Turning and Bending 4 cr.
 Offered: Winter
 Introduction to wood turning and bending through the production of social goods and the identification of a personal mode of practice.

AD 326 Furniture Design: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 124, AD 203 and AD 224.
 Development of a professional portfolio and a written support paper. Emphasis is placed on understanding the various parameters of usefulness, cost and appearance that form the design program.

AD 426 Furniture Design: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 326 and junior standing or instructor's permission.
 Continued development of a professional portfolio and written support paper from AD 326. Emphasis is placed on the application of ideology and theory.

AD 463 Furniture Design: BFA Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 303, AD 426 and junior standing or instructor's permission.
 Continued development of ideological and theoretical concerns. Emphasis is placed on preparing a selection of work as a professional portfolio and writing a paper supporting the activity.

Graphic Communication

AD 118 Introduction to Graphic Communication 4 cr.
 Offered: Fall, winter
 Introduction to graphic communication concepts with the development of hand skills. Emphasis is placed on the use of process, pattern and color concepts.

AD 218 Graphic Communication: Studio Practices 4 cr.
 Offered: Fall, winter
 Prerequisite: AD 118.
 Introduction to the use of typography. Emphasis is placed on the use of process, letterform, layout and computer skills.

AD 318 Graphic Communication: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 203 and AD 218.
 A study of layout and design. Emphasis is placed on the use of process, design concept, complex layout and computer skills.

AD 418 Graphic Communication: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 303, AD 318 and junior standing or instructor's permission.
 A study of client-based graphic problems. Emphasis is placed on the use of process, market research, design concept, advanced layout and computer skills.

AD 455 Graphic Communication: BFA Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 303, AD 318 and junior standing or instructor's permission.
 A study of self-promotion. Emphasis is placed on portfolio, job search and exhibition preparation.

Human Centered Design

AD 111 Human Centered Design: Shelters 4 cr.
 Offered: Fall
 Introduction and exploration of the domestic landscape while examining how immediate surroundings inform behavior. Ideation and presentation techniques are developed and integrated with the technical aspects of design.

AD 211 Human Centered Design: Social Goods 4 cr.
 Offered: Winter
 Introduction to the process of defining and developing a product with an emphasis on value and semantics. Studio work is oriented toward realizing the artifact in the virtual and physical realm.

AD 311 Human Centered Design: Concept and Technology 4 cr.
 Offered: Fall
 Prerequisites: AD 211, MF 134
 Consolidation of social goods and shelters with applied concepts. Studio work is oriented toward applying material research and technological processes. Emphasis is placed on theoretical and portfolio development.

AD 411 Human Centered Design: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 303, AD 311
 Continued research and development of concepts and techniques related to personal interests in design and culture.

AD 440 Human Centered Design: BFA Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 411
 Continued development of conceptual and social concerns in preparation of professional portfolio.

Illustration

AD 120 Drawing/Illustration 4 cr.
 Offered: Fall, winter
 Introduction to methods and knowledge needed to create various types of forms and spatial illusions.

AD 219 Illustration Forms 4 cr.
 Offered: Winter
 Study of illustration concepts and techniques. The focus is on studio production in book, magazine advertising, television and film illustration with an emphasis on color and linear perspective using a variety of media including computer imaging.

AD 319 Illustration: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 203 and AD 219 with a "B" or better.
 Development of a competitive professional portfolio with assignments that closely parallel illustration problems encountered in the profession. Two areas of illustration are chosen by the student stressing the interaction of image, color typography and social meaning.

AD 419 Illustration: Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 319 with a "B" or better and junior standing or instructor's permission.
 Completion of a competitive professional portfolio focusing on one area of illustration with students choosing the concepts, themes and techniques. Illustration markets and career opportunities are investigated.

AD 456 Illustration: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 419 with a "B" or better and junior standing or instructor's permission.
 Study of image, color, typography and social meaning for the visual communication media. Students complete a professional portfolio demonstrating mastery of illustration problems in their chosen area.

Jewelry, Metalsmithing and Blacksmithing

AD 123 Jewelry/Metalsmithing 4 cr.
 Offered: Fall, winter
 Introduction to methods, techniques and materials used to construct metal objects and jewelry. The course covers forming, soldering, cutting, forging, casting, fabricating metal and other materials in the production of jewelry/art.

AD 223 Blacksmithing/Metalsmithing 4 cr.
 Offered: Winter
 Development of skills and knowledge of basic blacksmithing in the production of utilitarian and non-utilitarian forged objects. Beginning through advanced techniques of forging hot steel are covered.

AD 323 Metalsmithing: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 123, AD 175 and AD 223.
 Production casting and mold-making techniques. Individualized research of casting processes in the production of jewelry and metal objects.

AD 423 Metalsmithing: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 203, AD 323 and junior standing or instructor's permission.
 Sheet metal forming techniques: raising, sinking, folding and construction. Production of a collection of work using these techniques as the foundation of the structures designed by each student.

AD 460 Metalsmithing: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 423 and junior standing or instructor's permission.
 Continued development of ideological concerns in the production of studio art work as contracted with the instructor.

Photography

AD 117 Photography: Black and White 4 cr.
 Offered: Fall, winter, summer
 Introduction to the use of the camera, film processing, printing procedures and print presentation using black-and-white materials. Assignments and critiques introduce students to ideology and problem-solving techniques. Each student must have access to a single-reflex camera.

AD 217 Photography: Color 4 cr.
 Offered: Fall
 Prerequisite: AD 117.
 Introduction to color photography using film and electronic media. Light and film, additive and subtractive color, print forms and print presentation are emphasized.

AD 317 Photography: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 203 and AD 217.
 Introduction to studio lighting (including tungsten and strobe lights) using black-and-white materials. Application of the 4 x 5 view camera for studio work is introduced. An emphasis is made on refinement of black-and-white print quality.

AD 417 Photography: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 317 and junior standing or instructor's permission.
 Advanced studio application of the 4 x 5 view camera using color transparency. Utilization of the computer with photographic image making is presented. Students develop portfolios with an emphasis on continuity.

AD 454 Photography: BFA Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 303, AD 417 and junior standing or instructor's permission.
 Preparation of a professional portfolio by each student.

Printmaking

AD 115 Printmaking: Serigraphy and Intaglio 4 cr.
 Offered: Winter
 Introduction to the techniques of screen printing and the intaglio process (etching). Emphasis is placed on skill development and the creation of original prints.

AD 215 Printmaking/Papermaking: Forms 4 cr.
 Offered: Fall
 Prerequisites: AD 115 or instructor's permission.
 Development of techniques necessary in the creation of an original print with an emphasis on intaglio or screen printing. Students may explore hand papermaking emphasizing sheetmaking, coloring or three-dimensional approaches.

AD 315 Printmaking/Papermaking: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 203 and AD 215.
 Continued development of studio skills using one process, with an emphasis on creating editions.

AD 415 Printmaking/Papermaking: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 315 and junior standing or instructor's permission.
 Production of a body of work using one process, with an emphasis on development of a personal ideology.

AD 452 Printmaking/Papermaking: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 415 and junior standing or instructor's permission.
 Production of a body of work and a support paper that continue the development of ideological concerns.

Sculpture

AD 116 Sculpture 4 cr.
 Offered: Fall
 Introduction to methods and techniques of sculpture and its cognate support.

AD 216 Sculpture: Bronze and Aluminum Casting 4 cr.
 Offered: Winter
 Development of skills and concepts in the production of sculpture using bronze and aluminum casting. Concentration is on learning the operation of production casting and mold making.

AD 316 Sculpture 4 cr.
 Offered: Winter
 Prerequisites: AD 116, AD 203, AD 216 and WD 140.
 Development of skills and concepts in the production of welded steel sculpture within the context of architecture and the environment. Ideations are directed toward large-scale operations and productions.

AD 416 Sculpture: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 316 and junior standing or instructor's permission.
 Production of a group of artwork focusing on multi-media assemblage, found objects and combined technologies.

AD 453 Sculpture: BFA Seminar 4 cr.
 Offered: Fall, winter
 Prerequisites: AD 303, AD 416 and junior standing or instructor's permission.
 Continued development of ideological concerns in the production of studio art work as contracted with the instructor.

Woodworking

AD 124 Woodworking: Joinery and Greenwood 4 cr.
 Offered: Fall
 Introduction to traditional hand-tool joinery and greenwood process through the production of social goods and the identification of a personal mode of practice.

AD 224 Woodworking: Turning and Bending 4 cr.
 Offered: Winter
 Introduction to wood turning and bending through the production of social goods and the identification of a personal mode of practice.

AD 324 Woodworking: Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 124, AD 203 and AD 224.
 Development of a professional portfolio and a written support paper. Emphasis is placed on understanding the various parameters of usefulness, cost and appearance that form the design problem.

AD 424 Woodworking: Seminar 4 cr.
 Offered: Winter
 Prerequisites: AD 324 and junior standing or instructor's permission.
 Continued development of a professional portfolio and written support paper from AD 324. Emphasis is placed on the application of ideology and theory.

AD 461 Woodworking: BFA Seminar 4 cr.
 Offered: Fall
 Prerequisites: AD 303, AD 424 and junior standing or instructor's permission.
 Continued development of ideological and theoretical concerns. Emphasis is placed on preparing a selection of work as a professional portfolio and writing a paper supporting the activity.

**Art Elementary Education
 (for elementary education majors)**

AD 310 Art for the Elementary Classroom Teacher 2 cr.
 Offered: Fall, winter, summer
 Prerequisite: Admission to teacher education.
 A survey of a variety of teaching strategies to implement concepts of knowledge, values and skills in the art classroom. Special emphasis is placed on art criticism, aesthetics, art history, art production, child development, drawing, painting, paper, crayons, printmaking, fibers and lesson planning.

**Art Secondary Education
 (for secondary certification K-12)**

AD 248 Introduction to Art Education 4 cr.
 Offered: Fall
 Prerequisites: AD 175, AD 270, a minimum grade point average of 2.70 in the department and admission to a teacher education program. Students must have either a portfolio review of previous work or have satisfactorily completed AD 203.

An introduction to art education and concepts of knowledge, values and skills with different media in the art classroom. Emphasis is placed on comprehensive art education, audiovisual productions, planning and organizing of an art room and writing lesson plans. A "B" or higher must be earned to take AD 302.

AD 302 Media and Methodology for Art Education 4 cr.
 Offered: Winter
 Prerequisites: ED 201, ED 231, ED 301, PPST/basic skills test and AD 248.
 Admission to the methods phase of teacher education, AD 248 with a minimum grade of "B" and a minimum GPA of 2.7 in the department.
 To explore a variety of media used in the art classroom and to gain knowledge, values and skills in writing comprehensive art education lessons. To implement lesson plans in the schools/museums for practical application.

AD 350 Curriculum Theory and Objectives for Art Education 4 cr.

Offered: Fall

Prerequisites: Admission to the methods phase of teacher education, AD 248 and AD 302 with a minimum grade of "B" and a minimum GPA of 2.70 in the department. Transfer and post-baccalaureate students must have a portfolio of their work approved by the department.

An examination of how the history of art education influences art curricula today. Emphasis is on a written 15-week curriculum, discussion of creative problem solving, discipline, motivation, evaluation and student-teaching experience. Other instructors must be informed of this commitment to avoid conflict of obligations.

Note: May not be applied toward a non-teaching major or any minor in art and design. The art education courses listed above must be taken sequentially.

Individual Art Review Courses

AD 103 Individual Art Review 1 cr.

Offered: Fall, winter

Graded S/U

Introduction to the profession's requirements and the range of opportunities in the visual arts. Students begin the development of the portfolios required for their application to the upper division in the department.

AD 203 Individual Art Review 2 cr.

Offered: Fall, winter

Graded S/U

Prerequisites: AD 103 (with a grade of "S") and instructor's permission of the particular concentration, AD 160 and AD 175 and 200-level seminar. Students must also attain a "B-" (2.7) average in these courses.

Preparation of portfolios and resumes for evaluation before full-time faculty of Art and Design. Concurrent enrollment in a 300-level studio course is possible only with the adviser's consent, since a passing grade in AD 203 is required for enrollment in the department's upper division. This course may be repeated, but students receiving one or more grades of unsatisfactory or withdrawal will not be allowed to continue in the program.

AD 303 Individual Art Review 2 cr.

Offered: Fall, winter

Graded S/U

Prerequisites: AD 203 (with a grade of S) and 300-level seminar (or concurrent enrollment), plus permission of the instructor of the particular studio area. Students must also attain a "B-" (2.70) average in studio concentration and their cognates concentration (AD 160, AD 175, AD 270) to enroll.

Students identify the characteristics of professionalism and discuss their art work with small groups of faculty. Students develop resumes, statements with an emphasis on the social, visual and ideological aspects of the visual arts, and a portfolio presentation. This course may be repeated, but students receiving one or more grades of unsatisfactory or withdrawal will not be allowed to continue in the program.

AD 403 Individual Art Review 2 cr.

Offered: Fall, winter

Graded S/U

Prerequisites: AD 303 (with a grade of S) and acceptance of the AD 403 Portfolio Review Application.

Preparation of a collection of work to demonstrate the student's professional competence for exhibit presentation in a department-approved gallery.

Special Courses

AD 291 Studio Workshop 1-4 cr.

Offered: On demand

Prerequisite: Freshman or sophomore standing.

A course designed to develop specific studio skills of students who are interested in enhancing the classroom studio experience.

AD 295 Special Topics in Art and Design 1-4 cr.

Offered: On demand

Prerequisite: Freshman or sophomore standing.

A course providing art and design experiences not emphasized in regular course offerings.

Note: May be repeated if topic differs.

AD 298 Directed Study 1-4 cr.

Offered: On demand

Prerequisite: Freshman or sophomore standing and instructor's permission.

A course arranged by contract with the instructor of a particular studio area.

AD 299 Associate Research 4 cr.

Offered: Fall, winter

Prerequisite: Open to associate degree candidates only.

Individual study with an instructor of a particular studio concentration exploring and using techniques, materials and processes. It must be taken at the hours for regularly presented studio classes in the concentration.

AD 450 Studio Practice 2-4 cr.

Offered: On demand

Prerequisites: Junior standing and department head permission. Open only to those students who, through transfer or departmental evaluation, do not have enough credits for graduation from a particular area of studio concentration.

A course arranged by contract with the instructor of a particular studio concentration.

AD 491 Studio Workshop 1-4 cr.

Offered: On demand

Prerequisites: Junior, senior or graduate standing.

A course designed to develop specific studio skills of students who are interested in enhancing the classroom studio experience.

AD 492 Internship in Art and Design 1-4 cr.

Offered: On demand

Graded S/U

Prerequisites: AD 160, AD 175, AD 203, AD 303, AD 270, GPA 2.7, junior standing and approval of the major professor.

The object of this course is to provide Art and Design majors with professional work experience in their chosen area of concentration.

AD 495 Special Topics in Art and Design 1-4 cr.

Offered: On demand

Prerequisites: Junior standing and instructor's permission.

A course providing art and design experiences not emphasized in regular course offerings.

Note: May be repeated if topic differs.

AD 498 Directed Study 1-4 cr.
Offered: On demand
Prerequisites: Junior standing and instructor's permission.
A course arranged by contract with the instructor of a particular studio area.

AIS-ACADEMIC INFORMATION SERVICES

AIS 101 Introduction to Information Resources 1 cr.
Offered: Fall, winter

A practical introduction to the organization of information and research strategies. Includes practice with reference materials, the library catalog, databases, electronic resources, periodical indexes and government documents. Open to all students; recommended for first-year students.

AIS 295 Special Topics 1-4 cr.
Offered: On demand

Investigation of a significant topic. Content varies.

AIS 296 Special Topics 1-4 cr.
Offered: On demand
Graded S/U

Investigation of a significant topic. Content varies.

AIS 330 Management and Use of Archival Information 4 cr.
Offered: Every other winter.

Examines the knowledge, theory and skills required to manage archival information. Reviews the nature of information, records, historical documentation, research methodologies and the role of archives in modern society. Practical exercises emphasize theories and skills required to implement archival functions and research methodologies.

AIS 435 Research Using Digital Information Resources 2 cr.
Offered: Winter

Prerequisites: Junior standing or instructor's permission.

Theoretical and practical study of digital information. Practice searching digital resources (Internet, online databases, e-journals) is integral to the course. Covers issues such as access, copyright, preservation, authorship, ownership, organization, citation formats and content evaluation as applied to locating and using digital information.

AIS 491 Workshops and Seminars in Library and Information Science 1-4 cr.

Offered: On demand

Graded S/U

Prerequisites: Junior standing or instructor's permission.

Opportunities for the concentrated study of selected library and information topics.

Note: May be repeated if topic differs.

AIS 495 Special Topics in Library and Information Science 1-4 cr.
Offered: On demand

Prerequisites: Junior standing or instructor's permission.

An opportunity to study resources and issues in library and information science that are not part of established courses.

AIS 496 Special Topics in Library and Information Science 1-4 cr.
Offered: On demand

Graded S/U

Prerequisites: Junior standing or instructor's permission.

Investigation of significant topic. Content varies.

AH-ALLIED HEALTH

AH 102 Growth and Development 3 cr.
Offered: Fall, winter

Developing a concept of human life from birth to death. Emphasis is on the normal stages of growth and development of the human being at different ages. This course serves as a framework within which students explore their own feelings concerning the life process and develop a philosophy concerning the appreciation of that process.

AH 125 Clinical Assistant Skills 3 cr. (2-0-2)
Offered: Winter

Prerequisite: Clinical assistant certificate major.

This course introduces the clinical assistant to the basic skills that are required to carry out select patient interventions in varied health care settings. The student practices and then performs select clinical skills on patients in health care settings.

AMT-AVIATION MAINTENANCE TECHNOLOGY

Technology and Occupational Sciences Department

AMT 101 Introduction to Aviation Maintenance 6 cr.
Offered: Fall

A study of fundamentals of aviation maintenance. Topics include aircraft familiarization, nomenclature, physics of flight, flight-line safety, aviation math, physics and basic electricity.

AMT 102 Aircraft Basic Science 6 cr.
Offered: Fall

Identification, selection and use of FAA publications related to aircraft maintenance, determination of authority to return to service, mechanic's privileges and limitations, use of aircraft records, familiarization with aircraft drawings and aircraft weight and balance.

AMT 103 Aviation Shop Practices 6 cr.
Offered: Fall

A study of the use of basic hand tools and power equipment, shop safety, fluid lines and fittings, materials and processes, cleaning and corrosion control, the use and care of precision measuring tools and the use and interpretation of various non-destructive inspection methods.

AMT 104 Aircraft Electrical Systems 6 cr.
Offered: Winter

A study of the reading and interpretation of aircraft electrical diagrams and schematics, theory of operation and repair of aircraft electrical generation and regulation systems, airframe and power plant warning and control systems.

AMT 200 Aircraft Sheet Metal/Non-Metallic Structures 6 cr.
Offered: Winter

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104 or instructor's permission.

A study of aircraft sheet metal structural fabrication and repair methods, and wood, fabric, composite and plastic aircraft components construction and repair.

AMT 201 Reciprocating Engines and Propellers 6 cr.
Offered: Winter

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104 or instructor's permission.

An in-depth study of the theory of operation of reciprocating engines and their systems, propeller systems, construction, operation, maintenance and repair.

AMT 202 Aircraft Flight Control Systems 6 cr.
Offered: Fall

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104 or instructor's permission.

A detailed study of aircraft flight control system installation, rigging and requirements for methods of aircraft inspection. Helicopter aerodynamics, assembly, rigging and components are also covered.

AMT 203 Reciprocating Engine Overhaul 6 cr.
Offered: Fall

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104, AMT 201 or instructor's permission.

The study of overhaul practices of reciprocating aircraft engines. Includes removal/reinstallation, inspection, overhaul, maintenance, repair and troubleshooting of aircraft reciprocating engines and systems.

AMT 204 Turbine Engines and Systems 6 cr.
Offered: Fall

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104 or instructor's permission.

The study of the theory of operation of aircraft turbine engines and their associated systems.

AMT 205 Aircraft Fluid Power and Landing Gear 6 cr.
Offered: Winter

Prerequisites: AMT 101, AMT 102, AMT 103, AMT, 104 or instructor's permission.

A detailed study of aircraft hydraulic, pneumatic and landing gear system operation, maintenance and repair.

AMT 206 Cabin Atmosphere and Information Systems 6 cr.
Offered: Winter

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104 or instructor's permission.

The study of aircraft cabin atmospheric control systems including heating, cooling, cabin pressurization and oxygen systems. Aircraft instruments, ice and rain control, communication and navigation system installation, maintenance and repair will also be studied.

AMT 207 Turbine Engine Maintenance and Inspection 6 cr.
Offered: Winter

Prerequisites: AMT 101, AMT 102, AMT 103, AMT 104, AMT 204 or instructor's permission.

The study of overhaul and repair procedures for aircraft gas turbine engines. The course provides the hands-on, practical experience necessary to inspect, overhaul, maintain and repair turbine engines.

AN - ANTHROPOLOGY

Sociology and Social Work Department

AN 100 Introduction to Socio-Cultural Anthropology 4 cr.
Offered: Fall

- Satisfies the foundations of social sciences requirement.
- Satisfies the world cultures requirement.

The significance of culture and society as means of adapting to a varied and changing environment. Adaptation and cultural evolution are examined through a cross-cultural study of economic, social, political and ideological institutions. Art, music and language are also discussed.

AN 101 Introduction to Physical Anthropology and Archeology 4 cr.
Offered: Contact department for information.

An introduction to current evidence for human evolution. The fossil record, genetics, primate studies and archaeological evidence are inter-related to provide a complete understanding of our present status as *Homo sapiens*.

AN 210 People, Culture and Nature 4 cr.
Offered: Every other fall.

- Satisfies the foundations of social sciences requirement.
- Satisfies the world cultures requirement.

Study of the impact of society, culture and environment on the way people live. The elements of socio-cultural systems of various types of tribal and modern societies are compared. Broad trends and relationships are stressed; the course utilizes knowledge from biology, social science, psychology and ecology.

AN 295 Special Topics in Anthropology 1-4 cr.
Offered: Contact department for information.

Development of anthropological topics not addressed in regular courses, depending on faculty expertise and student needs.

Note: May be repeated if topic differs.

AN 320 Native Peoples of North America 4 cr.
Offered: Every other fall.

Prerequisites: AN 100 or instructor's permission. Completion of the foundations of communication requirement and sophomore standing or instructor's permission.

- Satisfies the foundations of social sciences requirement.
- Satisfies the upper division liberal studies requirement.
- Satisfies the world cultures requirement.

Analysis of the cultural variability of the North American Indians and Inuits prior to European contact, as well as the effects of this contact on the indigenous peoples. Concludes with a discussion of contemporary problems of the native peoples of North America.

AN 330 Indians of the Western Great Lakes 4 cr.
Offered: Contact department for information.
Prerequisites: AN 100 or AN 210.

Introduction to the cultures of the native peoples of the Western Great Lakes. Examines the life ways of the Indians before European contact and assesses the impact of European contact. Focus on how different environments of the Western Great Lakes Region influenced Indian lifestyles and how people adapted to these differing environments.

AN 355 Seminar in Archaeological Field Methods 2-10 cr.
Offered: Contact department for information.
Prerequisites: AN 101 or instructor's permission.

Introduction to archaeological field methods through participation in actual site survey and excavation. Instruction is given in excavation procedures, survey techniques, recording, photography, preservation, cataloguing and preliminary analysis.

Note: May be repeated if the experience differs. No more than 10 credits may be applied toward the minor in anthropology.

AN 382 Health, Society and Culture 4 cr.
Offered: Every other fall.
Prerequisites: SO 101 or AN 100 or instructor's permission.
Cross listed as SO 382.

Analysis of behavioral science dimensions of health systems and health institutions at a national level, with emphasis on the United States. Discussion includes health and disease and social and cultural factors relating to the occurrence and distribution of disease. American medical systems and institutions are analyzed in comparison with medical systems in other societies.

AN 495 Special Topics in Anthropology 4 cr.
Offered: Contact department for information.
Prerequisites: AN 100 or AN 210 for cultural anthropology topic; AN 101 for physical anthropology and archaeology topic; junior standing or instructor's permission.

Topic to be announced.

Note: May be repeated if topic differs.

AN 498 Directed Study in Anthropology 1-4 cr.
Offered: Contact department for information.
Prerequisites: Two anthropology courses, junior standing and instructor's permission.

A course for students desiring work in areas not covered in existing courses.

AS - ASTRONOMY

Physics Department

AS 103 Observational and Solar System Astronomy 4 cr. (3-0-3)
Offered: Fall, summer
Prerequisites: High school algebra or MA 100.

- Satisfies the foundations of natural sciences/mathematics requirement.
- Satisfies the laboratory course graduation requirement.

History of astronomy; observational astronomy; basic science principles and how they relate to astronomy; the celestial sphere and coordinate systems; star charts; telescopes; formation and evolution of the solar system; planetary characteristics (internal structure, surfaces, atmospheres); and comets and asteroids.

Note: This course may not be taken for credit toward the physics major or minor.

AS 104 Stellar/Galactic Astronomy and Cosmology 4 cr. (3-0-3)
Offered: Winter
Prerequisites: High school algebra or MA 100.

- Satisfies the foundations of natural sciences/mathematics requirement.
- Satisfies the laboratory course graduation requirement.

Life cycle of stars, white dwarfs, neutron stars, black holes and supernovas; characteristics of the sun; basic physical principles applied to stellar characteristics; stellar and galactic distance measurement; galactic formation and evolution; cosmology.

Note: This course may not be taken for credit toward the physics major or minor.

AS 495 Special Topics 1-4 cr.
Offered: On demand
Prerequisites: Junior standing or instructor's permission.

A course devoted to a particular topic in astronomy that is not included in the regular courses or to meet the special needs of a group of students.

Note: This course may be repeated if the topic is different.

ATR - ATHLETIC TRAINING

Health, Physical Education and Recreation Department

ATR 110 Introduction to Athletic Training 1 cr.
Offered: Fall, winter

An introduction to the field of athletic training including professional organizations, certification information, employment settings and basic prevention and care techniques.

ATR 201 Pathology and Pharmacology for the Athletic Trainer 2 cr.
Offered: Winter

In addition to sport injury pathology, recognizing various systemic diseases will also be covered. Pharmacological concepts will include drug legislation, drug forms and routes of administration. Terminology, prescription, systems of measurement and the various types of drugs used in the profession will be covered.

<p>ATR 241 Prevention and Care of Athletic Injury 3 cr. (2-0-2) Offered: Winter Prerequisite: BI 201.</p> <p>An introduction to basic injury recognition, prevention and evaluation procedures. Focuses on internal athletic injuries, head and neck injuries, heat-related illnesses and basic emergency procedures.</p>	<p>ATR 380 Therapeutic Modalities 2 cr. (1-0-2) Offered: Fall Prerequisites: ATR 110, ATR 241, ATR 320, ATR 321 and ATR 360.</p> <p>This course is designed to provide information regarding the use of various therapeutic modalities in rehabilitation programs. Theory, indication, contraindications and precautions in areas of ultrasound, electrical stimulation, cryotherapy, thermotherapy and manual therapy will be covered.</p>
<p>ATR 292A: Introduction to Practicum I 1 cr. Offered: Fall Prerequisites: Admission into the Athletic Training Program, ATR 110 and ATR 241.</p> <p>Students develop competence in lower extremity palpation, taping and wrapping techniques and emergency procedures. Students will be required to successfully complete all course competencies before moving on to the next practicum.</p>	<p>ATR 392A Intermediate Practicum 2 cr. Offered: Fall Prerequisites: ATR 241, ATR 292A and ATR 292B.</p> <p>Clinical experience under the direct supervision of an ATC. Students are expected to develop and become competent in lower extremity manual testing techniques, goniometric assessments and complete evaluation methods.</p>
<p>ATR 292B: Introduction to Practicum II 1 cr. Offered: Winter Prerequisite: ATR 292A.</p> <p>This clinical athletic training experience will focus on the development of and competence in upper extremity palpation, taping and wrapping techniques, custom padding and non-theoretical modality usage. Students will be required to successfully complete all course competencies before moving on to the next practicum.</p>	<p>ATR 392B Intermediate Practicum 2 cr. Offered: Winter Prerequisites: ATR 292A/B and admission to athletic training program.</p> <p>Continuation of ATR 392A with emphasis on upper extremity.</p>
<p>ATR 320 Advanced Assessment Techniques in Athletic Training I (Lower Quadrant) 3 cr. (2-0-2) Offered: Fall Prerequisites: ATR 110, ATR 241 and BI 201.</p> <p>Techniques used in the evaluation of athletic injuries to the foot, ankle, knee, hip and lower spinal region. Emphasis is placed on taking a medical history, performing a medical observation, physical palpation, functional and special testing, injury pathology and general medical conditions common to athletics.</p>	<p>ATR 410 Athletic Training Policies and Procedures 2 cr. Offered: Winter Prerequisites: ATR 110, ATR 241, admission to the athletic training program, junior standing or instructor's permission.</p> <p>Introduction to ATR management and administrative duties including managing a budget, staffing, developing and implementing policies, and communicating with athletes, coaches, parents and others.</p>
<p>ATR 321 Advanced Assessment Techniques in Athletics Training II (Upper Quarter) 3 cr. (2-0-2) Offered: Winter Prerequisite: ATR 320.</p> <p>Continuation of ATR 320 with emphasis on the upper quadrant of the body including the hand, wrist, elbow, shoulder, neck, head and trunk. A unit on pharmacology will also be included.</p>	<p>ATR 490 Seminar in Athletic Training 2 cr. Offered: Fall Prerequisites: ATR 110, ATR 241, ATR 320, junior standing or instructor's permission.</p> <p>Students will be exposed to current topics of interest and issues in athletic training. Continuing education will be stressed. Developing discussion skills in athletic training will also be reinforced. A unit on counseling and a unit on research are included.</p>
<p>ATR 360 Therapeutic Exercise and Rehabilitation Techniques 4 cr. (3-0-2) Offered: Winter Prerequisites: ATR 241, ATR 292A and 292B.</p> <p>Exploration of a variety of rehabilitation techniques and protocols including aquatic therapy, plyometrics and stretching. Students learn the basic guidelines of injury rehabilitation including goals, progression, functional testing, return to play and referral.</p>	<p>ATR 492A Advanced Practicum in Athletic Training 2 cr. Offered: Fall Prerequisites: ATR 292, ATR 392, admission to athletic training program, junior standing or instructor's permission.</p> <p>A clinical course designed to allow students, under direct supervision, to utilize all skills in which they have achieved competence. Particular emphasis is on record keeping, communicating with the sports medicine team and decision making.</p>
	<p>ATR 492B Advanced Practicum in Athletic Training 2 cr. Offered: Winter Graded: S/U Prerequisites: ATR 292, ATR 392, admission to athletic training program, junior standing or instructor's permission.</p> <p>A continuation 492A.</p>

ATR 497 Directed Studies in Athletic Training 1-4 cr.
 Offered: On demand
 Prerequisite: Junior standing or instructor's permission.
 Independent study or research in athletic training.

ATR 498 Directed Studies in Athletic Training 1-4 cr.
 Offered: On demand
 Prerequisite: Junior standing or instructor's permission.
 Independent study or research in athletic training.

ATR 499 Internship in Athletic Training 2-8 cr.
 Offered: Fall, winter, summer
 Graded S/U
 Prerequisites: instructor's permission only.
 Designed for upper-level athletic training students who have completed a majority of program competencies and proficiencies and are ready to apply their skills in the field. This course is also appropriate for graduate-level students who are pursuing a career in the field of athletic training.

BC - BROADCASTING

Communication and Performance Studies Department

BC 165 Introduction to Mass Media 4 cr.
 Offered: Fall, winter
 Examination of contemporary mass media in the United States, including the press, movies, radio, television and new mass communication technologies. These will be studied from historical, economic, social and political perspectives.

BC 245 Radio-TV Performance 4 cr.
 Offered: Infrequently
 Introduction to basic verbal and visual elements for performance on radio or television. Verbal elements include diction, enunciation, pronunciation and microphone technique. Visual elements include posture, movement and expression. Students perform announcements, news, commercials, interviews and drama.

BC 265 Writing and Announcing for Broadcast 4 cr.
 Offered: Fall, winter
 Introduction to planning, writing and performance elements in electronic media production. Students write scripts for a variety of formats, including commercials, public service announcements, news, interviews and documentaries. Performance elements include diction, enunciation, pronunciation, script interpretation, microphone technique, posture, movement and expression.

BC 271 Audio Production 4 cr. (2-0-4)
 Offered: Fall
 Introduction to skills used in audio recording and program production. Covers the theoretical background of the field and extensive applied laboratory experiences.

BC 272 Studio Television Production 4 cr. (2-0-4)
 Offered: Fall, winter
 Introduction to the theory and practice of producing contemporary studio television programs. Includes program aesthetics, production planning, visual design, scripting, rehearsing and directing.

BC 273 Electronic Field Production 4 cr.
 Offered: Infrequently
 Basic theories and techniques of single camera electronic field production. Includes program aesthetics, production planning, scripting, shooting, sound recording, video tape editing and post-production processes. Students produce several projects.

BC 291 Broadcast Practicum 1-4 cr.
 Offered: On demand
 Prerequisite: Instructor's permission.
 Practice in operational positions in broadcasting under the supervision of media professionals and a faculty member.
Note: May be repeated for up to 4 credits in combination with BC 491.

BC 295 Special Topics in Broadcasting 1-4 cr.
 Offered: On demand
 Intended for underclassmen. Investigation of a significant topic or theme.
Note: May be repeated if topic differs.

BC 310 Sports and Special Events Programming 4 cr.
 Offered: Fall 2006; every 5th semester thereafter.
 Prerequisites: BC 165 and ESPR 260 or instructor's permission. BC 265 is recommended, but not required.
 Students produce and promote televised sports and entertainment programming including local high school and college events. Students learn live announcing, pre-event research, recording sports statistics and creating promotional broadcast announcements. Students participate as crew members for productions. Course includes field experience.

BC 320 Electronic Media Management 4 cr.
 Offered: Winter 2007; every 5th semester thereafter.
 Contemporary problems faced by managers of radio, television and cable TV stations are studied. Solutions to those problems and the decision-making process are analyzed.

BC 325 Communication and Performance in Africa 4 cr.
 Offered: Fall, winter
 Prerequisites: Completion of the foundations of communications requirement and sophomore standing or instructor's permission.
 • Satisfies the foundations of visual and performing arts requirement.
 • Satisfies the upper division liberal studies requirement.
 • Satisfies the world cultures requirement.

Course examines performance genres in Africa and their relationship to social process, including pre-colonial performance genres such as storytelling, oratory and praise poetry, and rites and rituals that incorporate music and dance. Modern and post-modern genres including popular theatre, radio and television broadcasts, music, cinema, and indigenous video production are also explored.

<p>BC 365 Broadcast News Writing and Reporting 4 cr. Offered: Fall Prerequisite: BC 265.</p> <p>Instruction on writing, story structure, source development, news judgment, ethics and law in field reporting for television news. Students shoot, edit and write news reports that air on <i>Public Eye News</i>. Students also serve as associate producers for <i>Public Eye News</i> one day each week.</p>	<p>BC 473F Advanced Media Production-Field Television Production 4 cr. Offered: Winter Prerequisites: Corresponding 200-level production course, junior standing or instructor's permission.</p> <p>Study of advanced production theory, method and technique. Students put theory into practice through extensive laboratory work.</p>
<p>BC 410 The Documentary 4 cr. Offered: Winter 2006; every 5th semester thereafter. Prerequisites: Junior standing or instructor's permission.</p> <p>Examination of the documentary genre with emphasis on its application and form in radio and television. Topics considered are the historical development of the documentary form, definitions of "documentary," the current role and future potential of the documentary.</p>	<p>BC 473M Advanced Media Production-Multi-Media 4 cr. Offered: Contact department for information. Prerequisites: Corresponding 200-level production course, junior standing or instructor's permission.</p> <p>Study of advanced production theory, method and technique. Students put theory into practice through extensive laboratory work.</p>
<p>BC 415 Intercultural Communication 4 cr. Offered: Fall Prerequisites: BC 165 and SP 110, junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the world cultures requirement. • Does not satisfy the upper division liberal studies requirement. <p>This course examines cultural differences in communication styles and systems across a variety of national and American sub-cultural groups. Study includes both interpersonal and mass-mediated message systems.</p>	<p>BC 473S Advanced Media Production-Studio Television Production 4 cr. Offered: Contact department for information. Prerequisites: Corresponding 200-level production course, junior standing or instructor's permission.</p> <p>Study of advanced production theory, method and technique. Students put theory into practice through extensive laboratory work.</p>
<p>BC 420 Global Communication 4 cr. Offered: Winter Prerequisites: BC 165, junior standing or instructor's permission.</p> <p>"Globalization" refers to the convergence of diversely organized media systems into profit-making enterprises, owned or controlled by multinational firms. Course introduces this phenomenon through a review of its economic and policy foundations and its effects on information flow and the framing of world issues.</p>	<p>BC 473W Advanced Media Production-Script Writing 4 cr. (3-0-2) Offered: Contact department for information. Prerequisites: Corresponding 200-level production course, junior standing or instructor's permission.</p> <p>Study of advanced production theory, method and technique. Students put theory into practice through extensive laboratory work.</p>
<p>BC 470 Mass Communication Law 4 cr. Offered: Fall, winter Prerequisites: BC 165, junior standing or instructor's permission.</p> <p>Analysis of the legal parameters within which the print and electronic media must operate, including First Amendment freedoms, libel, copyright and Federal Communication Commission rules and regulations.</p>	<p>BC 485 Radio and Television Utilization 2 cr. (1-0-2) Offered: Contact department for information.</p> <p>Introduction to the process of producing radio and television programs. Includes production planning and operation of equipment. Designed for those who desire a knowledge of the use of media for application in other fields. Laboratory experience under faculty supervision.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>BC 471 Mass Communication and Society 4 cr. Offered: Winter Prerequisites: BC 165 and senior or graduate standing or instructor's permission.</p> <p>Study of the social, legal and economic basis of radio, television, newspapers and film in the United States, with emphasis on the roles played by the media, the government and the public in the process of mass communication.</p>	<p>BC 490 Senior Seminar in Broadcasting 4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission.</p> <p>A course for broadcasting and mass communication majors designed to stimulate students to unify all areas of their disciplines.</p>
<p>BC 473A Advanced Media Production-Audio 4 cr. Offered: Winter Prerequisites: Corresponding 200-level production course, junior standing or instructor's permission.</p> <p>Study of advanced production theory, method and technique. Students put theory into practice through extensive laboratory work.</p>	<p>BC 491 Broadcast Practicum 1-4 cr. Offered: On demand Prerequisites: Junior standing and instructor's permission.</p> <p>Practice in creative production and directing aspects of broadcasting under the supervision of media professionals and a faculty member.</p> <p><i>Note: May be repeated for up to four credits in combination with BC 291.</i></p>
	<p>BC 492 Internship in Broadcasting 1-8 cr. Offered: On demand Prerequisites: Junior standing and recommendation of selection committee. Available only to outstanding students as an elective.</p> <p>Practical, applied experience involving placement in a broadcast or mass media job situation.</p>

BC 495 Special Topics in Broadcasting 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Special problems in broadcasting and mass communication such as mass communication research, station relations and promotion, satellite and CATV systems, international communication, media advertising, and telecom policy.
Note: May be repeated if topic differs.

BC 498 Directed Studies in Broadcasting 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing, instructor and department head permission.
 Independent study by undergraduates in an area of broadcasting and/or mass communication to be specified by the student and the instructor.
Note: May be repeated for up to eight credits.

BI-BIOLOGY

Biology Department

BI 100 Biological Science 4 cr. (3-0-2)
 Offered: Fall, winter

- Satisfies the foundations of natural sciences/mathematics requirement.

Study of fundamental concepts of biology that relate to problems confronting individuals and society. Topics include the scientific method; human dependence on other organisms; problems related to food production, human reproduction, inheritance and disease; biological implications of modern technology; and biological problems likely to confront society in the future.
Note: May not be applied toward a major or minor in biology.

BI 104 Human Anatomy and Physiology 4 cr. (3-0-2)
 Offered: Fall, winter

- Satisfies the foundations of natural sciences/mathematics requirement.

Structure and function of the various systems of the human body. Laboratory includes models and specimens of human material and the collection and analysis of physiological data.
Note: May not be applied toward any biology major or the biology education minor.

BI 111 Introductory Biology: Principles 4 cr. (3-0-2)
 Offered: Fall, winter

- Satisfies the foundations of natural sciences/mathematics requirement.

An introduction to the major principles of biology. Topics include chemistry of life, structure and function of cells, photosynthesis and respiration, mitosis and meiosis, heredity, molecular biology, evolution, and ecology.

BI 112 Introductory Biology: Diversity 4 cr. (3-0-2)
 Offered: Fall, winter

- Satisfies the foundations of natural sciences/mathematics requirement.

A survey of biological diversity including viruses, prokaryotes, protists, fungi, plants, and animals. Attention is also given to the structure and function of plant and animal organ systems.

BI 201 Human Anatomy 3 cr. (2-0-2)
 Offered: Fall, winter
 Study of human anatomy, supplemented by laboratory work on models.

BI 202 Human Physiology 5 cr. (4-0-2)
 Offered: Fall, winter
 Prerequisites: CH 105, CH 107 or CH 111. Recommended: a course dealing with anatomy. Highly recommended: completion of BI 201 or BI 221.
 Studies of all systems of human physiology, supplemented by laboratory work that demonstrates basic physiological phenomena. Previous knowledge of anatomy and chemistry is required.

BI 203 Medical Microbiology 5 cr. (3-0-4)
 Offered: Fall, summer
 Prerequisites: BI 100 or BI 104 or BI 112 or BI 202.
 Introduction to medically important microorganisms and the role of microbes in human health, infection and immunity. Laboratory focuses on the experimental approach to microbiology.

BI 206 Human Genetics 3 cr.
 Offered: Fall
 Prerequisites: Sophomore standing or instructor's permission.
 A non-technical course designed to introduce fundamentals of variation and inheritance in humans.
Note: May not be applied toward any biology major or the biology secondary teaching minor.

BI 210 Principles of Ecology 4 cr. (3-0-3)
 Offered: Fall, winter
 Prerequisite: BI 111 and BI 112.
 Lectures, field and laboratory studies dealing with the relationships between plants, animals, humans and the ecosphere.

BI 218 Introduction to Cell and Molecular Biology 4 cr. (3-0-3)
 Offered: Winter
 Prerequisites: BI 111, CH 105, CH 107 or CH 111, CH 112.
 Introduction to the structure and function of prokaryotic and eukaryotic cells and the genes and the technologies used to study them. Laboratory work will include experiments using DNA, proteins and other biomolecules.

BI 221 Comparative Anatomy 4 cr. (2-0-4)
 Offered: Fall
 Prerequisites: BI 111 and BI 112.

Structural characteristics of representative chordates. Lectures deal with the evolution of body form, skeleton and organ systems as indicated by anatomical relationships. Laboratory work is devoted largely to dissection.

BI 225 Physiology of Aging 3 cr.
 Offered: Contact department for information.
 Prerequisites: BI 104 or BI 111 or BI 202 or instructor's permission.
 This course is designed to introduce students to physiological changes associated with aging or age-related pathology. The roles of heredity, diet, exercise and lifestyle in the aging process as well as current theories of aging will be discussed.

<p>BI 230 Plant Kingdom 4 cr. (2-0-4) Offered: Winter Prerequisites: BI 111 and BI 112. A treatment of form, life cycles and evolutionary relationships of algae, fungi, bryophytes and vascular plants. Laboratory work uses both living and preserved material.</p>	<p>BI 313 Cell Biology 4 cr. (3-0-3) Offered: Winter Prerequisites: BI 111 and BI 112, or BI 201, or BI 221 and CH 220, or CH 321, or instructor's permission. Structure and biochemistry of eukaryotic cells and organelles, with selected features of prokaryotic cells. Topics include methods of study, chemical components, compartmentalization of cells, nuclear control and metabolism. Laboratory work includes cytochemistry, spectrophotometry, electrophoresis and differential centrifugation.</p>
<p>BI 240 Conservation Biology 4 cr. Offered: Winter Prerequisite: BI 210. Introduction to the basic scientific principles and concepts concerning the field of conservation biology. Topics include causes of extinction, genetic risks of small populations, habitat fragmentation and edge effects, metapopulations, threats of exotic species, nature preserve and corridor design, and strategies for protecting and restoring endangered species and ecosystems.</p>	<p>BI 315 Evolution 4 cr. Offered: Fall, winter Prerequisites: BI 312 or instructor's permission. Evolution is the process by which heritable characteristics of species change. This course will emphasize evolutionary theory rather than evolutionary history. Topics include evolutionary genetics, adaptation and natural selection, speciation and evolution of higher taxa.</p>
<p>BI 295 Special Topics in Biology 1-4 cr. Offered: Contact department for information. Prerequisite: Instructor's permission. Variable content, depending on specialties of visiting staff and needs of students. For freshmen, sophomores and non-biology majors. <i>Note: May be repeated if topic differs.</i></p>	<p>BI 321 Embryology 4 cr. (2-0-4) Offered: Winter Prerequisites: BI 221 or BI 201. Reproduction and development in animals, with particular emphasis on vertebrates. Laboratory work is based largely on the frog and chick.</p>
<p>BI 303 General Microbiology 5 cr. (3-0-4) Offered: Winter Prerequisites: BI 111 and BI 112 or CLS 204 and CLS 214 and CH 220 or CH 321; BI 312 recommended. Study of morphology, physiology, genetics and taxonomy of microbes and related laboratory techniques.</p>	<p>BI 322 Vertebrate Zoology 4 cr. (4-0-0) Offered: Every other winter. Prerequisites: BI 112, BI 315 recommended. Phylogeny, taxonomy, anatomy, physiology and behavior of vertebrates. Emphasis on the evolutionary history of major vertebrate taxa.</p>
<p>BI 305 Ecology of the Northern Forest 3 cr. (2-0-3) Offered: Fall Prerequisites: Completion of the foundations of communication requirement, sophomore standing and BI 111. Junior standing recommended. • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the upper division liberal studies requirement. Study of the interactions of physical features, vegetation, animal life and human influences in the northern forests of North America, Europe and Asia through lectures, laboratories and field trips. <i>Note: May not be applied toward any major in biology.</i></p>	<p>BI 324 Invertebrate Zoology 4 cr. (3-0-2) Offered: Winter Prerequisites: BI 111 and BI 112 A zoological survey of the invertebrates from protozoans to chordates.</p>
<p>BI 310 Ecology Theory and Methods 4 cr. (3-0-3) Offered: Fall Prerequisites: MA 171, BI 210 or instructor's permission. Lectures, field and laboratory studies on advanced concepts relating plants and animals to their environment. This course expands on principles taught in BI 210.</p>	<p>BI 327 Animal Physiology 4 cr. (3-0-3) Offered: Fall Prerequisites: BI 111, BI 112 and CH 220 or CH 321. This course focuses on the physiological systems of invertebrates and vertebrates. The comparative method will be used to identify general physiological principles. The subject matter includes metabolism, respiration, circulation, temperature effects, water and solute regulation, and muscle and nerve physiology.</p>
<p>BI 312 Genetics 4 cr. (3-0-2) Offered: Fall, winter Prerequisites: BI 111, BI 112 or BI 202. Basic Mendelian laws, the nature of genes, and population genetics, with emphasis on genetics as a rapidly unfolding science. Genetics is related to theories concerning organic evolution.</p>	<p>BI 390 Field Experience 1-2 cr. Offered: On demand Graded S/U Prerequisites: Permission of supervising faculty member and department head. Can be repeated for up to six credits if topic varies. Practical experience in field biology under supervision of a faculty member engaged in research. A written report of the field experience will be required and placed on file in the department office. <i>Note: A course subtitle on the student's transcript will describe the content of this course, e.g., BI 390 Field Experience in Woodcock Ecology.</i></p>

<p>BI 391 Laboratory Experience 1-2 cr. Offered: On demand Graded S/U Prerequisites: Permission of supervising faculty member and department head. Practical experience in laboratory biology under the supervision of a faculty member engaged in research. A written report of the laboratory experience will be required and placed on file in the department office. <i>Note: May be repeated for up to six credits if topic differs. A course subtitle on the student's transcript will describe the content of this course, e.g., BI 391 Laboratory Experience in Genetics.</i></p>	<p>BI 412 Biometrics 4 cr. (3-2-0) Offered: Fall Prerequisites: MA 105 or equivalent, junior standing or instructor's permission. Design and classification of experiments, methods of estimation and testing of hypotheses related to experiments. Desk calculators are used to solve simple problems involving data available from the student's field of study.</p>
<p>BI 402 Microbial Ecology 4 cr. (3-0-3) Offered: Every other fall, even years. Prerequisites: BI 111, BI 112, CH 112, junior standing or instructor's permission. The study of microbial population and community interactions. Microbial activities in natural systems and the interactions of microbes with plants and animals will also be studied. Laboratories consist of a mixture of microbiological techniques and independent research projects.</p>	<p>BI 413 Biochemistry of Development 4 cr. (2-2-0) Offered: Every other fall, even years. Prerequisites: BI 312 and either BI 313, BI 321, or CH 450, junior standing or instructor's permission. The biochemical and genetic events accompanying and influencing embryonic development, with emphasis on pertinent literature and techniques.</p>
<p>BI 404 Virology 3 cr. Offered: Every other fall, odd years. Prerequisites: BI 203 or BI 303, or CLS 204 and CLS 214, and CH 220 or CH 322, junior standing or instructor's permission. An introductory course in virology integrating some of the biochemical, genetic and medical implications of viruses with general virology.</p>	<p>BI 416 Experimental Cytogenetics 2-3 cr. Offered: Winter Prerequisites: BI 206 or BI 312, junior standing or instructor's permission. A course designed to develop competence in the preparation, recognition and presentation of karyotypes with emphasis on the human karyotype. Three credits may be earned by students who prepare a term paper. Students may enroll for three credits only with instructor's permission.</p>
<p>BI 405 Immunology 3 cr. Offered: Winter Prerequisites: BI 203 or BI 303, or CLS 203 or CLS 213, and CH 220 or CH 322, junior standing or instructor's permission. Introduction to immunology, considering basic immunological mechanisms including humoral and cell-mediated immunity, immunity of infectious disease, immunogenetics and tumor immunology.</p>	<p>BI 418 Molecular Biology 4 cr. (2-0-4) Offered: Fall Prerequisites: BI 312 (or BI 206 with instructor's permission) and CH 220 or CH 322, and credit or enrollment in CH 450, junior standing or instructor's permission. Prokaryotic and eukaryotic gene structure and expression. Laboratories explore some of the techniques used for manipulating genes in vitro, including DNA isolation, DNA electrophoresis, subcloning and work with the bacteriophage. This course covers some of the theory and applications of biotechnology.</p>
<p>BI 410 Ecology of the Great Lakes 4 cr. Offered: Winter Prerequisites: BI 111, BI 112, BI 210, junior standing or instructor's permission. Lectures on the ecology of the Laurentian Great Lakes. Core subjects include biogeochemistry, community ecology and the ecological consequences of human activities including exotic species introductions, environmental pollution and natural resource management practices.</p>	<p>BI 419 Biology of Cancer 4 cr. (4-0-0) Offered: Every other fall, odd years. Prerequisites: BI 312, BI 313 or CH 450, junior standing or instructor's permission. Introduction to the biology of cancer cells. Comparison of cell cycle regulation, cell growth, apoptosis and cell adhesion in normal and tumor cells. Study of genes that are altered in tumors, including oncogenes and tumor suppressor genes. Examination of pertinent literature.</p>
<p>BI 411 Limnology 4 cr. (3-0-3) Offered: Fall Prerequisites: BI 210 and CH 112, junior standing or instructor's permission. Physical, chemical and biological aspects of lakes and streams. Laboratory work includes methods and instruments of field studies.</p>	<p>BI 423 Parasitology 3 cr. (2-0-3) Offered: Winter Prerequisites: BI 111 and BI 112 or CLS 204 and CLS 214, junior standing or instructor's permission. Life histories, ecology, physiology and host-parasite relationships. Laboratory includes examination of hosts for parasites and preparation of specimens for study.</p>
	<p>BI 424 Entomology 4 cr. (2-0-4) Offered: Every other fall, odd years. Prerequisites: BI 111, BI 112, junior standing or instructor's permission. Insect evolution, ecology, physiology and morphology. Emphasis is placed on the biology and in-field recognition of the local fauna.</p>

- BI 425 Endocrinology** 3 cr. Offered: Every other fall, odd years.
Prerequisites: BI 202 or BI 222, and CH 220 or equivalent, junior standing or instructor's permission.
Structure and physiology of endocrine glands, biological actions and biochemistry of hormones, emphasizing their role (at the systems level) in homeostasis, intermediary metabolism, reproduction and behavior of mammals.
- BI 426 Human Histology** 4 cr. (2-0-4) Offered: Fall
Prerequisites: BI 111 and BI 112, or CLS 201, and BI 201 or BI 221, junior standing or instructor's permission.
Study of the microscopic anatomy of human tissues and organs at the light microscope level.
- BI 427 Ecological Animal Physiology** 4 cr. Offered: Every other winter, odd years.
Prerequisites: BI 210, and BI 222 or BI 202, junior standing or instructor's permission.
The course emphasizes physiological adaptations of animals to their environment. It covers topics such as thermoregulation, nutrition and digestion, osmoregulation, nitrogen metabolism, sensory physiology and reproductive physiology.
- BI 428 Behavioral Ecology** 4 cr. Offered: Every other fall, even years.
Prerequisites: BI 111, BI 112, BI 210, BI 312 and BI 315, junior standing or instructor's permission.
Behavior, just like any phenotype, is shaped by selection associated with various environments and ecological interactions. Course considers the diversity of behavior exhibited in natural populations, how it evolves under various ecological conditions and approaches to testing hypotheses about behavioral evolution and adaptive functions.
- BI 430 Plant Anatomy** 4 cr. (2-0-4) Offered: Every other winter, even years.
Prerequisites: BI 230 junior standing or instructor's permission.
Structure and development of higher forms of plant life. Techniques of selecting and staining plant tissues are practiced.
- BI 431 Plant Physiology** 4 cr. (3-0-3) Offered: Fall
Prerequisites: BI 111, BI 112, CH 112, junior standing or instructor's permission.
Principles of plant nutrition, metabolism, plant water relations, transport of materials in plants and physiological aspects of plant growth and development. Methods of studying plant functions are emphasized in the laboratory.
- BI 433 Boreal Flora** 2-3 cr. (2-0-4) Offered: Summer
Prerequisites: BI 111, BI 112, junior standing or instructor's permission.
Lecture and field studies dealing with recognition, taxonomy, ethnobotany and ecological adaptations of plants in aquatic and terrestrial communities.
- BI 434 Plant Ecology** 4 cr. (2-0-4) Offered: Every other winter, odd years.
Prerequisites: BI 210, BI 310 recommended, junior standing or instructor's permission.
Field study of terrestrial and aquatic vegetation, covering topics in population, community and landscape ecology. Laboratories emphasize research approaches, sampling techniques, data analysis and technical writing skills.
- BI 435 Boreal Ecosystems** 4 cr. (1-0-5) Offered: Summer
Prerequisites: BI 310, junior standing, or instructor's permission (interview with instructor required).
A 3-week field course based in Canada and/or Isle Royale studying community and ecosystem processes in the boreal forest. Emphasis is on boreal and arctic plant communities and the interrelationships of large herbivores, such as moose and caribou, and their predators.
- BI 441 Fisheries Management** 4 cr. (3-0-2) Offered: Every other winter, odd years.
Prerequisites: BI 210 or BI 422, and MA 104 or MA 105 or MA 171, junior standing or instructor's permission.
Concepts, applications and techniques for managing fisheries resources. Topics include basic fish anatomy and life-history characteristics, fishing technology, population dynamics, fisheries modeling, hatcheries and conservation issues. Emphasis is placed on the human-fishery resource interaction. Students read from primary literature and conduct fisheries-related research.
- BI 442 Wildlife Management** 4 cr. (3-0-2) Offered: Fall
Prerequisites: BI 210, junior standing or instructor's permission.
Application of ecological principles and technical knowledge to the management of wildlife populations.
- BI 460 Ichthyology** 4 cr. (3-0-2) Offered: Every other winter, even years.
Prerequisites: BI 111, BI 112, junior standing or instructor's permission.
Principles of fish biology. Course covers systematics and diversity of marine and freshwater fishes including identification, evolution, physiology, ecology and behavior.
- BI 461 Herpetology** 4 cr. (3-0-3) Offered: Every other winter, odd years.
Prerequisites: BI 111, BI 112, junior standing or instructor's permission.
Field-oriented study of amphibians and reptiles emphasizing identification and habits of local fauna.
- BI 462 Ornithology** 3 cr. (2-0-3) Offered: Summer, odd years.
Prerequisites: BI 111, BI 112, junior standing or instructor's permission.
Lectures, laboratories and field trips dealing with evolution systematics, morphology, ecology, behavior and identification of birds with emphasis on local species.

BI 463 Mammalogy 3 cr. (2-0-3)

Offered: Every other winter, odd years.

Prerequisites: BI 111, BI 112, junior standing or instructor's permission.

Lectures, laboratories and field trips dealing with evolution systematics, morphology, ecology, behavior and identification of mammals with emphasis on the Great Lakes region.

BI 465 Aquatic Insect Ecology 4 cr. (2-0-4)

Offered: Every other fall, even years.

Prerequisites: BI 111, BI 112, junior standing or instructor's permission.

Lectured on aquatic insect evolution, ecology and physiology. Laboratories emphasize recognition of local fauna, qualitative and quantitative analyses of benthic communities and biogeochemistry of lakes and streams.

BI 491 Seminar 1 cr.

Offered: On demand

Prerequisites: Instructor's permission and junior standing. Course prerequisites and a minimum grade point average may be required for some topics.

Variable content, depending on instructor. Students read extensively from periodical literature and meet weekly for reports and discussion.

Note: May be repeated once if topic varies.

BI 492 Research in Water Science 2 cr. (0-0-4)

Offered: Fall, winter

Prerequisites: Water science majors with junior standing or instructor's permission.

Cross listed as CH 492.

An introduction to environmentally related research. Projects are pursued in cooperation with a faculty research adviser. The research adviser and research problem must be selected a semester prior to registration. A written and oral final report is required.

BI 495 Special Topics in Biology 1-4 cr.

Offered: Contact department for information.

Prerequisites: instructor's permission and junior standing.

Variable content, depending upon the competencies of staff and special needs of students.

Note: May be repeated if topic differs.

BI 498 Directed Studies in Biology 1-4 cr.

Offered: Contact department for information.

Prerequisites: The core courses in biology, junior standing and instructor's permission at least one month before beginning of course.

An opportunity for qualified junior and senior students to conduct independent study and investigative work.

Note: May be repeated for up to four credits.

BI 499 Internship 1-6 cr.

Offered: Contact department for information.

Graded S/U

Prerequisites: Senior status in good standing with a minimum grade point average of 2.50 and a major in biology, botany or zoology; appropriate background for subject of internship; adviser, department head and cooperating agency supervisor permission.

Practical experience under the supervision of an experienced biologist, in an academic, governmental or private setting. A written report incorporating an evaluation and critique of the internship experience will be required. A course subtitle on the student's transcript will describe the particular content of this course.

Note: Application for internship must be made at the Biology Department office at least four weeks before the start of the internship.

CH-CHEMISTRY**Chemistry Department****CH 105 Chemical Principles** 4 cr. (3-0-2)

Offered: Fall, winter

Prerequisites: Proficiency in algebra (one year of high school algebra is recommended).

- Satisfies the foundations of natural sciences/mathematics requirement.

Introduction to chemistry including contemporary applications and problems. Topics include states of matter, atomic and molecular structure, electrochemistry, energy, nuclear chemistry, organic and polymer chemistry.

Note: Does not count toward a major or minor in chemistry.

CH 107 Introductory Chemistry I 4 cr. (3-1-2)

Offered: Fall

Prerequisites: Proficiency in algebra (one year of high school algebra or MA 100 is recommended) and one year of high school chemistry is recommended.

- Satisfies the foundations of natural sciences/mathematics requirement.

Fundamental laws and generalizations of inorganic chemistry and introduction to nomenclature, structure, functional groups and reactions of organic chemistry.

Note: Does not count toward a major or minor in chemistry. Primarily for students preparing for a career in nursing or a related profession.

CH 108 Introductory Chemistry II 4 cr. (3-1-2)

Offered: Winter

Prerequisites: CH 107 or equivalent.

- Satisfies the foundations of natural sciences/mathematics requirement.

Continuation of CH 107. An introduction to biochemistry, with emphasis on structure of biochemical compounds and their functions in living systems.

Note: Does not count toward major or minor in chemistry.

CH 111 General Chemistry I 5 cr. (3-1-3)

Offered: Fall, winter

Prerequisites: Proficiency in algebra (two years of high school algebra or MA 104 or MA 105 is recommended) and one year of high school chemistry.

- Satisfies the foundations of natural sciences/mathematics requirement.

Survey of atomic structure, bonding, stoichiometry and the states of matter.

<p>CH 112 General Chemistry II 5 cr. (3-1-3) Offered: Winter, summer Prerequisite: CH 111.</p> <ul style="list-style-type: none"> Satisfies the foundations of natural sciences/mathematics requirement. <p>Study of chemical equilibria and kinetics, thermodynamics, solution reactions, survey of the chemistry of the common elements and nuclear chemistry.</p>	<p>CH 297 Directed Studies in Chemistry 1-4 cr. Offered: On demand Graded S/U Prerequisite: Instructor's permission.</p> <p>Independent study and investigative work. Adviser and research problem must be selected a semester prior to registration.</p> <p><i>Note: May be repeated if topic differs up to four credit hours.</i></p>
<p>CH 215 Chemistry of the Elements 4 cr. (3-0-3) Offered: Fall Prerequisite: CH 112.</p> <p>Descriptive chemistry of elements and their compounds with relation to the periodic table. Emphasis is placed on chemical behavior, bonding and structure as well as spectral, thermodynamic and electrochemical properties. Laboratory work consists of the synthesis and characterization of common elements and their compounds.</p>	<p>CH 298 Directed Studies in Chemistry 1-4 cr. Offered: On demand Prerequisite: Instructor's permission.</p> <p>Independent study and investigative work. Adviser and research problem must be selected a semester prior to registration.</p> <p><i>Note: May be repeated if topic differs up to four credit hours.</i></p>
<p>CH 220 Introductory Organic Chemistry 5 cr. (4-0-3) Offered: Fall Prerequisite: CH 112.</p> <p>A one-semester course covering all aspects of organic chemistry including nomenclature, structure, optical activity, functional groups, spectra and syntheses. Emphasis on the organic compounds and reactions important to the function of living systems.</p> <p><i>Note: Credit cannot be earned in both CH 220 and CH 321.</i></p>	<p>CH 321 Organic Chemistry I 4 cr. (3-0-3) Offered: Fall Prerequisite: CH 112.</p> <p>The chemistry of the aliphatic and aromatic hydrocarbons and their derivatives, the significance of the various groups in the molecule and the nature of organic reactions.</p> <p><i>Note: Credit cannot be earned in both CH 220 and CH 321.</i></p>
<p>CH 241 Chemical Equilibrium 3 cr. Offered: Fall, winter Prerequisite: CH 112.</p> <p>Study of chemical equilibrium in water including ionization, solubility, acid-base phenomena, complex ion formation and oxidation-reduction reactions.</p>	<p>CH 322 Organic Chemistry II 4 cr. (3-0-3) Offered: Winter Prerequisite: CH 321.</p> <p>A continuation of CH 321. The chemistry of carbonyl compounds and other groups, as well as some special topics are covered.</p>
<p>CH 242 Quantitative Analysis 2 cr. (0-0-6) Offered: Fall, winter Prerequisite: CH 112.</p> <p>The principles and methods of quantitative analysis, including titrimetry, spectrophotometry and potentiometry are used to determine the composition of various materials and the physical constants of substances.</p>	<p>CH 341 Physical Chemistry I 4 cr. (3-0-3) Offered: Fall Prerequisites: CH 241, CH 242, one year of calculus and physics, or instructor's permission.</p> <p>Theory, problems and experiments concerning the structure of atoms and molecules and the gaseous, liquid and solid states.</p>
<p>CH 295 Special Topics in Chemistry 1-4 cr. Offered: On demand Prerequisite: Instructor's permission.</p> <p>Topics reflecting the special interests of students and staff. Designed for freshmen, sophomores and non-majors.</p> <p><i>Note: May be repeated if topic differs.</i></p>	<p>CH 342 Physical Chemistry II 4 cr. (3-0-3) Offered: Winter Prerequisites: CH 241, CH 242, one year of calculus and physics, or instructor's permission.</p> <p>Theory, problems and experiments concerning chemical thermodynamics, chemical kinetics and the phase rule.</p>
<p>CH 296 Special Topics in Chemistry 1-4 cr. Offered: On demand Graded S/U Prerequisite: Instructor's permission.</p> <p>Topics reflecting the special interests of students and staff. Designed for freshmen, sophomores and non-majors.</p> <p><i>Note: May be repeated if topic differs.</i></p>	<p>CH 415 Inorganic Chemistry 4 cr. (3-0-3) Offered: Winter Prerequisites: CH 341 and CH 342 or CH 341 and concurrent enrollment in CH 342, junior standing or instructor's permission.</p> <p>Comparative study of the chemical elements and their compounds with emphasis on periodic relations, principles of structure and bonding, kinetics of reactions and spectral and thermodynamic properties. Topics include complex ions, defect crystals, electron deficient compounds, organometallic and bio-inorganic chemistry. A variety of inorganic compounds are prepared and studied.</p>

- CH 430 Environmental Chemistry** 5 cr. (3-0-6)
Offered: Every other winter, odd years.
Prerequisites: CH 241, CH 242, CH 220 or CH 322, junior standing.
A study of chemical interaction in natural and perturbed systems. Emphasis is placed on physical and analytical aspects with an introduction to the mathematics of data utilization.
- CH 435 Gas and Liquid Chromatography** 2 cr. (3-0-6)
Offered: Fall
Prerequisites: CH 322, junior standing or instructor's permission.
A study of the principles, instrumentation and analytical applications of gas and liquid chromatography and mass spectrometry. GC, GC/MS and HPLC techniques are presented in the laboratory.
Note: This course is taught for one half of the semester.
- CH 436 Modern Spectroscopy** 3 cr. (2-0-3)
Offered: Winter
Prerequisites: CH 341, junior standing or instructor's permission.
A study of the principles, instrumentation and analytical applications of modern spectroscopic methods including mass, infrared, and 1-D and 2-D NMR spectroscopy. The theoretical basis for each type of spectroscopy, basic instrument design and spectral analysis will be discussed with particular emphasis on the use of a combination of these methods in structural elucidation. Laboratory exercises will focus on instrument operation and data interpretation.
- CH 437 Atomic Absorption Spectrometry** 1 cr. (2-0-3)
Offered: Fall
Prerequisites: CH 341 or concurrent enrollment in CH 341, junior standing or instructor's permission.
A study of principles, instrumentation and analytical applications of this technique. Lecture material includes sample collection and preparation, sample atomization, optical instrumentation, spectral interferences and data analysis. Atomic absorption techniques will be compared to inductively coupled plasma techniques. Laboratory exercises focus on sample preparation, instrument operation and data analysis.
Note: This course is taught for one half of the semester.
- CH 440 Forensic Chemistry** 4 cr. (2-0-6)
Offered: Winter, even numbered years
Prerequisites: CH 111, CH 112, CH 241, CH 242, CH 220 or CH 321 and 322, and CH 450 or instructor's permission.
Forensic applications of chemical and biochemical techniques. Techniques include, but are not limited to trace metal analysis, FT-IR analysis of fibers and paint, polymerase chain reaction (PCR)/DNA analysis, and controlled substances liquid and gas chromatography. Case studies and a team project will be performed at the end of the semester using several analytical techniques in the student's area of interest.
- CH 450 Introductory Biochemistry** 4 cr. (3-0-3)
Offered: Fall, winter
Prerequisites: CH 220 or CH 322, junior standing or instructor's permission.
A study of the fundamental concepts of biochemistry, including the chemical and physical properties of biomolecules and the chemical basis of the major metabolic pathways. Laboratory experiments teach basic biochemical techniques.
- CH 452 Intermediary Metabolism** 4 cr.
Offered: Winter
Prerequisites: CH 450, junior standing or instructor's permission.
A course designed to follow CH 450, emphasizing metabolic processes and exposing students to current biochemical literature. Topics include the biosynthesis of lipids, amino acids, nucleic acids and gene expression, and protein synthesis. Abnormalities in metabolic processes that result in disease will be considered.
- CH 454 Biochemical Techniques** 4 cr. (0-0-12)
Offered: Winter
Prerequisites: CH 450, junior standing or instructor's permission.
A laboratory course applying instrumental techniques to biochemical problems. Experiments include immunological assay, electrophoresis, radioisotope labeling, and purification and analysis of DNA.
- CH 456 Protein Structure and Function** 3 cr.
Offered: Fall 2007; every third fall thereafter.
Prerequisites: CH 450, junior standing or instructor's permission.
An investigation of the structure of proteins enhanced by the use of computer software with three-dimensional images. The relationship between protein structure and function will be explored by studying enzymatic reaction mechanisms and kinetics.
- CH 460 Nuclear Chemistry** 4 cr. (3-0-3)
Offered: Every other fall, odd years.
Prerequisite: Four courses in chemistry and consent of instructor.
The basic nuclear physics necessary for understanding the practical use of radiation and radionuclides is covered. Emphasis is given to properties of radioactive substances, effects of radiation, detection and measurement of radiation and radioisotope methodology.
- CH 490 Senior Research and Seminar I** 2-4 cr.
Offered: Fall
Prerequisites: Biochemistry or chemistry major and senior standing or instructor's permission.
Some aspects of chemical research, pursued in cooperation with a research adviser. Oral and written reports and attendance at a weekly seminar are required. Adviser and research problem must be selected a semester prior to registration.
Note: May be repeated if topic differs up to four credit hours.
- CH 491 Senior Research and Seminar II** 2-4 cr.
Offered: Winter
Prerequisites: Biochemistry or chemistry major and senior standing and instructor's permission.
A continuation of CH 490. Open to students who have demonstrated exceptional competencies.
Note: May be repeated if topic differs up to four credit hours.
- CH 492 Research in Water Science** 2 cr.
Offered: Fall, winter
Prerequisites: Water science major, junior standing or instructor's permission and CH 242. CH 430 is strongly recommended.
Cross listed as BI 492.
A course to introduce students to environmentally related research.

Projects are pursued in cooperation with a faculty research adviser. The research adviser and research problem must be selected a semester prior to registration. A written and final oral report are required.

CH 493 Forensic Laboratory Internship 1-4 cr.
Prerequisites: Junior status, GPA of 3.00 and departmental approval
Supervised experience in a forensic science laboratory. Qualified students may apply during their junior year. Students will be required to write a report of their experience that will be evaluated by the departmental forensic biochemistry advisory committee and the employer. In addition, the student will give a departmental seminar in the semester immediately following the internship.

CH 495 Special Topics in Chemistry 1-4 cr.
Offered: Winter
Prerequisites: instructor's permission and junior standing.
Variable content, depending upon the specialties of the staff and special needs of the students.

Note: May be repeated if topic differs.

CHN - CHINESE

Modern Languages and Literatures Department

CHN 101 Elementary Chinese I 4 cr.
Offered: At least once a year

- Satisfies the formal communication studies requirement.

An introductory course in the Chinese language and culture. Students learn rudimentary "survival" skills such as social etiquette, telling time and directions, talking about family, school and work, and writing and recognizing written characters.

CIS-COMPUTER INFORMATION SYSTEMS

College of Business

CIS 110 Principles of Computer Information Systems 4 cr.
Offered: Fall, winter, summer

- Satisfies the formal communication studies requirement.

Basic computer literacy applicable to students' education and careers. Topics include word processing, spreadsheets, databases and other applications.

Note: CIS 110 is the equivalent of IS 100, IS 101, IS 102 and IS 104.

CIS 155 Software Development 1 4 cr.
Offered: Fall, winter
Prerequisite: IS 120 (may be taken concurrently).

Study and practice of a visually-based programming language and application generator. Course involves screen creation, logic development for event-driven screen operations, object-orientation and database fundamentals. Students will query and update databases through the programming interface.

CIS 220 Network Concepts 2 cr.
Offered: Fall, winter
Prerequisites: IS 120 or instructor's permission.

Course provides detailed descriptions and workings of network hardware and software components and covers operation and management of a LAN. Hands-on demonstration and assignments given. Students set up NICs, hubs, wiring for Ethernet, and other topologies.

CIS 228 Concepts of Help Desk/Call Center Operations 2 cr.
Offered: Fall

Help desk and call center operations including different types of help desks/call centers, career paths, and the knowledge, skills, and abilities needed to be successful. Students examine people, processes, technology and information required for successful support operations.

CIS 230 Novell Network Operating Systems I 2 cr.
Offered: Fall
Prerequisites: CIS 220 or concurrent enrollment, or instructor's permission.

Students install a Novell LAN, including servers and workstations, in a laboratory setting. Students set up user directories, security, print servers and application software. The course has both a lecture/discussion and a lab component.

CIS 234 Microsoft Network Operating Systems I 2 cr.
Offered: Fall
Prerequisites: CIS 220 or concurrent enrollment or instructor's permission.

Interface and tools to implement a professional workstation that administers small-large networks. Course helps students prepare for Microsoft network certification. Hands-on training in planning, installation, configuration, managing resources, connectivity, running applications, monitoring, optimization and troubleshooting.

CIS 250 Systems Development I 4 cr.
Offered: Fall, winter
Prerequisites: CIS 155 and CIS 220 (or concurrent enrollment). CIS 255 must be taken in subsequent semester.

First of a two-course sequence; provides students a basic understanding of the systems development process. Presents the concepts, tools and methodologies used by the professional analyst in the early stages of the system development process. Discusses issues and decisions associated with managing a systems development project.

CIS 255 Systems Development II 4 cr.
Offered: Fall, winter
Prerequisites: CIS 250 (must be taken in prior semester) or instructor's permission.

Second of a two-course sequence; provides students an in-depth understanding of the systems development process. Emphasis is on the refinement and implementation of the system development process presenting the concepts, tools and methodologies used by the professional analyst. Discusses issues and decisions associated with managing a systems development project.

<p>CIS 291 Internship in Computer Information Systems 1-8 cr. Offered: Fall, winter, summer Graded S/U Prerequisites: Completion of the College of Business prerequisite courses and 48 semester hours and approval of internship coordinator. Appropriate professional work experience at a computer installation. Students are required to document their work experience and fulfill requirements stipulated upon approval of the internship.</p>	<p>CIS 415 Systems Development Project 3 cr. Offered: Fall Prerequisites: CIS 255, CIS 464 (CIS 464 may be a co-requisite with instructor's permission) and junior standing or instructor's permission. A capstone course with an emphasis on the development of a computer application by student project teams assigned to local businesses or university departments. Project teams learn project management skills through job assignments and weekly status meetings with the instructor. Class time is arranged by project.</p>
<p>CIS 295 Special Topics in Computer Information Systems 1-4 cr. Offered: Contact department for information. Designed for freshmen and sophomores and as a service course. Topics dependent on the special interests of students and staff. <i>Note: If topic differs, may be repeated for credit with permission of instructor.</i></p>	<p>CIS 416 Advanced Systems Development Project 1-3 cr. Offered: Contact department for information. Prerequisites: CIS 415 and junior standing or instructor's permission. Additional experience with computer application development and implementation. The structure of the course is identical to CIS 415.</p>
<p>CIS 297 Directed Studies in Computer Information Systems 1-4 cr. Offered: Contact department for information. Graded S/U Prerequisite: College of Business permission. Individual investigations of a special topic in information systems.</p>	<p>CIS 428 Help Desk/Call Center Management 4 cr. Offered: Winter Prerequisites: CIS 228, MGT 228, MGT 240, junior standing or instructor's permission. A capstone experience for students interested in management positions in the help desk/call center industry. Focuses on techniques for developing and managing a customer support center. Students gain experience with the unique tools and technologies used in support environments and learn how to apply information to make more effective decisions.</p>
<p>CIS 298 Directed Studies in Computer Information Systems 1-4 cr. Offered: Contact department for information. Prerequisite: College of Business permission. Individual investigations of a special topic in information systems.</p>	<p>CIS 430 Data Communication 3 cr. Offered: Contact department for information. Prerequisites: CIS 155, CIS 250 and junior standing or instructor's permission. Covers the theories and technical prerequisites of data communication. Subjects include hardware, fundamental communication concepts, voice communication, configurations, common carrier service offerings, network design, protocols and software, microcomputers and communication, local area networks, network management and network security.</p>
<p>CIS 330 Novell Network Operating Systems II 3 cr. Offered: Winter Prerequisites: CIS 230 or instructor's permission. In-depth study of the most complex functions and features of installing, configuring and maintaining the latest Novell Netware-based LAN system along with preparation for the CNA Exam. Includes extensive use of practice exam software that simulates the testing environment on which students must perform actions according to a given scenario.</p>	<p>CIS 440 Management Information Systems 3 cr. Offered: Fall, winter Prerequisites: MKT 230, MGT 240 and FIN 351 junior standing or instructor's permission. Provides College of Business majors with the necessary background to keep abreast of current developments in the use of computer information systems in supporting management functions. Discusses creating competitive firms, managing global corporations, and providing useful products and services to customers from an information systems standpoint.</p>
<p>CIS 334 Microsoft Network Operating Systems II 3 cr. Offered: Winter Prerequisites: CIS 234 or instructor's permission. In-depth study of the most complex functions and features of installing, configuring and maintaining the latest Windows operating system, along with preparation for the Microsoft Certified Professional Exam. Extensive use of practice exam software that simulates the testing environment, in which students must perform actions according to a given scenario.</p>	<p>CIS 464 Database Management Systems 3 cr. Offered: Fall, winter Prerequisites: CIS 250 and junior standing or instructor's permission. Survey of the applied database systems topics. Emphasis is on relational databases—logical design, physical design and SQL. Hierarchical, network, object-oriented and object-relational models are also considered. Supporting topics include entity-relationship model, database administration, data dictionaries/catalogs, backup/recovery, concurrency control, database security, distributed database, client/server database, data warehousing and data mining.</p>
<p>CIS 355 Web Applications Programming 3 cr. Offered: Contact department for information. Prerequisites: CIS 155 or other programming course and CIS 255, junior standing, or instructor's permission. Students program client/server applications for the Web, focusing on database integration using SQL. Topics cover scripting languages such as JavaScript, VBScript, etc., and using them to read input from Web forms, store and retrieve data from databases, and produce Web output. Emphasis is on business-oriented applications for the Web.</p>	

CIS 470 E-Commerce and E-Business 3 cr.

Offered: Winter

Prerequisites: Junior standing or instructor's permission.

Explores the impact of information technology on how business is conducted in the electronic commerce and traditional business arenas. Students gain an appreciation for the scope and performance characteristics exhibited by current information technology as it relates to business, and insight into current changes in the way businesses implement e-commerce strategy.

CIS 490 Seminar on Information Systems and Information Technology 3 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

Provides students with an opportunity to cover the latest and emerging topics in information systems and information technology. The course covers wide-ranging topics from all concentrations of information systems.

CIS 491 Internship in Computer Information Systems 1-8 cr.

Offered: Fall, winter, summer

Graded S/U

Prerequisites: Junior standing or instructor's permission.

Appropriate professional work experience at a computer installation.

Students are required to document their work experience and fulfill requirements stipulated upon approval of the internship.

CIS 495 Special Topics in Computer Information Systems 1-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

Variable topics of current interest.

Note: May be repeated if topic differs.

CIS 496 Special Topics in Computer Information Systems 1-4 cr.

Offered: Contact department for information.

Graded S/U

Prerequisites: Junior standing or instructor's permission.

Designed for juniors and seniors as a service course. Topics dependent on the special interests of students and staff.

Note: May be repeated if topic differs.

CIS 497 Directed Studies in Computer Information Systems 1-4 cr.

Offered: Contact department for information.

Graded S/U

Prerequisites: Junior standing and College of Business permission.

Individual research in computer information systems. Work is supervised through conferences with an adviser.

CIS 498 Directed Studies in Computer Information Systems 1-4 cr.

Offered: Contact department for information.

Prerequisite: Junior standing and College of Business permission.

Individual research in computer information systems. Work is supervised through conferences with an adviser.

CJ-CRIMINAL JUSTICE

Criminal Justice Department

CJ 110 Introduction to Criminal Justice 4 cr.

Offered: Fall, winter

An introduction to the various subcomponents of the justice system: police, courts and corrections. The course will illustrate how these interrelated components result in the administration of justice in a democratic society. Current problems faced by the criminal justice process will be discussed.

CJ 191 Training Seminar (Specific Topic) 1-4 cr.

Offered: On demand

This course is for criminal justice elective credit and may be applied toward the criminal justice associate of arts or applied science degree programs. This is a training course specifically designed for the topic at hand.

Note: No more than 4 credits of CJ 191 and/or CJ 298 may be applied toward the AS or AAS degree programs. CJ 191 and CJ 298 do not apply toward the bachelor's degree.

This course may be taken more than once under a different topic.

CJ 212 The Law Enforcement Function 4 cr.

Offered: Fall, winter

Prerequisites: CJ 110 or instructor's permission.

The role of law enforcement in the criminal justice system and society at large is explored. Emphasis is placed on the history and current practices of policing, the demands and rewards of careers in law enforcement and the dilemma inherent in policing a free society.

CJ 213 The Judicial Function 4 cr.

Offered: Fall, winter

Prerequisites: CJ 110 or instructor's permission.

An examination of the criminal court system and criminal process with an analysis of the major judicial decision-makers, i.e., prosecutors, defense attorneys, judges and the courtroom work group.

CJ 214 The Investigative Process I 4 cr.

Offered: Fall

Prerequisites: CJ 110 or instructor's permission.

Theory of investigation, crime scene conduct, collection and preservation of physical evidence; overview of methods used in scientific interpretation of evidence; and presentation of evidence to the judicial system.

Note: This course was previously numbered CJ 314 The Investigative Process I.

CJ 220 The Corrections Functions 4 cr.

Offered: Fall, winter

Prerequisites: CJ 110 or instructor's permission, or enrollment in correctional officer certification program.

Introduction to the philosophy, theory and practice involved in dealing officially with convicted offenders; appraisal of treatment and post-correctional practices plus functions of probation and parole are analyzed. Problems, trends and issues are identified.

<p>CJ 221 Roles of the Corrections Client 4 cr. Offered: Summer Prerequisites: CJ 110, CJ 220 or instructor's permission, or enrollment in correctional officer certification program. Study of offenders in terms of their personal background and definitional dimensions. Attitudes, behavior and criminal careers are examined to help develop realistic perspective on crime and criminals.</p>	<p>CJ 275 Legal Aspects of Retail Security 4 cr. Offered: Fall, winter, summer Prerequisites: CJ 110 or instructor's permission. This course examines the legal environment surrounding the private security profession. It is critical to realize that there are major legal restraints upon security officers who help ensure both the protection of the public and their employers.</p>
<p>CJ 227 Correctional Institutions 4 cr. Offered: Summer Prerequisites: CJ 110, CJ 220 or instructor's permission, or enrollment in correctional officer certification program. The development, structure and function of correctional institutions, including jails. Emphasis is placed on the principles and strategies of custody and treatment as they pertain to the confined offender. The propriety and effectiveness of the custody continuum are examined.</p>	<p>CJ 276 Retail Loss Prevention Management 4 cr. Offered: Fall, winter, summer Prerequisites: CJ 110 or instructor's permission. This course focuses on retail loss prevention issues from a supervision and management perspective. It discusses the role of loss prevention within the corporate management structure. It explores classic and contemporary management theory along with basic roles and functions of managers and supervisors. It is designed to assist individuals currently holding or aspiring to management positions in implementing realistic loss prevention strategies in a mass retail environment.</p>
<p>CJ 245 Legal Issues in Corrections 4 cr. Offered: Fall, winter, summer Prerequisites: CJ 110, CJ 220, or instructor's permission, or enrollment in correctional officer certification program. An overview of the major issues, trends and the political and social dimensions of criminal convictions. An analysis of constitutional law, court decisions, current legislation of the federal and state law affecting prisons and the judicial proceedings.</p>	<p>CJ 280 Criminal Law 4 cr. Offered: Fall, winter Prerequisites: CJ 110 or instructor's permission. Analysis and classification of substantive common law and statutory criminal offenses; defenses and other limitations on criminal capacity.</p>
<p>CJ 250 Investigative Interviewing and Interrogation 4 cr. Offered: Winter Prerequisite: CJ 110 or instructor's permission. This course focuses on planning, conducting and analyzing interviews and interrogations as part of an investigation. Fundamental theories will be demonstrated in practical exercises including detecting deception. The class will analyze and discuss key Supreme Court decisions, particularly <i>Miranda v. Arizona</i> and the subsequent Fifth and Sixth Amendment cases that guide current practices in public and private investigations.</p>	<p>CJ 295 Special Topics in Criminal Justice 1-4 cr. Offered: On demand Prerequisite: Instructor's permission. The study of special issues in criminal justice.</p>
<p>CJ 255 Drugs, Crime and the Justice System 4 cr. Offered: Every other summer. Prerequisites: CJ 110 or instructor's permission. This course describes and examines the history and current state of the illegal drug problem in the United States from the early 1800s to the present. This includes the nature of illegal drug use, the drug-crime connection, illegal drug production and trafficking, the structure of illegal drug enterprises, drug user profiles, drug control policy and treatment programs, and the drug legalization debate.</p>	<p>CJ 298 Directed Study 1-4 cr. Offered: On demand Prerequisites: Instructor and department permission. Individual research at an advanced level in the student's field of interest as approved and directed by the major professor. <i>Note: No more than 4 credits of CJ 191 and/or CJ 298 may be applied toward the AS or AAS degree programs. CJ 191 and CJ 298 do not apply toward the bachelor's degree.</i></p>
<p>CJ 263 Criminology 4 cr. Offered: Fall, winter Prerequisites: SO 101 or SO 113 and CJ 110 or instructor's permission. Cross listed with SO 263. This course explores the nature, extent, causes and methods of treatment and prevention of crime and criminality. Emphasis is placed on theories and methods of studying crime and criminal behavior as social phenomena.</p>	<p>CJ 299 Police Academy 12 cr. Offered: Summer Graded S/U Prerequisite: Admission to NMU Regional Police Academy. The Regional Police Academy is a 15-week, 900-hour police training school designed to provide basic law enforcement training to in-service and pre-service recruits. At the successful completion of academy training, a recruit becomes certifiable as a police officer through the Michigan Law Enforcement Officers Training Council (MCOTC). This training is transferable to all states but Hawaii. <i>Note: These credits can only be applied toward the Associate of Applied Science in Law Enforcement degree.</i></p>

CJ 302 Community Relations and Crime Prevention 4 cr.

Offered: Winter
Prerequisites: CJ 110 and junior status or instructor's permission.

A survey of the relationships between policing agencies and the communities they serve. Emphasis is placed on communication and orientation toward common goals, with a focus on the part that crime prevention techniques play in reducing current community problems.

Note: May not be taken if the student has previously taken LE 300 Police-Community Relations or LE 400 Crime Prevention.

CJ 315 Criminal Procedure 4 cr.

Offered: Fall
Prerequisites: CJ 110 and junior standing or instructor's permission.

Rules of evidence and legal procedure in important areas such as arrest, force, search and seizure.

CJ 323 Community-Based Corrections 4 cr.

Offered: On demand
Prerequisites: CJ 110 and junior standing or instructor's permission.

This is a course on non-institutional corrections that focuses on the contemporary means and philosophy of positive intervention in the lives of selected offenders in an effort to facilitate improved social functioning. Specific attention is given to such critical corrections issues as resource brokering, problem solving, accountability and communication. Methods and techniques of service delivery within the context of probation, parole, diversion, halfway houses and other community settings are stressed.

CJ 360 Case Studies in Crime 4 cr.

Prerequisites: CJ 110 and junior status, or instructor permission.

This seminar covers case studies of important and/or notorious crimes in history. Focus will be on crimes important to the evolution of the American culture and those crimes which contributed to changes in legislation and law enforcement methods. Students will independently research and present the majority of the course content.

CJ 412 Crisis Intervention and Stress Analysis 4 cr.

Offered: Every other winter.
Prerequisites: CJ 110 and junior standing or instructor's permission.

The course will examine the challenges and risks of the various "front line" crisis intervention situations encountered by police and corrections officers. Emphasis is on the dynamics of interpersonal relations and intervention techniques, especially in conflict-oriented situations. Alternatives available to officers, as well as the relative roles of other legal and social agencies, will be discussed. The second half of the course will focus on stress issues relative to police and corrections personnel.

Note: May not be taken if the student has already taken LE 410 Police Crisis Intervention or LE 415 Police Stress Analysis.

CJ 414 The Investigative Process II 4 cr.

Offered: On demand
Prerequisites: CJ 110, CJ 214 and junior standing or instructor's permission.

The actual gathering, identifying, preserving and analyzing of evidence. The course prepares students to write investigative reports that can be introduced into a court of law. It stresses the legal importance of all types of evidence and the probability of their acceptance in a court.

CJ 420 Forensic Psychology 4 cr.

Offered: Winter
Prerequisites: CJ 110 and junior standing and instructor's permission.

This course will examine the role of the discipline of psychology in the criminal justice system. In this class, students will explore many of the aspects of criminal justice theory and practice that are interdisciplinary in nature and for which a basic understanding of psychological principles is fundamental. This course will be taught as a seminar, with students actively participating in instruction by independently exploring a topic of their choice and sharing their findings with the class.

CJ 426 International Crime and Comparative Criminal Justice Systems 4 cr.

Offered: Fall
Prerequisites: CJ 110 and junior standing or instructor's permission.

This course explores the justice systems of various countries in depth and compares the significant similarities and differences between them and the United States. Both statutory and common law are analyzed, as well as crime rates, prevention, detention and judicial procedures.

CJ 435 Domestic and International Terrorism 4 cr.

Offered: On demand
Prerequisite: CJ 110 and junior standing or instructor's permission.

This course examines the history and current state of the problem of domestic and international terrorism. This includes the types and nature of terror; profiles of the individuals, organizations and nation states involved in terrorism; their motivations and targets; the attacks against the United States; strategies currently used to control and prevent terrorism; and the prospects for the future.

CJ 440 Discretionary Justice 4 cr.

Offered: Winter
Prerequisites: CJ 110 and junior standing or instructor's permission.

In-depth study of the use of discretion in criminal justice taught in seminar style. Students are required to participate in realistic simulated decision-making situations that reveal subjective and subtle influences on the decision makers. Police, institution classification and parole decision issues are emphasized.

CJ 465 Problem Solving in Criminal Justice 4 cr.

Prerequisites: CJ 110 and junior status or instructor permission.

This course focuses on the art and science of problem-solving. Students will be instructed in use of SARA—a model for solving problems currently utilized by law enforcement and corrections agencies nationwide.

CJ 470 Liability Law in Criminal Justice 4 cr.

Prerequisites: CJ 110 and junior status or instructor's permission.

Students will examine the statutes, constitutional law, and case law contrasted against factual backgrounds that give rise to liability. Emphasis will be placed on understanding strategies for minimizing the potential administrative, civil and criminal liability exposure to individuals and agencies.

CJ 480 Cybercrime 4 cr.
Offered: Winter
Prerequisites: CJ 110, CJ 214, CIS 110 and junior standing or instructor's permission.

This course examines the history and current state of the problem of domestic and global cybercrime. The situation involves exploring various types of crimes committed with computers, the Internet and electronic devices. Students will learn investigative techniques and legal issues related to the investigation of cybercrimes. Also, forensic issues addressed will include recognition of leads, tracking cybercriminals as well as the collection and preservation of computer-related (digital) evidence.

CJ 490 Professional Development and Assessment 2 cr.
Offered: Fall, winter
Prerequisites: CJ 110 and senior standing or instructor's permission.

This course provides students with information and perspectives necessary for a successful career search in criminal justice. It will encourage students to explore their values, skills and competencies in order to come to a better understanding of the unique qualities and abilities that each may contribute in their chosen profession. Finally students will assist with the accomplishment of the department's assessment objectives by participating in select activities and discussions.

Note: This course replaces CJ 489 Theory and Ideology of Criminal Justice.

CJ 491 Internship in Criminal Justice 4-16 cr.
Offered: Fall, winter, summer
Graded S/U

Prerequisites: All 100- and 200-level CJ core courses, junior standing, 2.70 cumulative grade point average and permission of the criminal justice internship coordinator.

Supervised field experience through university-arranged placements in law enforcement, corrections, loss prevention or other criminal justice agencies.

Note: May be applied as general elective credit only.

CJ 495 Special Topics in Criminal Justice 1-4 cr.
Offered: On demand
Prerequisites: CJ 110 and junior standing or instructor's permission.

The study of special issues in criminal justice at a more advanced level. Sometimes used to accommodate the training of visiting lecturers.

Note: May be repeated if topic differs for eight credit hours.

CJ 497 Teaching/Research Apprenticeship 1-4 cr.
Offered: On demand
Prerequisites: CJ 110 and junior standing or instructor's permission.

Directed apprentice activities in research or teaching. Students will work under close supervision of their major professor.

Note: Only four credit hours of CJ 497 and/or CJ 498 may be applied toward the major.

CJ 498 Directed Study 1-4 cr.
Offered: On demand
Prerequisites: CJ 110 and junior standing or instructor's permission.

Individual research on an advanced level in student's field of interest as approved and directed by major professor.

Note: Only four credit hours of CJ 497 and/or CJ 498 can be applied toward the major.

CLS - CLINICAL LABORATORY SCIENCE

Clinical Laboratory Science Department

CLS 100 Obtaining a Blood Specimen 1 cr. (3-0-2)
Offered: Fall, winter
Graded S/U

A course designed to teach any interested student phlebotomy skills by venipuncture and dermal puncture methods. Lecture topics include infection control, safety, ethics, communication, specimen processing, selection of anti-coagulants, order of draw, prioritizing requests, complications and accidental needlesticks.

Note: Meets four weeks of the semester.

CLS 109 Introduction to Diagnostic Sciences 1 cr. (3-0-2)
Offered: Fall, winter
Prerequisite: High school biology recommended.

An introduction to a variety of diagnostic tests for various aspects of the clinical laboratory. The various tests represent analytes commonly measured because of their diagnostic or screening value for major health conditions in society such as diabetes, heart attacks, anemia and infection. Accuracy, safety and quality control will be stressed throughout.

Note: Meets four weeks of the semester.

CLS 150 Phlebotomy Practicum 4 cr.
Offered: Fall, winter
Graded S/U

Prerequisite: CLS 100, CLS 109, BI 104 and acceptance into the practicum.

Extensive clinical experience in phlebotomy. The student will log a total of 160 hours at assigned clinical agencies.

CLS 190 Microscopy and Laboratory Techniques 1 cr. (3-0-2)
Offered: Fall

The course is designed to develop basic laboratory skills that are fundamental to science exploration and practice. The student will learn the principles and effective use of the microscope including bright-field, phase, polarized, dark-field and fluorescence techniques. Spectrophotometry and proper pipetting techniques will also be addressed.

Note: Meets four weeks of the semester.

CLS 200 Urine and Body Fluid Analysis 1 cr. (2-0-2)
Offered: Winter

Prerequisites: High school biology recommended.

The course will include macroscopic, chemical and microscopic examination of various fluids. Significance, principles, reference ranges, sources of error and data correlation of manual and automated methods will be emphasized in each type of analysis.

Note: This course meets for the last six weeks of the semester.

CLS 201 Clinical Hematology/Coagulation 3 cr. (2-0-3)
Offered: Winter

Prerequisites: CLS 109, CLS 190, BI 104 or BI 202 (BI 104 or BI 202 can be taken concurrently) or instructor's permission.

A study of blood-forming organs, the morphologic, biochemical and functional aspects of the cellular components and the mechanisms of hemostasis. Disorders are discussed and correlated with the abnormal results found in corresponding lab tests. Emphasis is placed on diagnostic procedures and those used to differentiate normal and abnormal states.

CLS 202 Clinical Chemistry 4 cr. (3-0-3)
Offered: Fall

Prerequisites: One year of high school chemistry and one semester of college chemistry or instructor's permission. CLS 109, CLS 190 recommended.

Examination of the methods of analysis and clinical significance of a variety of analytes found in an assortment of body fluids. Data correlation, basic statistics and quality control measures are emphasized. Performance of clinical chemistry assays that are typically done in hospital laboratories.

CLS 203 Immunohematology 3 cr. (2-0-3)
Offered: Winter

Prerequisites: One year of high school biology or one semester of college biology, CLS 213 or concurrent enrollment or instructor's permission.

Fundamentals of blood banking in the ABO, Rh and other blood group systems; blood component preparation and utilization; transfusion; transfusion complications; quality control and problem solving; and current issues in transfusion medicine. Laboratories include techniques used in immunology/serology; blood grouping; compatibility testing; and antibody identification.

CLS 204 Clinical Microbiology 2 cr.
Offered: Fall

Prerequisites: CLS 109, BI 104 or BI 202 or instructor's permission.

Introduction to the medically important bacteria, fungi, viruses and parasites. Infectious diseases are discussed by organ systems including the role of normal flora and clinical information relevant to each. Current practices in the collection and transportation of clinical specimens and infection control issues are emphasized.

CLS 213 Clinical Immunology and Serology 1 cr.
Offered: Winter

Prerequisite: One year of high school biology or one semester of college biology, or instructor's permission; chemistry recommended.

An introduction to immunology, the immune response and the application of immunological concepts to serological testing in the clinical laboratory.

CLS 214 Diagnostic Microbiology 3 cr. (1-1-2.5)
Offered: Fall

Prerequisites: CLS 204 or concurrent enrollment or instructor's permission. CLS 190 recommended.

Methods of the isolation and identification of microbial pathogens including clinically significant bacteria, fungi and parasites. Laboratory diagnostic techniques focus on biochemical characterization, serologic testing, rapid identification methods, susceptibility testing and microscopic examination.

CLS 250 Clinical Practice 1-2 cr.
Offered: Fall, winter
Graded S/U

Prerequisites: CLS 100, 109 and acceptance for a clinical placement by the Clinical Laboratory Sciences Department.

This course is designed for all programs with a clinical practicum that extends into the summer months. This course represents each different discipline identified by the appropriate suffix.

CLS 250A Clinical Practice 2 cr.
Offered: Summer

Students will practice their clinical assistant skills.

CLS 250T Clinical Practice 2 cr.
Offered: Summer

Students will practice their skills in phlebotomy and serological testing.

CLS 250S Clinical Practice 1 cr.
Offered: Summer

Students will practice their skills in specimen processing and routine urinalysis.

CLS 250C Clinical Practice 2 cr.
Offered: Summer

Students will practice their skills in routine cytology and histologic techniques.

CLS 250G Clinical Practice 2 cr.
Offered: Summer

Students will become oriented to the cytogenetic or molecular biology laboratory which includes the application of safety policies and learning specialized nomenclature, definitions and some diagnostic genetic techniques. A review of human chromosome and G and Q band patterns are included for cytogenetic students.

CLS 250H Clinical Practice 2 cr.
Offered: Summer

Students will practice techniques in advanced histology.

CLS 250M Clinical Practice 1 cr.
Offered: Fall, winter

Students will practice techniques in advanced diagnostic microbiology.

CLS 251, 252, 253, 254 Sophomore Practicum 14 cr.
Graded S/U

Prerequisites: A grade of "C-" or better in CLS 109, CLS 190, CLS 200, CLS 201, CLS 202, CLS 203, CLS 204, CLS 213, CLS 214.; a minimum 2.00 NMU cumulative GPA and in the major, and faculty recommendations.

A six-month, full-time practicum in an affiliated clinical laboratory under the supervision of clinical laboratory professionals. Includes practical experience in all areas of the clinical laboratory including LIS. Current affiliates are in Upper Michigan, Wisconsin and Minnesota. The practicum is represented by CLS 250T and the following four courses:

CLS 251 Clinical Hematology Practicum 3 cr.
Offered: Fall, winter

Includes hematology and coagulation.

CLS 252 Clinical Chemistry Practicum 4 cr.
Offered: Fall, winter

Includes chemistry and routine urinalysis.

<p>CLS 253 Blood Banking Practicum 3 cr. Offered: Fall, winter Includes blood banking.</p>	<p>CLS 380, 381, 382, 383, 384 Histotechnology Practicum 30 cr. Prerequisites: Completion of the required courses in the histotechnician or histotechnologist curriculum and acceptance by a clinical agency with an accredited histology training program.</p>
<p>CLS 254 Clinical Microbiology Practicum 4 cr. Offered: On demand Includes bacteriology, mycology and parasitology.</p>	<p>A supervised, full-time, 6-month to 12-month clinical practicum in an accredited histology program. The practicum prepares students to assist in tissue-related procedures to establish and confirm a patient's diagnosis. The preparation and staining of tissue involves a variety of techniques. The practicum is represented by CLS 250H and the following courses:</p>
<p>CLS 298 Directed Studies in Clinical Laboratory Science 1-4 cr. Offered: On demand For associate degree programs. May apply to a baccalaureate degree program with the approval of the student's major department. Usually elected only once. Individual directed study in a clinical laboratory science topic. Students study topics through laboratory projects, independent reading and/or a written paper.</p>	<p>CLS 380 Histotechnique I (Processing and Microtomy) 7 cr. Offered: Fall, winter</p> <p>CLS 381 Histotechnique II (Staining, Clinical Correlation, Instrumentation, QC, etc.) 7 cr. Offered: Fall, winter</p> <p>CLS 382 Histotechnique III (Grossing/Embedding, Microscopy) 3 cr. Offered: Fall, winter</p>
<p>CLS 301 Advanced Hematology/Coagulation 3 cr. Offered: Winter Prerequisites: CLS 201 (CLS 251 recommended, or instructor's permission). Survey of hematopoiesis, blood cell derivation, iron metabolism, erythropoiesis, physiological classification and laboratory investigation of anemias, leukocyte and platelet physiology and function, and disorders of phagocytosis. Key laboratory tests are identified with each area of assessment. Learning activities include computer-assisted instruction, laboratory problems and correlation of clinical data.</p>	<p>CLS 383 Histochemistry/Pathology (Special Stains, Electron Microscopy, DNA) 8 cr. Offered: Fall, winter</p> <p>CLS 384 Advanced Histology (Special projects, Management, Clinical, Legal Procedures) 5 cr. Offered: Fall, winter</p>
<p>CLS 302 Advanced Clinical Chemistry 2 cr. Offered: Fall Prerequisites: CLS 202 (CLS 25 2 and MA 171 recommended). A lecture-laboratory course involving a problem-solving orientation to laboratory practice. Learning activities include a laboratory method comparison, laboratory problems of technical and diagnostic focus, written assignments pertaining to hormones and therapeutic drugs, and computer-assisted instruction.</p>	<p>CLS 391 Laboratory Experience 1-3 cr. Offered: Fall, winter, summer Prerequisites: Appropriate CLS courses (CLS 100, CLS 109, CLS 190, CLS 200, CLS 201, CLS 202, 203, 204, 214) for the designated experience, and permission of supervising faculty and program director. A course subtitle on the student's transcript will describe the content for this course, e.g. CLS 391 Laboratory Experience in Hematology Student Laboratory. The course is designed to offer additional experience in the student laboratory which may involve instrument set-up, shut down, troubleshooting, trialing procedures before implementation, laboratory maintenance, reagent preparation, and assisting the instructor. <i>Note: May be repeated for up to six credits if the topic differs.</i></p>
<p>CLS 303 Advanced Immunohematology 2 cr. Offered: Winter Prerequisites: CLS 203 (CLS 253 recommended, or instructor's permission). Advanced studies in antibody-antigen interaction in relation to blood component therapy. Learning activities include laboratory problems and CAI focusing on complex blood-banking problems; a written assignment for selection of methods for clinical analysis and special techniques in laboratory practice.</p>	<p>CLS 420 Clinical Educational Practices 1 cr. Offered: Fall Prerequisites: Junior standing or instructor's permission. Introduction of the laboratory professional to basic education methodology. The principles of learning, the use of goals and objectives and the analysis of a teaching module will be addressed first. Students will be required to teach two laboratory sessions and present one in-service to the Clinical Laboratory Sciences Department.</p>
<p>CLS 304 Advanced Clinical Microbiology 2 cr. Offered: Fall Prerequisites: CLS 204 and CLS 214 (CLS 254 recommended, or instructor's permission). A study of selected topics in bacteriology, mycology, parasitology and virology utilizing computer-assisted instruction, written assignments and lab problems. Identification techniques and protocol will be evaluated for both common and infrequently isolated pathogens.</p>	<p>CLS 440, 441, 442, 443 Advanced Diagnostic Microbiology Practicum 14 cr. Offered: Fall, winter Prerequisites: A grade of C- or better in all CLS courses, a minimum of 2.60 NMU cumulative GPA and 2.50 GPA in the major, CLT certification and CLS faculty recommendation. Junior standing or instructor's permission. Students must also enroll in CLS 250M during the summer months.</p>

An intense, five-month, full-time practicum in an approved clinical laboratory under the supervision of a clinical laboratory scientist or microbiologist. Includes practical experience with emphasis on proficiency, special or unique procedures, problem solving, method evaluation and supervisory functions. The practicum is represented by CLS 250M and the following courses:

- CLS 440 Advanced Clinical Bacteriology** 8 cr.
Offered: Fall, winter
- CLS 441 Advanced Clinical Mycology** 2 cr.
Offered: Fall, winter
- CLS 442 Advanced Clinical Parasitology** 2 cr.
Offered: Fall, winter
- CLS 443 Advanced Clinical Mycobacteriology/Virology** 2 cr.
Offered: Fall, winter

CLS 451, 452, 453, 454 Senior Practicum 14 cr.
Prerequisites: a grade of "C-" or better in all CLS courses; a minimum 2.60 NMU cumulative GPA, a minimum 2.50 GPA in the major, CLT certification and recommendations. Junior standing or instructor's permission.

An intense, five-month, full-time practicum in an affiliated clinical laboratory under supervision of clinical laboratory scientists. Includes practical experience and further acquisition of theoretical principles in all areas of the clinical laboratory with emphasis on special testing, problem solving and a variety of supervisory functions. The practicum is represented by CLS 250S and the following four courses:

- CLS 451 Advanced Clinical Hematology Practicum** 3 cr.
Offered: Fall, winter
Includes hematology and coagulation.
- CLS 452 Advanced Clinical Chemistry Practicum** 3 cr.
Offered: Fall, winter
Includes chemistry and special testing.
- CLS 453 Advanced Clinical Immunohematology Practicum** 4 cr.
Offered: Fall, winter
Includes blood banking and serology areas.
- CLS 454 Advanced Clinical Microbiology Practicum** 4 cr.
Offered: Fall, winter
Includes bacteriology, mycology, parasitology and virology.
- CLS 460, 461, 462, 463 Cytogenetics Practicum** 14 cr.
Prerequisites: Students must achieve a 2.60 NMU cumulative GPA and a minimum of 2.80 GPA in the major; students must achieve a grade of "B" or better in BI 111 and BI 206 or BI 312. Cytogenetics track: students must achieve a "B" or better in BI 416 and BI 313 and a grade of "C" or better in all other major courses. Completion of the required courses in the diagnostic genetics curriculum and acceptance by an affiliated clinical agency. Junior standing or instructor's permission.

An intense, six-month, full-time practicum in an affiliated full-service laboratory under supervision of appropriately credentialed cytogenetics professionals. Some hospital affiliates may require a nine-month practicum. Includes practical experience and theoretical principles in areas described by CLS 250G and the following courses:

- CLS 460 Specimen Processing and Culture** 4 cr.
Offered: Fall, winter
- CLS 461 Microscopic Analysis** 4 cr.
Offered: Fall, winter
- CLS 462 F.I.S.H. Technology** 3 cr.
Offered: Fall, winter
- CLS 463 Specialized Tech/Projects** 3 cr.
Offered: Fall, winter

CLS 470, 471, 472, 473 Molecular Biology Technology Practicum 14 cr.
Prerequisites: Students must achieve a "B" or better in BI 418 and CH 454 and a grade of "C" or better in all other major courses. Completion of the pre-clinical courses in the diagnostics genetics curriculum and acceptance by an affiliated clinical agency. Junior standing or instructor's permission.

An intense, six-month, full-time practicum in an affiliated full-service laboratory under supervision of appropriately credentialed molecular biology technology professionals. Includes practical experience and theoretical principles in areas described by CLS 250G and the following courses:

- CLS 470 DNA Purification** 2 cr.
Offered: Fall, winter
- CLS 471 Southern Blot Analysis** 5 cr.
Offered: Fall, winter
- CLS 472 PCR Analysis** 5 cr.
Offered: Fall, winter
- CLS 473 MB Specialized Tech/Projects** 2 cr.
Offered: Fall, winter

CLS 480, 481, 482, 483, 484, 485, Cytotechnology Practicum 32 cr.
Prerequisites: Completion of required courses in the cytotechnology curriculum and acceptance by a clinical agency with an accredited cytotechnology program. Junior standing or instructor's permission.

A supervised, full-time, 12-month clinical practicum in an accredited cytotechnology program. It includes tissue preparation and staining techniques; microscopic study of cellular alterations indicative of cancer, pre-cancerous conditions, bacterial, viral and parasitic infections; and hormonal abnormalities. The practicum is represented by CLS 250C and the following courses:

- CLS 480 Cytology Orientation** 1 cr.
Offered: Fall
- CLS 481 Tissue Cytology I** 8 cr.
Offered: Fall
Includes female genital tract.

<p>CLS 482 Tissue Cytology II Offered: Fall Includes respiratory and G.I. tract.</p>	<p>8 cr.</p>	<p>CN 191 Carpentry Internship Offered: Contact department for information. Graded S/U Prerequisites: DD 100, CN 107, CN 151, CN 154, CN 156, CN 158, WT 161. This course places students in an actual construction situation on a live job site. Students receive hands-on experience in all phases of carpentry construction.</p>	<p>8 cr. (0-0-40)</p>
<p>CLS 483 Tissue Cytology III Offered: Winter Includes all other tissues.</p>	<p>8 cr.</p>		
<p>CLS 484 Applied Clinical Practicum Offered: Winter</p>	<p>5 cr.</p>	<p>CN 251 Construction Field Operations Offered: Fall Prerequisites: CN 107 and WT 161 or instructor's permission. An introductory course to acquaint students with the requirements necessary to direct the field operations of a construction project.</p>	<p>2 cr.</p>
<p>CLS 485 Advanced Cytology Techniques Offered: Winter</p>	<p>2 cr.</p>		
<p>CLS 498 Directed Studies in Clinical Laboratory Science Offered: On demand Prerequisites: Junior standing or instructor's permission. Individual directed study in a clinically related topic. Students study topics through research projects, independent reading and/or a written paper. <i>Note: May apply only to a baccalaureate degree program with the approval of the student's major department. Usually elected only once.</i></p>	<p>1-4 cr.</p>	<p>CN 252 Codes and Inspection Offered: Winter Prerequisites: CN 107 or instructor's permission. Introduction to basic inspections that comply with local building codes and ordinances.</p>	<p>3 cr.</p>
		<p>CN 278 Mechanical Systems Offered: Fall Prerequisites: CN 107 or instructor's permission. A course organized to provide a basic understanding of design procedures of mechanical systems, flexibilities in each system, space required and at what point the job will be done.</p>	<p>3 cr.</p>

CN - CONSTRUCTION

Technology and Occupational Sciences Department

<p>CN 107 Construction Documents Offered: Fall The study and interpretation of various construction contract documents including plans, specifications and construction manuals. Sample sets of documents are interpreted and developed using computer applications with word processing.</p>	<p>3 cr. (2-0-2)</p>	<p>CN 283 Construction Estimating Offered: Winter Prerequisites: CN 151, CN 251 and CN 278 or instructor's permission. Introduction to estimating, using means and national reporting systems as a guide. Students are provided with theory, principles and techniques to arrive at a total construction cost for a building project.</p>	<p>3 cr.</p>
<p>CN 151 Introduction to Construction Offered: Fall An introduction to the basic fundamentals of construction and an overview of the industry and the relationships that exist among the various stages of construction.</p>	<p>3 cr.</p>	<p>CN 298 Directed Study and Research Offered: On demand Prerequisites: Department permission. Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.</p>	<p>1-4 cr.</p>
<p>CN 154 Construction Survey and Layout Offered: Fall Prerequisites: MA 104 and CN 107. An introductory course covering theory, principles and techniques of construction surveying.</p>	<p>3 cr. (2-0-2)</p>	<p>CN 353 Soils and Foundations Offered: Winter Prerequisites: CN 154, CN 158, MA 104 or instructor's permission. Study of basic theory and application detailed in ASTM (American Society of Testing Materials) procedures, developing a knowledge of fundamental principles and good judgment in foundation design supported by experience and scientific data.</p>	<p>3 cr. (2-0-2)</p>
<p>CN 156 Construction Systems and Methods Offered: Winter Prerequisites: CN 107, MA 100, MA 104 and WT 161 or instructor's permission. Basic systems and methods of constructing structures.</p>	<p>3 cr. (2-0-3)</p>	<p>CN 357 Legal Aspects of Construction Offered: Fall Prerequisites: CN 253 or instructor's permission. Introduction to legal implications in the building industry.</p>	<p>3 cr.</p>
<p>CN 158 Concrete Offered: Winter Prerequisites: MA 100 or MA 104. Study and illustration of basic principles of masonry, concrete and concrete forming and procedures.</p>	<p>3 cr. (2-0-3)</p>		

CN 358 Bidding Strategies 3 cr.
Offered: Winter
Prerequisites: CN 357 or instructor's permission.

An advanced course involving student contribution on bidding strategies and a professional approach to analyzing this competitive information.

CN 450 Project Control 3 cr.
Offered: Fall
Prerequisites: CN 357 and CN 458 or instructor's permission.

Development of a mechanism for cost estimating and its relationship to other project control functions of scheduling, budgeting and cost control.

CN 459 Construction Management 3 cr.
Offered: Winter
Prerequisites: CN 450 or instructor's permission.

In-depth orientation to construction management methods, major engineering and construction management techniques and practices relating to the organization of a company.

CN 498 Directed Study and Research 1-4 cr.
Offered: On demand
Prerequisites: Junior standing and department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

COS - COSMETOLOGY Technology and Occupational Sciences Department

COS 111 Fundamentals of Cosmetology 4 cr.
Co-requisites: COS 112 and COS 113.

Textbook study covering 60 theory hours on the subjects of hair shaping, hair color, hair growth, hair and scalp health, as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 112 Fundamentals of Cosmetology II 4 cr.
Co-requisites: COS 111 and COS 113.

Textbook study covering 60 theory hours on the subjects of chemical texturizing, hair designing, bacteriology, decontamination, infection control, water/hot oil manicures and pedicures as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 113 Fundamental Application of Physical Services 8 cr. (0-0-18)
Co-requisites: COS 111 and COS 112.

The practical study of services through 270 hours of practice on mannequins and classmates. Services studied in this course will prepare students to legally work on the general public as part of their continuing education.

COS 121 Intermediate Cosmetology I 4 cr.
Co-requisites: COS 122 and COS 123.
Prerequisites: COS 111, COS 112 and COS 113.

Intermediate-level study covering 60 theory hours on the subjects of hair shaping, hair coloring, chemical texturizing and artificial nail application procedures as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 122 Intermediate Cosmetology II 4 cr.
Co-requisites: COS 121 and COS 123.
Prerequisites: COS 111, COS 112 and COS 113.

Intermediate-level study covering 60 theory hours on the subjects of hair design, appointment scheduling, client/receptionist protocol, payment records, cash control, retail sales, inventory control, esthetics of skin, and the braiding and styling of long hair as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 123 Intermediate Application of Physical Services 8 cr. (0-0-18)
Co-requisites: COS 121 and COS 122.
Prerequisites: COS 111, COS 112 and COS 113.

Intermediate-level practice through 270 hours of practical work involving the public patron clinic. Students are assigned a work service station and serve patrons under the supervision of an instructor.

COS 131 Advanced Cosmetology I 4 cr.
Co-requisites: COS 132 and COS 133.
Prerequisites: COS 121, COS 122 and COS 123.

Advanced-level study covering 60 theory hours on the subjects of hair shaping, hair coloring, chemical texturizing, gels and fiberglass nails as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 132 Advanced Cosmetology II 4 cr.
Co-requisites: COS 131 and COS 133.
Prerequisites: COS 121, COS 122 and COS 123.

Advanced-level study covering 60 theory hours on the subjects of hair design, customer relations, machine facials, makeup application, wiggy and hair extensions as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 133 Advanced Applications of Physical Services 8 cr. (0-0-18)
Co-requisites: COS 131 and COS 132.
Prerequisites: COS 121, COS 122 and COS 123.

Advanced-level cosmetology practice through 270 hours of practical work involving the public patron clinic. Students are assigned a work service station and serve patrons under the supervision of an instructor.

COS 141 Master Level of Cosmetology I 4 cr.
Co-requisites: COS 142 and COS 143.
Prerequisites: COS 131, COS 132 and COS 133.

Master-level study covering 60 theory hours on the subjects of salon management, financial and legal liabilities and Michigan State Laws and Rules regulating the cosmetology profession as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 142 Master Level of Cosmetology II 4 cr.

Co-requisites: COS 141 and COS 143
Prerequisites: COS 131, COS 132 and COS 133

Master-level study covering 60 theory hours on the subjects of the State Board Exam, anatomy of the neck, face and head, chemicals and their effects on the client, and professional stylist as prescribed by the Michigan State Board of Cosmetology and listed in the *Cosmetology Laws and Rules Book*.

COS 143 Master Level Application of Physical Services 8 cr. (0-0-18)

Co-requisites: COS 141 and COS 142.
Prerequisites: COS 131, COS 132 and COS 133.

Master-level cosmetology practice through 270 hours of practical work involving the public patron clinic. Students are assigned a work service station and serve patrons under the supervision of an instructor.

CRT-COLLISION REPAIR TECHNOLOGY**Technology and Occupational Sciences Department****CRT 011 Fundamentals of Collision Repair** 4 cr. (1-0-9)

Co-requisite: CRT 012

A comprehensive introduction to auto body repair techniques, tools and materials. Lecture and laboratory topics include repairing dented and rusted body components, metalworking, grinding, sanding, filling and priming.

CRT 012 Component Analysis and Replacement 4 cr. (1-0-9)

Co-requisite: CRT 011

A comprehensive introduction to auto body component review and replacement techniques. Lecture and laboratory topics include analyzing components to verify the need for replacement.

CRT 021 Intermediate Collision Repair 4 cr. (1-0-9)

Co-requisite: CRT 022
Prerequisites: CRT 011 and CRT 012.

Continued development of expertise in body repair, frame alignment and component replacement. Stressing a practical approach, students apply previously acquired knowledge and are instructed in additional special techniques used in the repair of more severely damaged vehicles.

CRT 022 Automotive Paint Preparation and Application 4 cr. (1-0-9)

Co-requisite: CRT 021
Prerequisites: CRT 011 and CRT 012.

A comprehensive survey of paint and solvent types, brand name products as well as various application tools, techniques and complete painting processes. Extensive laboratory experience in paint prep, mixing, application, curing, finishing and cleanup.

CRT 031 Advanced Collision Repair 4 cr. (1-0-9)

Co-requisite: CRT 032
Prerequisites: CRT 021 and CRT 022.

This course provides students with an opportunity to further refine their expertise in various auto body repair techniques by applying them to difficult auto damage and problem paint situations.

CRT 032 Advanced Refinishing 4 cr. (1-0-9)

Co-requisite: CRT 031
Prerequisites: CRT 021 and CRT 022.

Instruction in methods of estimating the cost of labor, parts and materials. Students learn to visually inspect and systematically list all items included in a complete and cost effective price estimate.

CS-COMPUTER SCIENCE**Mathematics and Computer Science Department****CS 101 Web Site Construction** 4 cr.

Offered: Fall, winter, summer

- Satisfies the formal communication studies requirement.

This class covers all facets of Web site construction, from the creation of a Web site's content to technical definitions such as "hit" and "page view." Audio, video and 3D graphic formats will be explored. Legal issues will be covered. This class is designed for students of all majors.

CS 120 Computer Science I 4 cr.

Offered: Fall, winter, summer

Prerequisites: MA 100 or equivalent or instructor's permission.

- Satisfies the formal communication studies requirement.

This intensive, fast-paced course is the first programming course for computer science and network computing majors. Topics include methods and parameters, conditionals, loops, arrays, graphical user interfaces and object-oriented program design.

Note: This course is recommended for students with a strong desire to learn programming but lack experience. Students without interest in computer programming should consider CS 101 instead. Students with a substantial programming background should take CS 120A.

CS 120A Accelerated Computer Science I 4 cr.

Offered: Fall

Prerequisites: MA 100 and one high school computer class or equivalent or instructor's permission.

- Satisfies the formal communication studies requirement.

This course covers the same range of topics as CS 120, but carries some topics further, adding additional topics as appropriate.

CS 122 Computer Science II 4 cr.

Offered: Winter

Prerequisites: CS 120 or equivalent, or instructor's permission.

A continuation of CS 120. This course provides an opportunity to further develop fundamental programming skills. Topics include introductions to string handling, algorithm analysis, recursion, linked lists, interfaces, inheritance and fundamental data structures.

<p>CS 201 Programming in C++ 3 cr. Offered: Fall Prerequisites: CS 122. Students with some programming experience, especially in C, may take CS 201 concurrently with CS 122. CS 201 teaches how to program in C++. Topics include pointers, memory management, data structures, object-oriented design and file processing.</p>	<p>CS 322 Principles of Programming Languages 4 cr. Offered: Fall Prerequisites: MA 240, CS 222 and CS 330 (concurrent enrollment in CS 330 permitted) or instructor's permission. Overview of programming language paradigms. Topics: memory usage, flow of control structures, object implementation, grammars, language paradigms (iterative, structured, functional, logic, object-oriented), computability. Required for the computer science major.</p>
<p>CS 222 Data Structures 4 cr. Offered: Winter Prerequisites: CS 122, CS 201 and either MA 240 or MA 340. This course covers data structures and algorithms in depth. Topics covered include arrays, stacks, queues, linked lists, trees and graphs, basic problem solving strategies and complexity analysis, sorting and searching algorithms, hashing techniques, and some advanced tree structures (e.g., AVL trees, B and B+ trees, splay trees, etc.).</p>	<p>CS 326 Object-Oriented Design 3 cr. Offered: Winter Prerequisites: CS 222 or consent of instructor. The aim of this course is to develop a thorough understanding of software engineering principles that support the development of large projects. Object-oriented design patterns will be emphasized in the course.</p>
<p>CS 228 Network Programming 3 cr. Offered: Winter Prerequisites: CS 122 and CS 201. This course covers creating network-based applications as well as the basic theory of networking. Topics include programming Internet applications, client-server programming and Internet protocols. Applications created have included mail clients, Web servers and Internet-based games.</p>	<p>CS 330 Microcomputer Architecture 4 cr. Offered: Fall, winter Prerequisite: An introductory laboratory course in a natural science or a computer programming course or instructor's permission. Study of how computer hardware responds to stored instructions. Construction projects with logic circuits lead to the conceptual designs of microprocessors. Assembly language programming is introduced in the context of the logic circuitry being controlled. Projects emphasize the software needed in common interfacing tasks.</p>
<p>CS 255 Computing for the Elementary School Teacher 4 cr. Offered: Fall, winter Prerequisites: MA 150 with a "C" or better or instructor's permission. • Satisfies the formal communication studies requirement. The course serves as an introduction to technology in education. The primary focus will be the use of computers and the Internet in education. The course projects concentrate on applications relevant to the school curricula.</p>	<p>CS 370 Intelligent Mobile Robots 4 cr. Offered: On demand Prerequisites: CS 201 or CS 330, or equivalent software or hardware experience. This course teaches how to design, build, and program autonomous robots. Topics include robot architecture (sensors, effectors, processors, and platforms), and adaptive behavior (navigation, machine learning, and evolutionary robotics). Course incorporates significant hands-on experience with real robots and simulators. The second half of the course involves team-based projects with a final demonstration.</p>
<p>CS 295 Special Topics in Computer Science 1-4 cr. Offered: On demand Designed for freshmen and sophomores. Topics reflecting the special interests of students and staff. <i>Note: May be repeated if topic differs with instructor's permission.</i></p>	<p>CS 422 Algorithms Design and Analysis 3 cr. Offered: Winter Prerequisite: CS 222 and MA 161 or MA 271. Overview of algorithm design strategies. Topics: O-notation, induction, recurrence relations, sorting, searching, dynamic programming, greedy algorithms, number-theoretic algorithms, NP-completeness. Required for the computer science major.</p>
<p>CS 297 Directed Studies in Computer Science 1-4 cr. Offered: On demand Graded S/U Prerequisite: Department head permission. Individual investigations of a special topic in computer science.</p>	<p>CS 424 Compilers: Theory and Practice 4 cr. Offered: On demand Prerequisites: CS 222 and either CS 322 or CS 330 and junior standing or instructor's permission. A compiler is a program that translates one computer language to another. In this course, students will learn how compilers work, what makes some languages easier to compile than others and different approaches to compiler design. Over the course of the semester, students will build their own compilers.</p>
<p>CS 298 Directed Studies in Computer Science 1-4 cr. Offered: On demand Same as CS 297 except that letter grades are given.</p>	
<p>CS 302 Unix System Administration 4 cr. Offered: Fall, winter Prerequisites: Six credit hours in CS or CIS numbered 120 or above, system administration experience, or consent of instructor. This is an introductory course in Unix system administration. Students will be given real world experience installing and managing their own Unix workstation. Topics include installation, networking, user management and security.</p>	

<p>CS 426 Operating Systems 3 cr. Offered: Fall Prerequisite: CS 228 and CS 330, junior standing or instructor's permission. This course explores the concepts of modern operating systems. Topics include memory management, processor scheduling, security management, and file system design. Examples are drawn from Windows NT, UNIX and Linux. Students without CS 330 may enter with consent of instructor.</p>	<p>CS 480 Senior Project in Computer Science 3 cr. Offered: On demand Prerequisites: CS 222, CS 228, junior standing and permission of adviser. This course involves creating a significant software and/or hardware project. Work is supervised by an adviser. Topics must be approved first by an evaluation committee, which will later review and grade the completed project.</p>
<p>CS 442 Advanced Networking 3 cr. Offered: Every third semester (last offered winter 2006) Prerequisites: CS 228, junior standing or instructor's permission. The course teaches several higher-level computer networking concepts, such as distributed objects and high-level communication protocols. Network programming skills will be developed. Students will write and test networked programs using a variety of paradigms. Current topics of industry interest such as CORBA and DCOM will be covered.</p>	<p>CS 490 Special Projects in Computer Science 1-4 cr. Offered: On demand Prerequisites: Prior arrangement with instructor and junior standing. This course provides students with a chance to work independently on topics of special interest. Students are required to create a pre-approved plan of study with an adviser. <i>Note: May be repeated if project differs.</i></p>
<p>CS 444 Parallel and Distributed Processing 4 cr. Offered: Every third semester (next offered winter 2007) Prerequisites: CS 228 or instructor's permission. This course introduces the students to the basics of parallel and distributed computing. Topics include parallel hardware architecture, multi-processor architecture, process communications, data sharing, threads, deadlock avoidance, distributed algorithms, remote method invocation and client/server applications. Students will write programs demonstrating their understanding of these topics.</p>	<p>CS 491 Internship in Computer Science 1-8 cr. Offered: On demand Graded S/U Prerequisites: Junior standing, minimum grade point average of 3.00 and departmental approval. The course provides on-the-job experience in the application of computer science principles. Internship positions are coordinated with the JOBSearch Center and the Mathematics and Computer Science Department. <i>Note: May be repeated for credit, not to exceed eight credits total. Only four credits may be applied to a computer science minor.</i></p>
<p>CS 446 Computer Graphics 4 cr. Offered: On demand Prerequisites: CS 322 and MA 211 or instructor's permission. An introduction to the concepts and techniques of computer graphics. Topics include geometric transformations, viewing, object hierarchy, input and interaction, curves and surfaces, illumination and shading. In this course students will design graphics applications.</p>	<p>CS 495 Special Topics in Computer Science 1-4 cr. Offered: On demand Prerequisites: For upper division students and majors and minors. Topics reflecting special interest of students and staff. <i>Note: May be repeated if topic differs with instructor's permission.</i></p>
<p>CS 460 Advanced Web Programming 3 cr. Offered: Every third semester (last offered fall 2006) Prerequisites: Six credit hours of computer science courses at the 200 level or above. This course teaches students how to program client/server applications for the Web. Topics cover scripting languages such as Perl, PHP, or other current alternatives, using them to read input from Web forms and produce Web output. SQL will be used to interface with databases as the backend technology.</p>	<p>CS 496 Special Topics in Computer Science 1-4 cr. Offered: On demand Graded S/U Prerequisites: For upper division students and majors and minors. Topics reflecting special interest of students and staff. <i>Note: May be repeated if topic differs with instructor's permission.</i></p>
<p>CS 470 Artificial Intelligence 4 cr. Offered: On demand Prerequisites: CS 222, junior standing or instructor's permission. Students learn techniques for making computers behave more intelligently and adaptively. The course includes a survey of the broad field of computer intelligence, including newer areas of adaptive systems, such as neural networks and genetic algorithms. Specific methodologies will be explored through implementation and application to real-world problems.</p>	<p>CS 497 Directed Studies in Computer Science 1-4 cr. Offered: On demand Graded S/U Prerequisites: Available only with consent of department head. Individual investigations of a special topic in computer science.</p>
	<p>CS 498 Directed Studies in Computer Science 1-4 cr. Offered: On demand Prerequisites: Available only with consent of department head. Individual investigations of a special topic in computer science.</p>

DD - DRAWING AND DESIGN

Engineering Technology Department

DD 100 Technical Drafting with Introduction to CAD 4 cr. (2-1-2)
Offered: Fall, winter

Introductory drafting and computer-aided design including sketching, lettering, instrument usage, orthographic projection, sectional views, auxiliary views, dimensioning, tolerancing, threads, fasteners, pictorial drawings and computer graphic applications. This course is designed for students with little or no previous mechanical drafting or CAD experience.

DD 102 Engineering Graphics 3 cr.
Offered: Winter

Prerequisites: DD 100 or instructor's permission.

Graphic problem solving with advanced orthographic projections techniques, including fundamentals of spatial relationships, auxiliary views, revolutions, intersections, developments and vector analysis.

DD 103 Geometric Dimensioning and Tolerancing 2 cr. (1-0-2)
Offered: Fall

Prerequisites: DD 100 or instructor's permission.

Principles and practices of using geometric dimensioning and tolerancing (GDT) as found in contemporary industry. Interpretation, understanding and implementing the concept in design, drawing and making mechanical parts for production.

DD 105 Schematic/Diagram Drafting 2 cr. (1-0-2)
Offered: Fall

Students will learn to produce electrical/electronic, hydraulic/pneumatic, heating, ventilation and air conditioning (HVAC) and piping drawings in accordance with contemporary industrial standards. Previous drafting experience is not required.

DD 110 CAD Productivity and Customization 2 cr. (1-0-2)
Offered: On demand
Prerequisite: DD 100.

An introductory-level course designed to acquaint the CAD student with drafting efficiency. Program customization will be explored to enhance the productivity of the individual and the office environment. Topics include editing techniques, menu creation, LISP routines and proper drawing planning.

DD 202 Product Development and Design 4 cr. (2-1-2)
Offered: Fall
Prerequisites: DD 100 or instructor's permission.

Graphic fundamentals, problem-solving concepts and the design process are applied toward the development and design of products. The course includes techniques in graphic presentation, computer-aided design and technical illustration.

DD 203 Industrial Drawing and Design 4 cr. (2-1-2)
Offered: Winter

Prerequisite: DD 100 or instructor's permission.

Special areas of industrial drawing are taught. Precision dimensioning-tolerancing, machine drawings, electrical-electronic schematics, pneumatics-hydraulics, tooling, computer-assisted graphics, use of handbooks and catalogs and special drafting.

DD 207 Architectural Design 4 cr. (2-1-2)
Offered: Winter

Beginning course in architectural design fundamentals. Student develops basic skills and learns techniques required for the architectural profession, including site analysis, programming, schematics and design development. The student solves a practical design problem and prepares a complete graphic solution.

DD 208 Architectural Detailing 4 cr. (2-1-2)
Offered: Winter

Introduction to small commercial and industrial building construction techniques, materials and methods. Included are foundation, wall and roof construction requirements for various building structures, along with comparison of structural materials and methods and suitable application to various structures.

DD 214 Structural Design 3 cr.
Offered: On demand
Prerequisite: ET 211.

This course includes the principles of structural mechanics, design of steel and wood beams and columns, structural connections and reinforced concrete systems.

DD 295 Special Topics in Computer Aided Design 1-4 cr.
Offered: On demand
Prerequisite: Adviser permission.

Specialized work not covered by other courses.

DD 298 Directed Study and Research 1-4 cr.
Offered: On demand
Prerequisite: Department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

DD 302 Architectural Drawing-Residential 4 cr. (2-1-2)
Offered: Fall
Prerequisites: DD 100 or instructor's permission.

Conventions and practices used in modern home building, planning, general knowledge related to consumer housing, and graphic presentation of working drawings and specifications. Emphasis is on vacation-recreational housing and complete exhibits for residential housing.

DD 303 Architectural Drawing-Commercial 4 cr. (2-1-2)
Offered: Winter
Prerequisites: DD 100 or instructor's permission.

Architectural drawing emphasizing conventions and practices used in commercial architecture. Presentation drawings, perspective layout and planning, rendering, commercial prints and structural detailing are stressed.

**DD 310 Three Dimensional Computer Modeling/
Presentation** 2 cr. (1-0-2)

Offered: On demand

Prerequisites: DD 110 and DD 102 or DD 207 or instructor's permission.

This course explores the use of three-dimensional design in both the engineering and architectural disciplines. Through the uses of solids modeling and parametric design, engineered parts are created and analyzed.

DD 402 Senior Design Project 4 cr. (1-0-6)

Offered: On demand

Prerequisites: IT 380, senior standing or instructor's permission and completion of all the minor requirements.

This course will provide the graduating senior with a computer-aided drafting minor experience in design of an appropriate project in his or her area of specialization. The course calls upon the student to use all of his or her previous design and drafting experience to create a solution to a problem(s).

DD 495 Special Topics in Computer Aided Design 1-4 cr.

Offered: On demand

Prerequisites: Adviser permission and junior standing.

Specialized work not covered by other courses.

DD 498 Directed Study and Research 1-4 cr.

Offered: On demand

Prerequisites: Department permission and junior standing.

Selection of a problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

EC - ECONOMICS

Economics Department

EC 101 The American Economy 4 cr.

Offered: Fall, winter, summer

- Satisfies the foundations of social sciences requirement.

Introduction to economics applied to the institutions of the American economy, emphasizing historical and current events. Major economic structures like the banking system, government and global exchange are discussed. Supply and demand forces and their impact on these structures are addressed.

Note: Not open to students who have credit in, or are currently enrolled in, another economics course. May be counted toward a major or minor in economics.

EC 201 Microeconomic Principles 4 cr.

Offered: Fall, winter, summer

Analysis of price determination and resource allocation in a market economy. Particular attention is paid to individual consumer and producer choice under a variety of market structures.

EC 202 Macroeconomic Principles 4 cr.

Offered: Fall, winter, summer

Introduction to theories of national income, employment, prices, money, banking, taxation, government spending, public finance and international transactions.

EC 311 Economics of Sports 4 cr.

Prerequisite: EC 101 or EC 201.

An application of basic microeconomic principles to the areas of professional and amateur sports organizations. Topics include, but are not limited to, supply and demand, elasticity, public finance of sports enterprises and labor economics.

EC 320 Money, Banking and Monetary Theory 4 cr.

Offered: Fall

Prerequisites: EC 101 or EC 202.

Institutional description of money, commercial banking, central banking, deposit intermediaries, government finance and foreign exchange. Theoretical analysis of the effect of financial services institutions on economic behavior is also covered.

EC 337 American Economic History 4 cr.

Offered: Winter

Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

Cross listed as HS 337.

- Satisfies the foundations of social sciences requirement.
- Satisfies the upper division liberal studies requirement.

Transformation of the American economy, with particular emphasis on the modern period of industrialization. The focus is resource allocation within the major theme of economic growth. Special attention is devoted to the role of the corporation, ethics, advertising, environment, labor, public policy decisions, and critics and defenders of the economic order.

EC 345 Environmental and Natural Resource Economics 4 cr.

Offered: Every other winter.

Prerequisites: EC 101 or EC 201, or instructor's permission.

This course allows students to apply tools of economic analysis to the study of current environmental and natural resource issues. Property rights, social welfare maximization and cost-benefit analysis are some of the key concepts used during the course.

**EC 350 Methods and Materials in Teaching Social Studies
Education** 4 cr.

Offered: Fall, winter

Prerequisite: Admission to methods phase of teacher education.

Co-requisite: Concurrent enrollment in ED 349.

Survey of the concepts, materials and strategies used in economics at the secondary level. The course includes practice in the construction of units, identification of objectives, selection of materials and development of activities and procedures. Some discussion of evaluation and classroom management is included.

Note: Does not count toward the non-teaching economics major or minor. Can count toward the secondary education economics minor if required.

<p>EC 401 Intermediate Microeconomics 4 cr. Offered: Fall Prerequisites: EC 201 and EC 202, junior standing. Theoretical analysis of the behavior of the consumer, the firm and other economic units and of the determination of product and factor prices under various market structures. Application of theory to contemporary economic problems.</p>	<p>EC 425 International Economics 4 cr. Offered: Every other winter. Prerequisites: EC 101 or EC 201, junior standing or instructor's permission. Introduction to the theory of international trade and finance with emphasis on the study of the gains from international specialization and exchange, the effects and purposes of restrictions on trade, trade organizations, exchange rates and currency systems, as well as balance of payments issues.</p>
<p>EC 402 Intermediate Macroeconomics 4 cr. Offered: Winter Prerequisites: EC 201 and EC 202, junior standing. Analysis of savings, consumption, investment and other aggregates in the national economy as related to determination of national income, employment and prices. This is a course in macrostatics.</p>	<p>EC 435 Law and Economics 4 cr. Offered: Every other fall. Prerequisites: EC 101 or EC 201, junior standing or instructor's permission. An exploration of the interface between law and economics with emphasis on the economic analysis of law. The course is about both the economics behind laws and the economic effects of laws. Major topics include property, contracts, torts, product liability, common law and crime.</p>
<p>EC 405 Public Finance 4 cr. Offered: Every other fall. Prerequisites: EC 201 junior standing or instructor's permission. Introduction to the theory of the public economy with emphasis on the effects of government activity on allocation of scarce resources. Study of theories and practices related to government spending, taxing, borrowing and management of the public debt.</p>	<p>EC 444 Health Care Economics 4 cr. Offered: Every other winter. Prerequisites: EC 101 or EC 201, junior standing or instructor's permission. An application of basic microeconomic principles to the health care sector. Topics include health care production, the demand for health care, third-party payers, health insurance, managed-care programs, hospital structure, physicians' behavior, malpractice, regulation and international health care systems.</p>
<p>EC 410 Managerial Economics 4 cr. Offered: Every other winter. Prerequisites: EC 201 and EC 202, junior standing or instructor's permission. The application of economic analysis to business problems. Topics include forecasting, estimation and analysis of demand, cost and production functions, market structure, pricing techniques, elementary game theory and elasticity measurement.</p>	<p>EC 460 Economic Development 4 cr. Offered: Every other fall. Prerequisites: EC 101 or EC 201, junior standing or instructor's permission. Theories of economic growth and structural change; effects of population growth and the role of labor; sustainable development; the role of trade in economic development; health and nutrition; importance of education; and agricultural and industrial development.</p>
<p>EC 415 Labor Economics 4 cr. Offered: Every other fall. Prerequisites: EC 201 junior standing or instructor's permission. Analysis and description of the U.S. labor force and labor markets. Wage determination for the firm, industry and economy is examined. The impact of unions, licensing and other institutional forces on wages and employment is evaluated.</p>	<p>EC 490 Seminar in Economics 1-4 cr. Offered: On demand Prerequisites: EC 201 and EC 202, junior standing and instructor's permission. Topic determined by the specialties of the instructor.</p>
<p>EC 420 Capitalism, Socialism and Democracy 4 cr. Offered: Every other winter. Prerequisites: Completion of the foundations of communication requirement, junior standing or instructor's permission. One course in economics recommended.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>Broad view of economic systems, integrating aspects of political and social institutions with traditional and alternative theories and institutions. Topics include worker class struggles, revolution, anarchism, socialism and government control.</p>	<p>EC 495 Special Topics in Economics 1-4 cr. Offered: On demand Prerequisites: Instructor's permission and junior standing. Variable content, depending upon the specialization of the instructor and special needs of the student. <i>Note: May be repeated if topic differs.</i></p>
	<p>EC 498 Directed Studies in Economics 1-4 cr. Offered: On demand Prerequisites: EC 201 and EC 202, junior standing and instructor's permission. Readings and research under faculty supervision. Designed for advanced economics majors.</p>

ED-TEACHER EDUCATION

School of Education

See the "School of Education" section of this bulletin for minimum grade point average requirements.

ED 101 The American School 3 cr.
Offered: Fall, Winter

This course, intended for students not majoring in education, will examine education and its institutions and processes from the perspective of the informed citizen. The focus will be on policy questions and their implications for society and for the children in America's schools.

ED 201 Introduction to Education 2 cr.
Offered: Fall, winter, summer
Prerequisite: Admission to teacher education.

An introduction to the field of education as a complex social, economic and political institution and career. Students will gain an understanding of their roles in shaping discussion of significant issues such as equality of opportunity, diversity and multiculturalism within the context of an ever-changing profession.

ED 222 Classroom Management 1 cr.
Offered: Fall, winter

A study of a variety of techniques and methods to manage behavior in the classroom. Field experience may be involved.

ED 223 Multicultural Education 1 cr.
Offered: Fall, winter

A study of how multicultural and global perspectives can be reflected in curricular design and planning; instructional design, practice and evaluation; and teachers' and students' knowledge, attitudes and behavior. Field experience may be involved.

ED 230 Teaching and Learning in the Elementary Classroom 4 cr.
Offered: Fall, winter
Prerequisite: Admission to teacher education.

Course introduces elementary education majors to developmental, behavioral, and cognitive learning theories and processes. Students develop insights into the young learner, elementary classroom practices and learning. This course includes field experience.

ED 231 Teaching and Learning in the Secondary Classroom 4 cr.
Offered: Fall, winter
Prerequisite: Admission to teacher education.

Course introduces secondary education majors to developmental, behavioral, and cognitive learning theories and processes. Students develop insights into the adolescent learner, secondary classroom practices, and learning. The course includes 20 hours of middle school field experience outside of class.

ED 295 Special Topics in Education 1-4 cr.
Offered: On demand

An opportunity for freshmen and sophomores to study problems in education that are not part of the regular offerings.

ED 298 Directed Studies in Education 1-4 cr.
Offered: On demand

Independent study by qualified undergraduates in an area defined by the student and the instructor.

ED 301 Dimensions of American Education 2 cr.
Offered: Fall, winter, summer
Prerequisites: Admission to teacher education and ED 201.

An exploration of historical, philosophical, ethical and legal dimensions of American education. Students will begin to consider their roles as educational leaders and advocates for social justice for all students in American schools.

ED 306 Children's Literature 3 cr.
Offered: Fall, winter
Prerequisites: Admission to the methods phase of teacher education.

Introduction to the literature available for children, the development of criteria for evaluating books and a study of the literature program in the elementary schools.

ED 307 Integrating the Arts into the Elementary Curriculum 2 cr.
Offered: Fall, winter
Prerequisites: Admission to the methods phase of teacher education. Satisfactory completion of MU 149A and AD 310.

Examination of creative teaching and learning strategies from music, art, dance and theater to motivate students and to enhance their study of school content areas, and the development of effective strategies for integrating the arts in field settings. Includes field assignment.

ED 310 Social Studies Methods and Materials for Elementary Teachers 3 cr.
Offered: Fall, winter
Prerequisite: Admission to the methods phase of teacher education.

Survey of social studies curricula content, aims and objectives in the elementary and middle school. Includes the use of materials and unit method planning emphasizing basic generalizations and concepts.

ED 311 Language Arts Methods and Materials for Elementary Teachers 3 cr.
Offered: Fall, winter
Prerequisite: Admission to the methods phase of teacher education.

Survey of theories, research, strategies and programs for teaching the language arts and integrating them throughout the elementary school curriculum. A predetermined number of practicum hours in the elementary school are required.

ED 312 Science Methods and Materials for Elementary Teachers 3 cr.
Offered: Fall, winter
Prerequisites: Admission to the methods phase of teacher education and 12 credits of science.

A survey of science curricula and instructional methodology for the teaching biological, earth and physical sciences and technology in K-8 classrooms. Basic concepts of environmental education and teaching children the interdisciplinary nature of the sciences are stressed. Field experience is required.

<p>ED 316 Elementary Reading Instruction I 3 cr. Offered: Fall, winter Prerequisite: Admission to the methods phase of teacher education. Study of the theories, processes, and strategies for teaching and assessing reading with a focus on emergent literacy and reading in the primary grades. A predetermined number of practicum hours in the elementary school are required.</p>	<p>ED 401 Curriculum and Methods for Teaching Students with Cognitive Impairment 4 cr. Offered: Winter Prerequisites: ED 318, ED 400, junior standing or instructor's permission. Lesson construction and methodology for teaching students with cognitive impairment including the use of commercially and teacher-made materials. The teacher's multiple professional roles are stressed.</p>
<p>ED 318 Elementary Reading Instruction II 3 cr. Offered: Fall, winter Prerequisites: Admission to the methods phase of teacher education and ED 311 and ED 316. An in-depth consideration and extension of the content provided in Reading Instruction I. An examination of diagnostic techniques, introduction of reading subject matter materials and a practicum experience.</p>	<p>ED 402 Teaching Life Skills to Students with Disabilities 2 cr. Offered: Fall Prerequisites: ED 360, junior standing or instructor's permission. Survey of national, state and community resources in independent living, recreation and socialization opportunities for students with disabilities. In addition, students examine materials and curriculum for educating students with disabilities in social skills, free-time activities and human sexuality.</p>
<p>ED 319 The Teaching of Reading for Secondary Teachers 3 cr. Offered: Fall, winter Prerequisite: Admission to the methods phase of teacher education. Methods the content area teacher can use to help students comprehend course materials more effectively, to determine reading needs of students and to adapt instruction to their needs. Field experience is required.</p>	<p>ED 403 Transition for Students with Disabilities 2 cr. Offered: Winter Prerequisites: ED 360, ED 400, or ED 407, junior standing or instructor's permission. Study of pre-vocational curricula within the special education classroom including the development of transition objectives, vocational assessment and potential vocational options following completion of pre-vocational training. Emphasis is placed on practical applications and programs as well as theoretical concepts.</p>
<p>ED 349 Teaching for Diversity, Equity and Social Justice in the Secondary School Community 2 cr. Offered: Fall, winter Prerequisites: Completion of ED 201, ED 301, ED 231 and admission to the methods phase of teacher education. Co-requisite: Concurrent enrollment required in ED 319. This course addresses issues of diversity, equity, and social justice at the secondary level within a cross-disciplinary framework, focusing on four areas of knowledge: teaching strategies, authentic performance assessment, classroom management, and uses of technology.</p>	<p>ED 404 Assistive Technology for Students with Disabilities 2 cr. Offered: Fall Prerequisites: ED 360, junior standing or instructor's permission. Development of the ability to design, order and acquire modern technology and equipment for a variety of handicapping conditions. Emphases are on assisting independent living and enhancing communication and use of assisting technology for teachers.</p>
<p>ED 360 Orientation to Special Education 4 cr. Offered: Fall Prerequisites: ED 230, ED 231 and PY 100. Study of children with exceptionalities including the etiology and characteristics of these individuals and the educational provisions that exist for their care, treatment, training, education and habitation. Field experience is required.</p>	<p>ED 405 Diagnosis and Assessment in Special Education 4 cr. Offered: Winter Prerequisites: ED 360 and ED 400, or ED 407, junior standing or instructor's permission. Study of diagnostic process in the assessment of intellectual capacity, educability, behavioral and emotional characteristics, and academic achievement. Students are required to administer, score and interpret selected instruments and to compile a diagnostic write-up.</p>
<p>ED 361 Special Education and the General Classroom Teacher 2 cr. Offered: Fall, winter, summer Prerequisite: Admission to the methods phase of teacher education. An introductory course covering the range of handicapping conditions, designed for the elementary or secondary teacher to develop an awareness of the emotional, educational and social implications of handicaps and to formulate practical applications when working with students with exceptionalities in the general classroom.</p>	<p>ED 406 Supervised Apprenticeship in Teaching Students with Cognitive Impairment in K-12 Settings 2 cr. Offered: Summer Graded S/U Prerequisites: Completion of all required course work in the cognitive impairment preparatory sequence, junior standing or instructor's permission. A four-week, full-day, career-related supervised experience. Students are assigned to school-based programs for students with cognitive impairment. Provides an opportunity to refine goals, polish skills, and translate abstract classroom theory to life applications.</p>
<p>ED 400 Introduction to Cognitive Impairment 4 cr. Offered: Fall Prerequisites: ED 360, junior standing or instructor's permission. Study of cognitive impairment, its historical background and etiology, characteristics of students with cognitive impairments and assistance in habilitation.</p>	

<p>ED 407 Introduction to Emotional Impairment 4 cr. Offered: Fall Prerequisites: ED 360, PY 211, PY 203, junior standing or instructor's permission. Students will study the evolution of the field, investigate the biophysical, psychodynamic, behavioral and ecological models of influence, and develop a knowledge of both internalizing and externalizing disorders. Teacher roles will be explored as well as systems that impact in both negative and positive ways.</p>	<p>ED 420 Teaching in the Elementary School 11 cr. Offered: Fall, winter Graded S/U/P Prerequisites: See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin. The opportunity for a gradual, guided introduction of students in the elementary education curriculum into assuming responsibility for teaching, together with related activities, while they learn to translate theory into practice.</p>
<p>ED 408 Curriculum and Methods for Teaching Students with Emotional Impairment 4 cr. Offered: Winter Prerequisites: ED 407, junior standing or instructor's permission. Instruction and education structuring for teaching students with emotional/behavior disorders. Students will obtain knowledge of teaching strategies, service units and educational assessment unique to the needs of this population. Various roles and strategies used by teachers will be studied as well as prescriptive parent planning.</p>	<p>ED 421 Teaching in Elementary/Secondary Schools Communication Disorders 11 cr. Offered: Fall, winter Graded S/U/P Prerequisites: See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin. The opportunity for a gradual, guided introduction of students in the communication disorders curriculum into assuming responsibility for teaching, while they learn to translate theory into practice.</p>
<p>ED 409 Supervised Apprenticeship in Teaching Students with Emotional Impairment in K-12 Settings 2 cr. Offered: Summer Graded S/U Prerequisites: Completion of all required course work in the preparatory sequence for the emotionally behaviorally impaired program, junior standing or instructor's permission. A four-week, full-day, career-related supervised experience. Students are assigned to facilities for students with emotional/behavioral impairment. These may be school-based programs or treatment facilities with an educational service. This is an opportunity to refine goals and translate abstract theory to life application.</p>	<p>ED 423A Teaching in the Elementary School 5 cr. Offered: Fall, winter Graded S/U/P Prerequisites: See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin. The opportunity for a gradual, guided introduction of students in the cognitive or emotional impairment education curriculum into assuming responsibility for teaching in a general classroom, while they learn to translate theory into practice.</p>
<p>ED 410 Legal Rights and Services 2 cr. Offered: Winter Prerequisites: ED 360 and ED 400 or ED 407, junior standing or instructor's permission. An introduction to the legal system, terms and definitions impacting special education. Abuse, negligence, discipline and confidentiality as well as exclusion and disclosure are studied. Federal and Michigan mandates that apply to special education are examined as they impact programs for students with special needs.</p>	<p>ED 423B Teaching Students with Cognitive Impairment in K-12 Schools 6 cr. Offered: Fall, winter Graded S/U/P Prerequisites: Satisfactory completion of ED 423A. See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin. The opportunity for a gradual, guided introduction of students in the cognitive impairment education curriculum into assuming responsibility for teaching students with cognitive impairment, while they learn to translate theory into practice.</p>
<p>ED 411 Violence in Schools: Identification, Prevention and Intervention Strategies 4 cr. Offered: Contact department for information. Prerequisites: ED 360 and PY 203. A foundation for understanding the possible causes of aggression in schools. The impact of the media, community and family on violence will be investigated. A review of behavioral techniques and intervention strategies that remediate disruptive behavior, reduce power struggles and increase classroom control.</p>	<p>ED 423C Teaching Students with Emotional Impairment in K-12 Schools 6 cr. Offered: Fall, winter Graded S/U/P Prerequisites: Satisfactory completion of ED 423A. See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin. The opportunity for a gradual, guided introduction of students in the emotional impairment education program into assuming responsibility for teaching students with emotional impairment, while they learn to translate theory into practice.</p>
	<p>ED 423D Teaching in the Secondary School 5 cr. Graded S/U/P Prerequisites: See Eligibility for Student Teaching Placement and Teacher Selection and Retention Standards in the "School of Education" section of this bulletin.</p>

The opportunity for a gradual, guided introduction of students in the secondary education curriculum into assuming responsibility for teaching, together with related activities, while they learn to translate theory into practice.

ED 425 Teaching Students with Emotional Impairment and Cognitive Impairment in K-12 Schools 11 cr.

Offered: Fall, winter
Graded S/U/P
Prerequisites: ED 406 and 409. See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin.

The opportunity for a gradual, guided introduction of students in the emotional impairment and the cognitive impairment education program into assuming responsibility for teaching students with emotional impairment and students with cognitive impairment, while they learn to translate theory into practice.

ED 430 Teaching in the Secondary School 11 cr.

Offered: Fall, winter
Graded S/U/P
Prerequisites: See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin.

The opportunity for a gradual, guided introduction of students in the secondary education curriculum into assuming responsibility for teaching, together with related activities, while they learn to translate theory into practice.

ED 440 Student Teaching (Elementary Education, Cognitive Impairment, Speech Correction, Secondary Education) 3-6 cr.

Offered: Fall, winter
Graded S/U/P
Prerequisites: Department head permission. See Eligibility for Student Teaching Placement in the "School of Education" section of this bulletin.

The opportunity for a gradual, guided introduction of students into assuming responsibility for teaching. Variable credit for experienced teachers qualifying for additional certification.

ED 445 Practicum in the Middle School 2 cr.

Offered: On demand
Prerequisites: Student teaching experience.

A 60 clock-hour experience in assisting, observing, directed teaching and tutoring in skill development laboratories and participating in team planning sessions in a middle-school setting.

ED 450 Seminar in Teaching 1 cr.

Offered: Fall, winter
Co-requisite: Concurrent enrollment in student teaching.

This course is designed to help the student teacher better understand and apply education principles and theories in full-time classroom teaching experience. It focuses on the roles, responsibilities, issues and concerns of student teachers such as classroom management, instruction, assessment, multicultural education, human relations, employment, policy and practices.

ED 460 The Middle School 3 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.

Analysis of the philosophy, structure, curriculum, needs of students and strategies of teaching in the middle school.

ED 462 Literature for Young Adults 3 cr.

Offered: Every other fall.
Prerequisites: Junior standing or instructor's permission.
Cross listed as EN 462.

A comprehensive study of books for young adults, designed for secondary school teachers. Needs and interests of adolescents are studied in conjunction with the application of selection principles to fiction and nonfiction of all types. Emphasis is placed on developmental reading for the accelerated, the average and the reluctant student.

ED 483 Educational Media and Technology 2 cr.

Offered: Fall, winter, summer.
Prerequisites: Admission to the methods phase of teacher education.

Focuses upon the education/instructional uses of audiovisual media including computers and related technologies. Emphasis will be upon each type of hardware and software and its use as well as the subject-matter areas that most easily integrate the technology.

ED 491 Workshops and Seminars in Education 1 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.

Opportunities for the concentrated study of selected professional educational problems.

ED 495 Special Topics in Education 1-4 cr.

Offered: On demand
Prerequisite: Junior standing and instructor's permission.

An opportunity for a group of upper division students to study problems in education that are not part of the regular offering.

ED 498 Directed Study in Education 1-4 cr.

Offered: On demand
Prerequisites: Junior standing, adviser and instructor's permission.

An opportunity for students to do independent study.

**EL - ELECTRICAL LINE
Technology and Occupational Sciences
Department**

EL 010 Line Electrician Field Practicum I 6 cr. (0-0-18)

Prerequisite: Admission to the program.
This course provides introductory elevated outdoor work-site field experiences related to electrical power transmission. Climbing, guying and bucket truck operation will be stressed.

EL 011 Fundamentals of Electricity 2 cr. (1-0-2)

Co-requisite: Concurrent enrollment in EL 013.
An orientation to the principles of electricity, definition of terms and the fundamentals of current flow in series, parallel and compound circuits.

EL 012 Introduction to Line Electrician Safety 2 cr. (1-0-2)

This course introduces students to the general safety rules used in the electrical power distribution industry. Applications of safety policies, personal responsibility, accident reporting procedures and the safe use of various tools will be covered.

EL 013 Electrical Formulas 4 cr. (4-0-0)

Co-requisite: Concurrent enrollment in EL 011.

A thorough coverage of the formulas and current/voltage relationships used in the electrical power transmission field.

EL 014 Computer Skills for Electrical Trades 2 cr. (2-0-0)

Computer familiarization and the application of computers in the power transmission field.

EL 020 Line Electrician Field Practicum II 6 cr. (0-0-18)

Prerequisite: EL 010.

The course provides advanced elevated outdoor work-site field experiences related to electrical power transmission. Complex wiring operations will be completed on various elevated work sites including poles and towers.

EL 021 Applied Electricity for Linepersons 3 cr. (2-0-2)

Prerequisite: EL 011 and EL 013.

This course builds on the student's understanding of basic electrical principles and electrical formulas. Topics covered include single and three-phase power and complex circuits.

EL 022 Advanced Line Electrician Safety 2 cr. (1-0-2)

Prerequisite: EL 012.

This course covers electrical right-of-way maintenance, generating stations, overhead lines, protective equipment, underground lines and substations. First aid and response procedures are covered.

EL 023 Line Electrician Career Seminar 2 cr. (2-0-0)

Prerequisite: EL 014.

This course prepares the student for entry into the electrical power distribution career field along with covering customer relations, telephone usage, and interpersonal communications.

EL 024 Construction Standards for Line Electricians 2 cr. (1-0-2)

Construction standards, components and methods used in electrical power distribution will be covered in detail.

EN - ENGLISH

English Department

All courses marked with V (variable credit) are available for an additional research credit. Students must be registered for the three-credit course before signing up for the additional credit, and the additional credit must be added separately.

EN 080 Reading and Writing 4 cr.

Offered: Contact department for information.

Remedial or developmental course. Does not meet requirements for associate or bachelor's degrees, but may meet requirements for vocational diplomas and certificates. Course is not calculated in the NMU grade point average and is not counted as earned credit hours toward an associate or bachelor's degree.

An intensive, integrated review of reading and writing skills, study strategies and vocabulary development. Designed to prepare students for EN 090, it differs from that course in providing more individualized instruction of various types.

EN 090 Basic Composition 4 cr.

Offered: Fall, winter

Remedial or developmental course. Does not meet requirements for associate or bachelor's degrees, but may meet requirements for vocational diplomas and certificates. Course is not calculated in the NMU GPA and is not counted as earned credit hours toward an associate or bachelor's degree. A grade of "C-" or better in EN 090 is required to enroll in EN 111.

A review of English grammar, punctuation and spelling. Through individualized study and frequent practice, students learn to write Standard English sentences and improve writing fluency. Mastery of these skills is required for enrollment in EN 111 and for success in other college courses.

EN 091 Review of Writing Skills 2 cr.

Offered: Winter

Prerequisites: EN 211 and demonstrated need.

Remedial or developmental course. Does not meet requirements for any program. Course is not calculated in the NMU grade point average and is not counted as earned credit hours toward any program.

A review of principles of effective writing that provides extensive practice with special emphasis on those aspects of writing that each student finds most troublesome.

EN 101 Learning Skills Development 2 cr.

Offered: Fall, winter

An emphasis on basic learning skills, especially reading, study techniques, note-taking and writing. Students are helped to develop perceptions, attitudes and self-concepts that lead to academic success.

Note: Does not count toward an English major or minor.

EN 102 Personal Reading Improvement 2 cr.

Offered: Fall, winter

A course to improve reading rate and comprehension, vocabulary and critical reading skills.

Note: Does not count toward an English major or minor.

EN 110 Good Books 4 cr.

Offered: Fall, winter, summer

- Satisfies the foundations of humanities requirement.

An exploration of a variety of books from the past and present for the general reader. Reading and discussing ideas from books with insights into human experiences are emphasized.

<p>EN 111 College Composition I 4 cr. Offered: Fall, winter, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Development of students' abilities to read, discuss and write paragraphs and short essays about significant subjects. During the semester, each student writes a minimum of 5,000 words.</p> <p><i>Note: Does not count toward an English major or minor.</i></p>	<p>Continued development of students' abilities to read closely, to discuss critically and to write carefully. Writers expand their stylistic range, awareness of form and ability to deal with complex issues; further, they concentrate on developing a comfortable facility with at least one mode of writing. Longer papers are written with at least one paper using information from other sources. Five thousand words are spread over at least six or seven graded assignments. Sections are offered with the following subtitles:</p> <p><i>Note: Education students must have a "C" or better in EN 111. Does not count toward the English major or minor.</i></p>
<p>EN 112 Mythology 4 cr. Offered: Fall, winter, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Study of cultural myths, emphasizing Western (Greek, Roman, Norse), but including others such as Eastern (Chinese, Indian) and American Indian mythologies.</p>	<p>EN 211A Writing and Literature 4 cr. Offered: Fall, winter, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Readings and writing assignments using literature as a source and stimulus for composition. Expository and narrative writing are emphasized.</p>
<p>EN 125 Introduction to Film 4 cr. Offered: Fall, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. <p>Provides a broad introduction to the study of film. Offers close analyses of selected films in relation to their cultural contexts. Consideration will be given to ways of writing about film.</p>	<p>EN 211B Narrative and Descriptive Writing 4 cr. Offered: Fall, winter, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Readings and writing assignments investigating perception, the ordering of experiences and insights and methods of expression. Descriptive and narrative writing are emphasized.</p>
<p>EN 200 Basic English Grammar and Usage for Teachers 2 cr. Offered: Fall, winter, summer</p> <p>Familiarizes students with the fundamentals of English grammar. Prepares English and language arts education students to teach these concepts, to instruct students with insufficient knowledge of traditional grammar for advanced English language study, or to increase any student's knowledge of basic English grammar.</p>	<p>EN 211D Technical and Report Writing 4 cr. Offered: Fall, winter, summer</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Readings and writing assignments treating subjects appropriate for students in scientific, technical or business fields. Formal expository writing and the preparation of reports are emphasized.</p>
<p>EN 205 Introduction to Professional Writing 1 cr. Offered: Fall, winter Prerequisite: EN 211.</p> <p>An orientation to areas of study in the field and to employment possibilities; includes discussions of technical and professional writing, journalism, radio and TV writing, public relations and advertising, drama, poetry, fiction, and nonfiction.</p>	<p>EN 211E Critical Thinking and Writing 4 cr. Offered: Fall, winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Reading and writing assignments focus on critical thinking, articulation of ideas, analysis of audience and writing an effective argument using library resources to document ideas. Argumentative and critical techniques are emphasized.</p>
<p>EN 206 Survey of Journalism 4 cr. Offered: Fall, winter</p> <p>Theory and history of print journalism. Introduction to the fundamentals of news writing, reporting and editing.</p>	<p>EN 215 Introduction to Creative Writing 4 cr. Offered: Fall, winter, summer Prerequisite: EN 211 or instructor's permission.</p> <p>An introduction to the craft of writing poetry, fiction and drama/script writing, emphasizing the analysis of models and class discussion of student work.</p>
<p>EN 207 Journalism News and Reporting 4 cr. Offered: Fall Prerequisite: EN 206 or equivalent.</p> <p>The mechanics of straight news reporting and writing. Frequent exercises and critiques.</p>	<p>EN 220 Introduction to Shakespeare 4 cr. Offered: Fall Prerequisite: EN 111.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement.
<p>EN 211 College Composition II 4 cr. Offered: Fall, winter, summer Prerequisite: EN 111 with a grade of "C- " or better, or equivalent.</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. 	<p>Introduction to the comedies, tragedies, romances and sonnets of Shakespeare.</p>

<p>EN 225 History of World Cinema 4 cr. Offered: Every other fall.</p> <p>A survey of the development of an international film language from its origins. Begins with emphasis on classical Hollywood cinema and European art cinema and moves to a wide geographical, political and aesthetic spectrum.</p>	<p>EN 284 Survey of British Literature II 4 cr. Offered: Winter Prerequisite: EN 111.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>A survey of British literature from the Romantic period to the mid-20th century, concentrating on major figures and works and on the development of modern issues in literature.</p>
<p>EN 250 Images of Women 4 cr. Offered: On demand Prerequisite: EN 111.</p> <p>Examination of literatures of different periods and cultures to identify female images, archetypes and stereotypes; emphasis is on their connections to contemporary popular culture.</p>	<p>EN 295 Special Topics 1-4 cr. Offered: On demand Prerequisite: EN 111.</p> <p>Investigation of a significant topic, theme or group of works. Content varies.</p> <p><i>Note: May be repeated if topic varies.</i></p>
<p>EN 260 Popular Culture 4 cr. Offered: On demand Prerequisite: EN 111.</p> <p>The arts and artifacts of popular culture from generic and thematic perspectives, emphasizing the spoken and written word, films, radio and television as well as the application of critical methods to these arts.</p>	<p>EN 298 College Composition Directed Study 1-2 cr. Offered: On demand Prerequisites: Enrollment limited to transfer students; less than six transfer credits earned toward the liberal studies program foundations of communication requirement; permission of the director of foundations of communication. May not be taken more than once</p> <ul style="list-style-type: none"> • Satisfies the foundations of communication requirement. <p>Independent undergraduate writing, planned by the student in consultation with the instructor, to complete credit for either EN 111 or EN 211.</p>
<p>EN 265 Introduction to Folklore 4 cr. Offered: On demand Prerequisite: EN 111.</p> <p>The genres and themes of American folklore including folk speech, proverbs, legends, poetry and ballads. Includes samples of folk narrative dealing with customs, traditions and work experience.</p>	<p>EN 300 Creative Writing: Fiction 4 cr. Offered: Fall, winter Prerequisite: EN 111, EN 215 or instructor's permission.</p> <p>The art of writing fiction, emphasizing class discussion of student work.</p>
<p>EN 280 Patterns and Continuity of the Literary Past I 1 cr. Offered: Fall, winter</p> <p>Part one of a series of presentations and discussions presenting an overview of the historical contexts of literature and the continuing influences of earlier traditions on current writing.</p>	<p>EN 301 Creative Writing: Poetry 4 cr. Offered: Fall Prerequisite: EN 111, EN 215 or instructor's permission.</p> <p>The art of writing poetry, emphasizing individual conferences and class discussion of student work.</p>
<p>EN 281 Patterns and Continuity of the Literary Past II 1 cr. Offered: Fall, winter</p> <p>Part two of a series of presentations and discussions of examples presenting an overview of the historical contexts of literature and the continuing influences of earlier traditions on current literature.</p>	<p>EN 302 Nonfiction Writing 4 cr. Offered: Winter Prerequisite: EN 211.</p> <p>The craft of writing nonfiction, emphasizing the analysis of models and class discussion of student work.</p>
<p>EN 282 Introduction to Literature 4 cr. Offered: Fall, winter Prerequisite: EN 111.</p> <p>The practice of analysis and interpretation of literature. This first course for English majors introduces students to important terms and concepts relevant to literary study and improves students' abilities to read and interpret works of fiction, poetry and drama.</p>	<p>EN 303 Technical and Professional Writing 4 cr. Offered: Every other fall. Prerequisites: EN 211 and junior standing.</p> <p>Study and practice of the writing principles for organizations in business, government and industry. Emphasizes the need for audience analysis, careful document design and appropriate style in correspondence, proposals, reports and manuals.</p>
<p>EN 283 Survey of British Literature I 4 cr. Offered: Fall Prerequisite: EN 111.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>British literature from before the Middle Ages to the 18th century, concentrating on major figures and works and on the development of modern issues in literature.</p>	<p>EN 305 Tutoring Writing 2 cr. Offered: Fall Prerequisite: Instructor's permission.</p> <p>A presentation of theoretical knowledge and practical experience to enable Writing Center tutors to help other students with composition. The process of writing and methods of conferencing about writing are studied.</p>

<p>EN 306 Journalism Editing and Design 4 cr. Offered: Every other winter. Prerequisites: EN 211 and EN 207. Theory and practice of copy and photo editing, headline writing, layout and design.</p>	<p>EN 314 Traditional Oral Literatures: Selected Native American Cultures 4 cr. Offered: Fall, winter Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>Investigation of Native American oratory and traditional story. Development and influences will be considered. Guest traditional practitioners to supplement as available. Emphasis on eastern woodlands/ Great Lakes Anishinaabe works.</p>
<p>EN 307 Journalism Practicum 2 cr. Offered: Fall, winter Prerequisites: EN 211 and EN 207. Closely supervised service as a reporter or editor for the student newspaper or other local medium. <i>Note: May be repeated twice.</i></p>	<p>EN 316 Native American Novels and Poetry 4 cr. Offered: Fall Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>Survey and critical analysis of contemporary novels and poetry in English by aboriginal writers of North America. Development and influences will be considered. Earlier works may be included for comparative purposes. <i>Note: A student who has taken either EN 315 or EN 311Z Native Canadian Literature may take either EN 316 or EN 317 but not both. A student who has taken both EN 315 and EN 311Z Native Canadian Literature is not eligible for either.</i></p>
<p>EN 309 The Teaching of Writing 4 cr. Offered: Summer Prerequisite: EN 211. Study of the principles of teaching writing appropriate for teachers in all grade levels and subject areas. Emphasis on the process and product of writing and effective strategies for teaching it, achieved through varied and frequent writing assignments.</p>	<p>EN 317 Native American Drama, Nonfiction and Short Stories 4 cr. Offered: Winter, summer Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>Survey and critical analysis of contemporary drama, nonfiction and short stories in English by aboriginal writers of North America. Development and influences of works will be considered. Earlier works may be included for comparative purposes.</p>
<p>EN 310 Literature and the Bible 4 cr. Offered: Every other winter. Prerequisites: EN 211 and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>Ancient and modern literature inspired and influenced by the Bible; the Bible is studied in literature and as literature.</p>	<p>EN 311 World Literature in English 4 cr. Offered: Fall, winter, summer Prerequisites: EN 211 and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement when offered as EN 311Z. <p>A survey of translated works of literature from one country, stressing historical development and comparative analysis. <i>Note: May be repeated if topic differs.</i></p>
<p>√EN 312 Medieval British Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211. The study of the literature of England from the beginning to about 1485.</p>	<p>√EN 320 Renaissance British Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211. Several representative authors, trends or genres prominent between 1495 and 1660, exclusive of Shakespeare or Milton.</p>
<p>EN 313 Introduction to Linguistic Theory 4 cr. Offered: Every other winter Prerequisites: EN 211, junior standing or instructor's permission. Cross listed with PY 313. An introduction to modern (Chomskyan) linguistics as the foundation of empirical psycholinguistics. This course emphasizes morphological, syntactic and semantic analyses of language and language behavior.</p>	<p>√EN 322 Restoration Eighteenth Century British Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211. The rise and development of neo-classical literature between 1660 and 1785 and the beginnings of romanticism.</p>

<p>EN 325 Authorship in the Cinema 4 cr. Offered: Every other winter. Prerequisites: EN 125, or EN 225, or instructor's permission.</p> <p>Deals with issues of personal and collaborative creativity in film through the study of the style, themes and development of one or more film directors.</p> <p><i>Note: May be repeated for credit if topic varies.</i></p>	<p>√EN 362 Studies in Genre, Narrative 3-4 cr. Offered: Every other fall. Prerequisite: EN 282 or instructor's permission.</p> <p>A study of the characteristics that define this varied genre in history. The class provides students with a complex historical knowledge of narrative from the epic to the novel, with emphasis on the novel, the short story and theories of narrative.</p>
<p>EN 326 National Cinema 4 cr. Offered: Every other winter. Prerequisites: EN 125, or EN 225, or instructor's permission.</p> <p>Study of selected national cinemas (or a selected topic in national cinema) with emphasis on their relationship to national cultural traditions.</p> <p><i>Note: May be repeated for credits if topic varies.</i></p>	<p>√EN 363 Studies in Genre, Drama 3-4 cr. Offered: Every other winter. Prerequisite: EN 282 or instructor's permission.</p> <p>A study of drama as genre from Greek tragedy to modern drama. The course may be organized according to a history of drama, types of drama or major themes.</p>
<p>√EN 330 British Romantic Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211.</p> <p>The important romantic writers in England from 1798 to 1832, including Wordsworth, Coleridge, Byron, Shelley and Keats.</p>	<p>√EN 364 Studies in Genre, Film 3-4 cr. Offered: Every other fall Prerequisite: EN 282 or instructor's permission.</p> <p>An examination of the ways in which film communicates story and experience, emphasizing structure, narrative techniques and other elements of the cinematic art.</p>
<p>√EN 340 Victorian Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211.</p> <p>The important Victorian writers between 1820 and 1900, including Tennyson, Browning, Dickens and Arnold.</p>	<p>EN 366 Applied Literary Theory 4 cr. Offered: Winter Prerequisite: EN 211.</p> <p>Examination of contemporary literary theories, emphasizing their ways of redefining literature and the study of literature. It also explores the application of theory to literary texts.</p>
<p>EN 350 Methods and Materials in Teaching English Education 4 cr. Offered: Fall, winter Prerequisite: Admission to the methods phase of teacher education and instructor's permission; should be taken the semester prior to student teaching.</p> <p>Introduction to recent methods and materials to motivate secondary students. Presents phases of language, literature and composition in a classroom situation. Text readings are balanced with professional research tailored to individual interests.</p> <p><i>Note: May not be applied toward a non-teaching major or any minor in English. Can be applied to the secondary education English minor if required.</i></p>	<p>EN 368 Teaching/Advising Scholastic Journalists 4 cr. Offered: Winter Prerequisites: EN 206, EN 207.</p> <p>A methods-based course that prepares education majors to teach journalism and act as faculty advisers to student publications. Includes 25 contact hours of an in-school internship.</p>
<p>√EN 360 Modern British Literature 3-4 cr. Offered: Contact department for information. Prerequisite: EN 211.</p> <p>British fiction and poetry after 1900, with emphasis on major figures such as Conrad, Joyce, Lawrence, Yeats and Auden.</p>	<p>EN 370 American Literature I: Columbus to the American Revolution (1492-1800) 4 cr. Offered: Contact department for information. Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>Considers various literary genres of the colonial and early American period, ending with the literature of the early republic.</p>
<p>√EN 361 Studies in Genre, Poetry 3-4 cr. Offered: Every other winter Prerequisite: EN 282 or instructor's permission.</p> <p>A study of poetry meant to acquaint students with the broad variety of verbal activities in the genre. The course will include an examination of lyric, dramatic and narrative forms.</p>	<p>EN 371 American Literature II: Emergent National Voices (1800-1865) 4 cr. Offered: Contact department for information. Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>Considers the movement toward inventing a national voice from the early 19th century to the Civil War, including the American literary Renaissance, transcendentalism, slave narratives, and the rise of the sentimental novel.</p>

EN 372 American Literature III: Realism, Naturalism, through WWI (1865-1930) 4 cr.

Offered: Contact department for information.
Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.

Considers the literature that took shape in the wake of the Civil War through World War I, including literary movements such as regionalism, realism, naturalism, the Harlem Renaissance, as well as the impact of WWI upon American literature.

EN 373 American Literature IV: Contemporary Vistas (1930-Present) 4 cr.

Offered: Contact department for information.
Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.

Considers the literature of modernism and World War II, covering definitive movements from imagism to feminism, to post-modernism, and experiments in literary form.

EN 375 Diverse Traditions in American Literature 4 cr.

Offered: Contact department for information.
Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.
- Satisfies the world cultures requirement when offered as EN 375Z.

A variable content survey that explores the distinct literatures and historical contexts of U.S. minorities. Possible offerings: African American, Asian American, Arab American, Latino American, Jewish American, etc.

Note: May be repeated if topic differs.

√EN 380 Contemporary Literature 3-4 cr.

Offered: Contact department for information.
Prerequisite: EN 211.

Selected British and American literature after 1945, including figures such as Updike, Roth, Lowell and Fowles.

√EN 381 Contemporary Dramatic Literature 3-4 cr.

Offered: Contact department for information.
Prerequisite: EN 211.

An examination of drama as literature, concentrating on major developments in Europe and America after 1945 and on works by authors such as Albee, Beckett, Pinter, Ionesco and Shepherd.

EN 385 Theatre in Perspective: The Stratford Festival Stage 3 cr.

Offered: Summer
Prerequisites: Completion of the foundations of communication requirement or instructor's permission.
Cross listed with TH 385.

- Satisfies the foundations of visual and performing arts requirement.
- Satisfies the upper division liberal studies requirement.

An interdisciplinary approach to four or five plays to be performed at the Stratford Theatre Festival in Stratford, Ontario. Students who simultaneously enroll in TH 493 Field Studies will be able to view these same plays in performance in Stratford.

EN 400 Narrative Writing Seminar 4 cr.

Offered: Fall and every other winter.
Prerequisites: EN 211, EN 300, junior standing or instructor's permission.

The study of narrative theory, conventions and forms, and the further pursuit of excellence in writing narratives.

EN 401 Poetry Writing Seminar 4 cr.

Offered: Winter
Prerequisites: EN 211, EN 301, junior standing or instructor's permission.

The study of poetic theory, conventions and forms, and the pursuit of excellence in writing poetry.

EN 402 Nonfiction Writing Seminar 4 cr.

Offered: Fall
Prerequisites: EN 302 or equivalent, junior standing or instructor's permission.

The study of nonfiction theory, conventions and forms, and the further pursuit of excellence in writing nonfiction.

EN 403 Drama and Script Writing Seminar 4 cr.

Offered: Every other winter.
Prerequisites: EN 211, EN 300 or EN 301, junior standing or instructor's permission.

The study of drama and script theory, conventions and forms, and the pursuit of excellence in writing these forms.

EN 404 The English Language 4 cr.

Offered: Fall, winter, summer
Prerequisites: EN 211, junior standing or instructor's permission.

The history and present structure of the English language, emphasizing traditional grammar and other modern theories of linguistic analysis; the sounds, inflections and syntax of modern English; the historical development of grammatical signals, usage and dialects; and the position of English among world languages.

EN 405 Technical Writing Seminar 4 cr.

Offered: Every other winter.
Prerequisites: EN 211, EN 303, junior standing or instructor's permission.

The study of technical communication theory, conventions and forms, and the further pursuit of excellence in writing technical documents.

EN 406 Public Affairs Reporting 4 cr.

Offered: Every other fall
Prerequisites: EN 211, EN 207, junior standing or instructor's permission.

An advanced course in researching and reporting the news, emphasizing access to information and coverage of public meetings.

<p>EN 407 Feature and Magazine Writing 4 cr. Offered: Every other winter. Prerequisites: EN 211, EN 207, junior standing or instructor's permission. An advanced course in journalistic feature writing for both newspapers and magazines. Students will write several types of short feature articles, come up with story ideas, research topics and interview sources and, as a final project, produce a full-length, well-researched magazine article.</p>	<p>√EN 430 Major Authors 3-4 cr. Offered: Contact department for information Prerequisites: EN 211, junior standing or instructor's permission. One author or a limited number of British and American authors. Author(s) to be announced in advance. <i>Note: May be repeated if topic differs.</i></p>
<p>EN 410 Genres of Writing 1-4 cr. Offered: Contact department for information Prerequisites: EN 211 and upper-division writing course, or instructor permission. An upper-level writing course that explores a specific genre of writing. This course is devoted to reading and writing within the genre, as well as studying the background of the genre. <i>Note: May be repeated if topic differs.</i></p>	<p>√EN 440 Topics in Gender in Literature 3-4 cr. Offered: Contact department for information. Prerequisites: EN 211, plus two upper division courses in literature, junior standing or instructor's permission. A study of the role and significance of gender in literature, concentrating on a particular genre and/or period. Generally, the emphasis will be on women writers and/or the portrayal of gender.</p>
<p>√EN 411 Topics in World Literature 3-4 cr. Offered: Contact department for information. Prerequisites: Completion of the foundations of communication requirement, junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the world cultures requirement when offered as EN 411Z. • Does not satisfy the upper division liberal studies requirement. <p>A variable-format course with a general focus on critical reading and comparative analysis including interdisciplinary approaches. Special topics will introduce single national or transnational groupings of text, organized around such principles as genre, theme, canonicity, identity, theory and intellectual movements. <i>Note: May be repeated if topic differs.</i></p>	<p>√EN 462 Literature for Young Adults 3-4 cr. Offered: Every other fall. Prerequisites: Junior standing or instructor's permission. Cross listed as ED 462. A comprehensive study of books for young adults, designed for secondary school teachers. Needs and interests of adolescents are studied along with selection principles to fiction and nonfiction of all types. Emphasis is placed on developmental reading for the accelerated, the average and the reluctant student.</p>
<p>√EN 412 Chaucer 3-4 cr. Offered: Contact department for information. Prerequisites: EN 211, junior standing or instructor's permission. Critical reading, in relation to medieval literary and social background, of <i>Canterbury Tales</i> and other works in the original language.</p>	<p>√EN 490 Seminar 3-4 cr. Offered: Contact department for information. Prerequisites: EN 211, junior standing and instructor's permission. Limited to 20 students. A strong background in literature is recommended. The subject, an analysis of a literary genre or a study of literary criticism, is announced in advance. <i>Note: May be repeated if topic differs.</i></p>
<p>√EN 420 Shakespeare 3-4 cr. Offered: Fall, winter, summer Prerequisites: EN 211, junior standing or instructor's permission. Intended for English majors and minors. The poetry and plays of Shakespeare.</p>	<p>EN 491 Internship 2-6 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission. Screening by department committee. Supervised practical work for selected students in newspaper, public relations or other fields. <i>Note: May be taken more than once for up to six credits.</i></p>
<p>√EN 422 Milton 3-4 cr. Offered: Contact department for information. Prerequisites: EN 211, junior standing or instructor's permission. The poetry and several of the major prose works of Milton.</p>	<p>EN 493 Seminar: Issues in Literature 4 cr. Offered: Winter Prerequisites: EN 282 plus at least 20 additional hours toward the major, junior standing or instructor's permission. A capstone course allowing students to draw together their experiences with literary writing and set them in context. Each section will consider current issues in literary studies and their impact on various forms of writing. The course will include development of each student's writing portfolio.</p>
<p>EN 425 Topics in Film Theory 4 cr. Offered: Contact department for information. Prerequisites: EN 125 or EN 225, or instructor's permission. Introduction to various theoretical and critical discourses that have attempted to explain the cinema. Application of the theories to selected films of the same period.</p>	

EN 495 Special Topics 1-4 cr.
 Offered: On demand
 Prerequisites: EN 211, junior standing and instructor's permission.
 Authors' works or genres not otherwise emphasized in undergraduate courses.
Note: May be repeated if topic differs.

EN 495W Special Topics Writing 1-4 cr.
 Offered: On demand
 Prerequisites: EN 211, junior standing and instructor's permission.
 Special writing subjects and methods not otherwise emphasized in undergraduate courses.
Note: May be repeated if topic differs.

EN 496 Special Topics 1-4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: EN 211, junior standing and instructor's permission.
 Authors' works or genres not otherwise emphasized in undergraduate courses.
Note: May be repeated if topic differs.

EN 498 Directed Study 1-4 cr.
 Offered: On demand
 Prerequisites: EN 211, junior standing and department head permission; maximum of four credits.
 Independent study by qualified undergraduates in an area defined by the student and the instructor.

ENV-ENVIRONMENTAL SCIENCE

Environmental Science

ENV 101 Introduction to Environmental Science 4 cr.
 Offered: Fall, winter, summer

- Satisfies the foundations of natural sciences/mathematics requirement.
- Does not meet the laboratory course graduation requirement.

Introduction to the basic scientific principles and concepts surrounding environmental science. Major components of the natural environment including climate, soils, geologic and hydrologic processes are described. Important ecological concepts concerning aquatic and terrestrial systems are discussed. Human influences are evaluated in terms of energy, natural resources, pollution and environmental sustainability.

ESPR-ENTERTAINMENT AND SPORTS PROMOTION

Communication and Performance Studies Department

ESPR 160 Introduction to Entertainment and Sports Promotion 4 cr.
 Offered: Fall

An introduction to the work of the communication practitioner in entertainment and sports publicity and promotion. The public relations process, career options and the professional and ethical standards for entertainment and sports promotion are covered.

ESPR 260 Fundamentals of Entertainment and Sports Promotion 4 cr.
 Offered: Winter
 Prerequisites: Completion of ESPR 160 and EN 111 with a grade of "C" or higher.
 An introduction to the basic principles of research for publicity and promotion. The theory and application of primary and secondary research techniques critical to entertainment and sports promotion are covered.

ESPR 295 Special Topics in Entertainment and Sports Promotion 2-4 cr.
 Offered: On demand
 Prerequisites: ESPR 160 or instructor's permission.
 Study of a particular topic area or problem in entertainment and sports promotion that expands on a topic from ESPR 160 or ESPR 260.
Note: May be repeated for credit if topic varies.

ESPR 298 Directed Study in Entertainment and Sports Promotion 1-4 cr.
 Offered: On demand
 Prerequisites: ESPR 160 and instructor and department head permission. The student must be a major or minor in the ESPR curriculum.
 Independent study in an area of entertainment and sports promotion defined by student and instructor.
Note: May be repeated for up to eight credits.

ESPR 360 Publicity Techniques for Entertainment and Sports Promotion 4 cr.
 Offered: Fall
 Prerequisites: Completion of ESPR 260 and EN 211E (or another EN 211 plus SP 200 Argumentation) with a grade of "C" or better. Sophomore standing or higher.
 A focus on publicity techniques used in entertainment and sports communication practice. Writing and planning skills are emphasized as students learn to create material for the media and design special events.

ESPR 431 Campaigns 4 cr.
 Offered: Winter
 Prerequisites: PR 430 or ESPR 360 with a minimum grade of "C" and a speech theory course (SP 300, SP 310 or SP 401), junior standing or instructor's permission.
 Cross listed as PR 431.
 Focus on the technical and theoretical aspects of creating communication campaigns. Students are expected to develop a campaign and present it to a "client." Students will be assigned clients at the beginning of the semester and develop a five-phase campaign assignment including research designs, budgets, campaign concepts, post-campaign evaluation and an oral presentation.

ESPR 463 Field Studies in Entertainment and Sports Promotion 1-2 cr.
 Offered: On demand.
 Prerequisites: Must be a major or minor in entertainment and sports promotion and junior standing or higher.
 A site study of an entertainment or sports event that will include travel to the venue and related lecture and discussion of the activity.

ESPR 491 Practicum in Entertainment and Sports Promotion 1-8 cr.

Offered: On demand

Graded S/U

Prerequisites: ESPR 360 and instructor and department head permission. The student must be a major or minor in the ESPR curriculum.

Projects in entertainment and sports under the supervision of a faculty member and a designated site supervisor.

ESPR 492 Internship in Entertainment and Sports Promotion 1-8 cr.

Offered: On demand

Graded S/U

Prerequisites: ESPR 360, instructor and department head permission and a minimum grade point average of 2.75. The student must be a major or minor in the ESPR curriculum.

Practical, applied experience involving placement in a job situation.

ESPR 495 Special Topics in Entertainment and Sports Promotion 2-4 cr.

Offered: On demand

Prerequisites: ESPR 260 or instructor's permission.

Study of a particular topic area or problem in entertainment and sports promotion that expands on a topic from the ESPR curriculum.

*Note: May be repeated if topic varies.***ESPR 498 Directed Studies in Entertainment and Sports Promotion 1-4 cr.**

Offered: On demand

Prerequisites: ESPR 260 and instructor and department head permission. The student must be a major or minor in the ESPR curriculum.

Independent study in an area of entertainment and sports promotion defined by student and instructor.

Note: May be repeated for up to 8 credits.

ET-ELECTRONIC TECHNOLOGY

Engineering Technology Department

ET 100 Fundamentals of Electricity 2 cr. (1-0-2)

Offered: Fall

Prerequisites: MA 090 or higher mathematics course.

The fundamentals of DC, series circuits, parallel circuits, compound circuits and magnetism are explored. Other topics include Ohm's law, the power formula and Kirchoff's laws. Emphasis is placed on using standard methods of circuit analysis and basic electrical measuring equipment.

*Note: This course is taught during the first seven weeks of the semester.***ET 101 Principles of Electrical Wiring 2 cr. (1-0-2)**

Offered: Winter

Prerequisites: ET 100 or instructor's permission.

A study of basic wiring practices and techniques as they apply to residential dwellings and commercial buildings. Emphasis will be on wiring practices, the essentials of electrical code requirements, electrical principles of automotive systems and the principles of electric motors.

*Note: This course is taught during the second seven weeks of the semester.***ET 110 Introduction to Electricity 4 cr. (3-0-2)**

Offered: Fall

Prerequisites: MA 100 or higher mathematics course.

The fundamentals of DC, AC, series circuits, parallel circuits, compound circuits, inductance, capacitance and magnetism are explored. Emphasis is on using standard methods of circuit analysis and basic test equipment.

ET 112 DC Circuit Analysis 4 cr. (3-0-2)

Offered: Fall

Prerequisites: MA 100 or math placement equivalency.

Introduction to electricity and electronics through applied DC circuit theory. Course content will include topics on Ohm's law, Kirchoff's law and power laws as well as discrete electronic components and schematic diagrams. Theory to be reinforced by practical laboratory experimentation.

ET 113 AC Circuit Analysis 4 cr. (3-0-2)

Offered: Winter

Prerequisites: MA 104, ET 112 .

Course content will include topics on basic AC circuit components, circuit analysis, transformers, pulse and frequency response and polyphase circuits. Theory to be reinforced by practical laboratory experiments emphasizing the digital multimeter (DMM) and the oscilloscope.

ET 201 Visual Programming for Technicians 4 cr.

Offered: Winter

Prerequisite: ET 112.

The course introduces the development of industrial and technical software applications with Rapid Application Development (RAD) tools currently used in industry. Students will learn graphical user interface (GUI) concepts, program flow control and problem-solving skills.

ET 202 Industrial Wiring 2 cr. (1-0-2)

Offered: Winter

Prerequisites: ET 100, ET 110, ET 112 or instructor's permission.

This course provides an introduction to industrial wiring systems and installation. Course topics include line wire diagrams, high voltage wiring systems, conduit installation, termination techniques, lighting systems and applications.

ET 210 Discrete Semiconductors 4 cr. (3-0-2)

Offered: Fall

Prerequisite: ET 113.

Analysis of basic discrete semiconductor devices. Course work and laboratory activities are based on the study of semiconductor diodes, zener diodes, regulators, bipolar transistors, JFET transistors and the application of these devices in power supplies and amplifiers.

ET 211 Digital Electronics 4 cr. (3-0-2)

Offered: Fall

Prerequisite: ET 112.

Comprehensive coverage of digital integrated circuits including the TTL and CMOS families. Topics include logic gates, decoders, drivers, counters, multiplexers and RAM memories.

<p>ET 212 Advanced Linear Circuits 3 cr. (2-0-2) Offered: Winter Prerequisite: ET 210.</p> <p>The fundamentals of active linear monolithic circuits are explored. Emphasis is placed on operational amplifiers and their application as comparators, active filters and amplifiers. Additional topics include feedback circuits, on/off controls, mathematical operations and instrumentation devices.</p>	<p>ET 283 A+ Computer Technician Certification Review 2 cr. Offered: Fall, winter Prerequisites: ET 281 and ET 282.</p> <p>A review of the principals and procedures of computer maintenance with the focus on readying the student for the A+ Computer Certification Examination.</p>
<p>ET 221 Solar Power 3 cr. (2-0-2) Offered: Fall Prerequisite: MA 100.</p> <p>This course provides an introduction to solar-powered energy systems. Both photovoltaic and thermal applications of solar energy will be studied. Course topics include fundamental concepts, system design, sizing, site selection and applications.</p>	<p>ET 295 Special Topics in Electronics 1-4 cr. Offered: On demand Prerequisite: Adviser permission.</p> <p>Specialized work not covered in other courses.</p>
<p>ET 222 Wind Power 3 cr. (2-0-2) Offered: Winter Prerequisite: MA 100.</p> <p>This course provides an introduction to wind-powered systems used for electricity generation. Course topics include fundamental concepts, history, system design, sizing, site selection and applications. The economics and practical installation aspects of wind power are also examined.</p>	<p>ET 298 Directed Study and Research 1-4 cr. Offered: On demand Prerequisite: Department permission.</p> <p>Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.</p>
<p>ET 250 Industrial Electrical Machinery 4 cr. (2-0-4) Offered: Fall Prerequisites: ET 110 or ET 112.</p> <p>A study of the principles of operation, applications and selection of motors, generators and transformers used in industry today.</p>	<p>ET 311 Applied Programmable Controllers 2 cr. (1-0-2) Offered: Fall Prerequisite: ET 252.</p> <p>Practical applications of programmable controllers in motor control and industrial automation situations. Emphasis is placed on applying a commercial grade programmable controller involving I/O applications as well as the use of programming instructions. Applications include A/D, timers and events counters.</p>
<p>ET 252 Industrial Motor Controls 4 cr. (2-0-4) Offered: Winter Prerequisites: ET 110 or ET 112.</p> <p>Industrial power devices and associated control circuits, including starters, contactors, limit switches and various types of electric motors. Emphasis is placed on motor control line diagrams as well as wiring diagrams including line voltage control.</p>	<p>ET 320 Advanced Digital Electronics 3 cr. Offered: Every other winter Prerequisite: ET 211.</p> <p>This course is a continuation of ET 211 Digital Electronics. This course covers memory, programmable logic, hardware implementation of arithmetic algorithms, simulation of digital systems and computer architecture.</p>
<p>ET 281 Computer Systems Servicing 3 cr. (2-0-2) Offered: Fall, winter, summer</p> <p>Procedures and techniques used to service personal computer systems. Topics covered include troubleshooting techniques, power supplies, option cards, keyboards, disk drives, monitors and printers. Course content is based on enabling the student to pass the A+ core hardware exam.</p>	<p>ET 360 Process Control Systems 3 cr. (2-0-2) Offered: Winter Prerequisite: ET 212.</p> <p>An introduction to process control focusing on industrial instrumentation and processes. Course content will include basic process control theory, signal conditioning, sensor and control loop characteristics. Theory to be reinforced by lab work using actual industrial instrumentation and sensors.</p>
<p>ET 282 Computer Software Systems 3 cr. (2-0-2) Offered: Fall</p> <p>Coverage of personal computer operating systems and their maintenance. Specific topics include disk partitioning, operating system installation and configuration, maintenance techniques and utilities. The course content is based on enabling the student to pass the A+ operating systems exam.</p>	<p>ET 410 Interfacing and Data Acquisition Techniques 3 cr. (2-0-2) Offered: Fall Prerequisites: ET 201, junior standing or instructor's permission.</p> <p>A hardware/software oriented course involving use of the microcomputer as an I/O and data gathering device using a "high-level language" for the purpose of process and machine control. Emphasis is placed on various digital sensors and the use of A/D and D/A converters and real-time clocks as integral parts of the control system.</p>

ET 420 Microcontroller Applications 3 cr. (2-0-2)

Offered: Every other winter

Prerequisites: ET 201, ET 320, junior standing or instructor's permission.

Analysis of the PIC16CXX families of microcontroller products along with the application of 8-bit processors in typical industrial applications involving process control. Emphasis is also placed on a wide range of development tools available for these microcontroller devices.

ET 430 Senior Project 2 cr.

Offered: Fall, winter

Prerequisites: ET 410, ET 420, junior standing or instructor's permission. Cross listed with MET 430.

A problem-based course that provides students with an opportunity to focus on a design or engineering problem. A formal presentation is a required part of the course.

ET 483 Studies in Business and Industry 4 cr.

Offered: On demand

Prerequisites: Junior standing or instructor's permission.

Cooperative work experience to provide up-to-date technical skills in the area of specialization; includes work experience with business and industrial operations, services and materials, processes and techniques.

ET 495 Special Topics in Electronics 1-4 cr.

Offered: On demand

Prerequisites: Junior standing or instructor's permission.

Specialized work not covered in other courses.

ET 498 Directed Study and Research 1-4 cr.

Offered: On demand

Prerequisites: Junior standing or instructor's permission.

Selection of problem in area of emphasis; specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

FIN - FINANCE**College of Business****FIN 224 Personal Financial Management** 4 cr.

Offered: Contact department for information.

Development of practical solutions for routine problems faced in personal financial affairs. Major topics to be discussed are tax return preparation, tax planning, insurance, property, consumer credit, financial institutions, investing and other current topics.

Note: This course is not intended for finance majors.

FIN 351 Management of Financial Resources 3 cr.

Offered: Fall, winter, summer

Prerequisites: ACT 240 or approval of instructor and junior standing.

Financial management of corporations. Management of capital sources of short and intermediate funds; factors determining the capital structure; sources of long-term capital; the securities market; and financing growth and development. Emphasis on the analysis and interpretation of financial accounting measurements.

FIN 352 Financial Management 4 cr.

Offered: Winter

Prerequisite: FIN 351 and junior standing.

Study of financial management theories and their applications to complex corporate financial problems. By means of case studies, special emphasis is given to analysis and decision making about all major problems in financial management.

FIN 354 Money and Capital Markets 4 cr.

Offered: Fall

Prerequisite: Junior standing.

Analysis of money market instruments in conjunction with monetary policy influences. The markets and their role in channeling liquid and investment funds to the private and public sectors. The roles of major financial institutions (pension funds, insurance companies, banks) as both suppliers and users of market capital.

FIN 355 Insurance Planning 3 cr.

Offered: Fall

Prerequisite: Junior standing.

An introduction to the principles of insurance planning including the identification of risk exposures, property and liability analysis, life insurance policy analysis, health insurance policy analysis, social insurance, employee insurance benefits, insurance regulation and taxation. Discussion and analysis will include evaluation techniques and insurance planning concepts from contract selection to cost benefit analysis.

FIN 413 New Venture Finance: Capital Formation and Legal Issues 3 cr.

Offered: Every other winter.

Prerequisites: ACT 325, junior standing or instructor's permission.

Summarizes and ties together the materials presented in the entrepreneurship core of classes. Extends the student's knowledge in this area through the incorporation of cases based on creating and managing new business ventures; this includes various methods of raising capital for new and growing ventures and a thorough examination of the legal issues involved in such an undertaking.

FIN 420 Financial Statement Analysis 3 cr.

Offered: Winter

Prerequisites: ACT 240, junior standing or instructor's permission.

An intensive study of the interpretation and analysis of a financial statement. Emphasis is placed on analyzing financial data for investment, credit and managerial decisions.

FIN 424 Personal Financial Planning 3 cr.

Offered: Winter

Prerequisites: ACT 240, ACT 321, FIN 462, FIN 355, FIN 450, FIN 460, and junior standing or instructor's permission.

Intensive study of personal financial affairs and planning. The planning process is emphasized while developing an in-depth understanding of tax planning, retirement planning, consumer credit and sources of financing, risk and insurance planning, and investment analysis and instruments.

<p>FIN 450 Estate Planning 3 cr. Offered: Winter Prerequisites: Junior standing or instructor's permission. Estate planning principles and techniques as they relate to financial planning. Includes methods of property transfer, estate planning documentation, principles of estate, gift and trust taxation, features and classification of trusts, the use of life insurance in the estate planning process and tools and techniques for general estate planning.</p>	<p>FIN 491 Internship in Finance 1-4 cr. Offered: Fall, winter, summer Graded S/U Prerequisites: Junior standing or instructor's permission. Professional experience for qualified accounting or finance majors. Working with accounting or other business firms. Written paper required; students evaluated by faculty supervisor in consultation with employer. <i>Note: Credits beyond finance degree requirements.</i></p>
<p>FIN 458 International Financial Management 3 cr. Offered: Contact department for information. Prerequisites: FIN 351 and junior standing or instructor's permission. Financial management of multinational firms including management of international sources of funds, dealing with international exchange, international expansion and investment.</p>	<p>FIN 495 Variable Topics in Finance 1-4 cr. Offered: Contact department for information Prerequisites: Junior standing or instructor's permission. Variable topics of current interest. <i>Note: May be taken more than once for credit.</i></p>
<p>FIN 460 Employee Benefits and Retirement Planning 3 cr. Offered: Fall Prerequisites: Junior standing or instructor's permission. A working knowledge of employee benefits and retirement planning tools. Topics include qualified plan characteristics, deferred saving plans, plan distributions and options, group insurance benefits and retirement needs analysis. The financial planning process is emphasized along with cases, discussions and lectures.</p>	<p>FIN 498 Directed Study in Finance 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission. Independent study of some special problem in accounting or finance under the guidance of a faculty member.</p>
<h2>FR - FRENCH</h2> <h3>Modern Languages and Literatures Department</h3>	
<p>FIN 461 Management of Financial Institutions 3 cr. Offered: Contact department for information. Prerequisites: FIN 351 and junior standing or instructor's permission. The prerequisites may be waived for students whose work experience or background enables them to understand the basic objectives and operation of the monetary system. Analysis of the major policy areas of financial institutions including commercial banks, thrifts, insurance companies and pension funds. Discusses liquidity business and credit, asset and liability management and capital structure in relation to profit objectives and the regulatory and monetary policy environment; holding companies, financial institution competition and current issues.</p>	<p>FR 101 Elementary French I 4 cr. Offered: Fall • Satisfies the formal communication studies requirement. FR 101 is an introduction to the French language and cultures of the people who speak it. Students learn rudimentary "survival" skills such as social pleasantries, shopping, exchanging money, eating in restaurants, talking about family, school and weather.</p>
<p>FIN 462 Investment Analysis 4 cr. Offered: Fall Prerequisites: FIN 351, junior standing or instructor's permission. Types of investment securities, bonds, stocks, valuation of common stocks, valuation and grading of bonds and preferred stocks; risks associated with each form of investment. Policies in construction and management of investment portfolio. Current trends and timing of investments.</p>	<p>FR 102 Elementary French II 4 cr. Offered: Winter Prerequisites: FR 101 or one year of high school French. • Satisfies the formal communication studies requirement. FR 102 is a continuation of FR 101. Students add to their proficiency in matters such as those related to health, free time, employment, travel and talking about the past.</p>
<p>FIN 463 Portfolio Management 3 cr. Offered: Contact department for information. Prerequisites: FIN 462, junior standing or instructor's permission. A theoretical and empirical discussion of the effect of information and investor preference on investment decisions.</p>	<p>FR 201 Intermediate French I 4 cr. Offered: Fall Prerequisites: FR 102 or two years of high school French. • Satisfies the formal communication studies requirement. FR 201 reviews all grammar and major topics from FR 101 and FR 102. This course incorporates more reading, writing and conversation than in first-year courses and explores more matters dealing with French cultures. Students expand their proficiency into areas such as expressing opinions and persuading.</p>

<p>FR 202 Intermediate French II 4 cr. Offered: Winter Prerequisites: FR 201 or three years of high school French.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. <p>FR 202 is a continuation of FR 201. Students do considerably more reading and writing than in prior courses. The course expands their cultural and linguistic proficiency.</p>	<p>FR 362 Survey of French Literature of the 18th and 19th Centuries 4 cr. Offered: A literature class is offered every fall Prerequisites: FR 300 or instructor's permission.</p> <p>An examination of some of the masterpieces of French's 18th- and 19th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>FR 299 Apprenticeship 1-2 cr. Offered: Fall, winter Graded S/U Prerequisites: Written department approval.</p> <p>Directed apprentice work and activities that require students to use their knowledge of French and develop their competencies in the language. This includes such things as oral expression, appreciation of grammatical structure, proofreading and editing skills, research skills in French, and skills in teaching French to others.</p> <p><i>Note: May be taken for a maximum of 2 credits.</i></p>	<p>FR 363 Survey of French Literature of the 20th Century 4 cr. Offered: A literature class is offered every fall Prerequisites: FR 300 or instructor's permission.</p> <p>A study of some of the masterpieces of France's 20th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>FR 300 Reading and Writing 4 cr. Offered: Fall Prerequisites: FR 202 or instructor's permission.</p> <p>This course teaches essential reading and writing skills in French. Materials consist of French newspapers, magazines, short stories and will prepare students for subsequent upper level courses.</p>	<p>FR 400 Advanced French Composition and Grammar 4 cr. Offered: Winter Prerequisites: FR 300 or instructor's permission.</p> <p>A review of all major points of the French grammar system, with an especially intense focus on the rich verb system. In an interrelated way, it also provides the opportunity for students to refine their writing skills through composition of essays, letters and resumes.</p>
<p>FR 305 Conversational French and Phonetics 4 cr. Offered: Winter Prerequisites: FR 202 or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. • Satisfies the upper division liberal studies requirement. <p>Students improve their conversational abilities through emphasis on natural forms of speech and by learning how to use language in social encounters. Students learn to communicate and respond to problems as well as discuss major social issues. A variety of contexts are used to create authentic situations.</p>	<p>FR 426 18th Century French Literature 4 cr. Offered: A literature class is offered every fall Prerequisites: FR 300 or instructor's permission.</p> <p>Students examine some of the masterpieces of France's 18th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>FR 310 Introduction to French Civilization and Culture 4 cr. Offered: Every other winter. Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>An overview of early European history; a comprehensive view of France's geography and 2,000 years of social customs and how they are reflected in the arts, music, architecture and literature. The course includes aspects of the interaction between France and the United States.</p> <p><i>Note: FR 310 is taught in English.</i></p>	<p>FR 428 20th Century French Novel 4 cr. Offered: A literature class is offered every fall Prerequisites: FR 300 or instructor's permission.</p> <p>Students examine some of the masterpieces of France's 20th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>FR 361 Survey of French Literature from the Medieval Period to the 17th Century 4 cr. Offered: A literature class is offered every fall Prerequisites: FR 300 or instructor's permission.</p>	<p>FR 438 Cultural and Artistic Heritage of Europe 4 cr. Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <p>Satisfies the foundation of humanities requirement. Satisfies the upper division liberal studies requirement. <i>Two-week tour of Europe follows two weeks on campus.</i></p> <p>This course is a multidisciplinary introduction to contemporary French-speaking Europe. It examines the heritage of modern French-speaking European society as it manifests itself through various cultural artifacts, such as visual art, film, architecture and social customs.</p> <p><i>Note: FR 438 is taught in English.</i></p> <p><i>Note: This course counts toward the French major and minor upon completion of substantial work in French.</i></p>

FR 495 Special Topics in French 1-4 cr.
 Offered: A literature class is offered every fall
 Prerequisites: Instructor's permission and junior standing.
 This is an experimental course based on topics of authors, genres or literature periods not covered in other regularly approved French courses.
Note: May be repeated for credit if topic varies.

FR 498 Directed Study in French 1-4 cr.
 Offered: On demand
 Prerequisites: Instructor and department head permission, junior standing.
 Independent study by qualified students. A directed study course is designed to meet a specific academic requirement of the student who is unable to earn the credit during regularly scheduled course offerings. The student and professor agree to the specific topic and requirements needed to earn the credit.

GC - GEOGRAPHY

Geography Department

GC 001 Geographic Information Science Certified 0 cr.
 Offered: Contact department for information.
 Graded S/U
 Indicates that the student has successfully completed all of the core and elective classes in the GIS minor with a minimum grade point average of 3.00. Students register in this course during the semester in which they complete the requirements for the minor.

GC 100 Physical Geography 4 cr.
 Offered: Fall, winter, summer
 • Satisfies the foundations of natural sciences/mathematics requirement.
 • Does not meet the laboratory course graduation requirement.
 Examination of the earth's physical phenomena to develop a knowledge and appreciation of the relationships between human activities and environmental processes.

GC 105 World Regional Geography 4 cr.
 This course provides a thematic survey of world regions emphasizing environmental, population, cultural, geopolitical and economic development issues.
Note: May not be applied toward any major offered by the Geography Department.

GC 164 Human Geography 4 cr.
 Offered: Fall, winter, summer
 • Satisfies the foundations of social sciences requirement.
 • Satisfies the world cultures requirement.
 Examination of the culturally induced differences in the world pattern of population growth, resource utilization, language, religion, agriculture, industry, political systems and environmental impact.

GC 200 North America 4 cr.
 Offered: On demand
 Analysis of the physical and cultural geography of Canada and the United States.

GC 202 Soils 4 cr. (3-0-2)
 Offered: Fall, summer
 Prerequisites: GC 100 or instructor's permission.
 Study of soil classification, soil survey applications, laboratory and field procedures, and soil management.

GC 205 Introduction to Geographic Research 4 cr.
 Offered: Fall, winter
 Prerequisites: AIS 101, completion of the foundations of communication requirement and sophomore standing.
 An introduction to geographic thought, research methods and writing. Research and writing include an examination of professional journals, book reviews, proposal development and literature searches.

GC 220 Economic Geography 4 cr.
 Offered: Fall
 Analysis of the spatial characteristics of the economic environment and principles related to resource use in the private and public sectors.

GC 225 Introduction to Maps 2 cr. (1-0-2)
 Offered: Fall, winter, summer
 Prerequisite: MA 100 or instructor's permission.
 Introduces major concepts and applications in the reading, analysis and interpretation of maps with special emphasis on USGS topographic maps. Lecture sessions cover major concepts and basic foundational knowledge, while lab sessions emphasize hands-on applications and commonly used techniques.

GC 235 Quantitative Methods 4 cr.
 Offered: Fall, winter, summer
 Prerequisites: CIS 110 and MA 103.
 Presentation and interpretation of data, descriptive statistics and measures of spatial patterns, introduction to statistical inference and measures of association, with particular reference to geographic examples.

GC 246 Earth Science 4 cr. (3-0-2)
 Offered: Contact department for information.
 Prerequisite: Sophomore standing.
 Analysis of essential observations and concepts in meteorology, astronomy, oceanography and geology and their significance in understanding humankind's relation to the environment.
Note: Does not count toward a major or minor in geography or earth science.

GC 255 Physical Geology 4 cr. (3-0-2)
 Offered: Fall, winter, summer
 • Satisfies the foundations of natural sciences/mathematics requirement.
 The structures of the earth, minerals, rocks and the development of landforms.

GC 260 Minerals and Rocks 4 cr. (3-0-2)
 Offered: Fall
 Prerequisite: GC 255.
 The study of common rocks and minerals. Special attention is given to Michigan rocks and minerals, their occurrence, formation and economic importance. Field trips are required and are commonly taken in the laboratory period.

Note: This course meets over the first half of the semester.

GC 295 Special Topics in Geography 2-4 cr.
 Offered: On demand
 Prerequisites: Instructor's permission.
 Special study of problems and/or regions that are not part of the regular offerings.

GC 300 Regional Studies: World Cultures 4 cr.
 Offered: Fall, winter, summer
 Prerequisites: EN 111, EN 211 and sophomore standing.
 • Satisfies the foundations of social sciences requirement.
 • Satisfies the upper division liberal studies requirement.
 • Satisfies the world cultures requirement.
 Regional focus determined by demand and faculty availability.
Note: May be repeated if topic differs.

GC 305 Regional Studies 4 cr.
 Offered: Contact department for information.
 Prerequisites: Completion of the foundations of communication requirement and sophomore standing.
 • Satisfies the foundations of social sciences requirement.
 • Satisfies the upper division liberal studies requirement.
 Regional focus is determined by demand and faculty availability.
Note: May be repeated if topic differs.

GC 310 Urban Geography 4 cr.
 Offered: Winter
 Prerequisites: GC 220 and GC 205, or successful completion of the writing proficiency exam, or instructor's permission.
 Study of the development, form and function of urban places and the interactions of humans, cities and regions.

GC 316 Geography of Tourism 4 cr.
 Offered: Winter
 Prerequisites: GC 164 and GC 205 or instructor's permission.
 Understand the historical development of tourism, its importance to local and national economies and the impact that tourists have on the environment, economy and local cultures.

GC 317 Geography of Food Systems 4 cr.
 Offered: Contact department for information.
 Prerequisites: GC 205 or EN 211 or instructor's permission.
 This course examines the different forces acting upon commodity flows from producer to consumer. Particular attention is given to the transition from agriculture to food manufacturing, globalization and food production and the environmental impact of food manufacturing.

GC 320 Environmental Policy and Regulation 4 cr.
 Offered: Winter
 Prerequisites: Eight hours of GC credit, including ENV 101 and junior standing.
 Examination of the history and status of land use and environmental laws in the United States at the national, regional and state levels. Included is an introduction to the policy-making process in the U.S. as related to the area of environmental policy.

GC 330 Planning Theory and Practice 2 cr.
 Offered: Fall
 Prerequisite: GC 205
 Study of land use planning from its beginnings through contemporary comprehensive and policy plans. The focus is on planning as a technical, political and economic process.

GC 335 Geographic Information Systems 4 cr.
 Offered: Fall, winter, summer
 Prerequisites: GC 225 and GC 235 or instructor's permission.
 The study of computer-based manipulation of geographic information, GIS data integration, visualization and emerging geographic information science issues.

GC 337 Computer Cartography 4 cr. (3-0-2)
 Offered: Every other fall.
 Prerequisites: GC 335 or instructor's permission.

The study of computer-based visualization of geographic data including thematic mapping, cartographic symbols, mapping in GIS environment, cartogram, interactive mapping and mapping on the World Wide Web.

GC 340 Land Use Controls 2 cr.
 Offered: Winter
 Prerequisites: GC 205, GC 330 and junior standing.
 Study of land-use controls and the relationship of these controls to planning theory and practice.

GC 350 Methods and Materials in Teaching Social Studies Education 4 cr.
 Offered: Fall, winter
 Prerequisite: Admission to the methods phase of teacher education.
 Co-requisite: Concurrent enrollment in ED 349.
 Strategies, methods, materials and media that can be used to improve the teaching-learning process of geography in grades seven through 12.

Note: May not be applied toward a non-teaching major or any minor in geography. Can be applied to the secondary education geography minor if required.

GC 360 Population Geography 4 cr.
 Offered: Fall, winter
 Prerequisite: Completion of the foundations of communication requirement and sophomore standing; GC 164 and/or GC 220 recommended.
 • Satisfies the foundations of social sciences requirement.
 • Satisfies the upper division liberal studies requirement.

Examination of demographic processes and how these vary from one society to another. Considers, in depth, data sources, population geography literature and techniques used in analyzing population characteristics and distributions.

GC 365 Historical Geology 4 cr. (3-0-2)
 Offered: Every other winter.
 Prerequisite: GC 255.

Examination of the techniques used by geologists in interpreting earth history. Particular attention is given to the physiographic provinces of the United States with emphasis on the Canadian Shield and interior plains and plateaus.

- GC 370 Geomorphology** 4 cr. (3-0-2)
 Offered: Every other fall.
 Prerequisite: GC 100 or GC 255 or instructor's permission.
 The study of earth surface processes and landforms. Surface features created by streams, glaciers, shorelines, groundwater and wind will be studied. Topographic maps, aerial photographs, the Atlas of Landforms and satellite imagery will be used in labs. Field trips are part of the course.
- GC 385 Weather and Climate** 4 cr. (3-0-2)
 Offered: Winter
 Prerequisite: GC 100 or instructor's permission.
 Advanced examination of atmospheric processes including energy transfer and exchange, global atmospheric circulation, precipitation processes and forms, forms of condensation, weather disturbances and upper-level processes. Global climatic systems, climate change and paleoclimatology, and the impact of human activities on climate are also examined.
- GC 390 Oceanography** 2 cr.
 Offered: Contact department for information.
 Examination of historical, chemical and physical, aspects of the world's oceans and seas. The course also deals with the interaction of water bodies with the atmosphere, solar energy and gravity.
- GC 401 Biogeography** 4 cr. (3-0-2)
 Offered: Fall
 Prerequisites: GC 100, BI 111, junior standing or instructor's permission.
 Examination of the spatial distribution of life forms on a global scale from ecological and historical perspectives. Topics include diversity, extinction and dispersal of species.
- GC 425 Remote Sensing** 4 cr. (3-0-2)
 Offered: Winter
 Prerequisites: GC 225 and a course in statistics (GC 235 or equivalent), junior standing or instructor's permission.
 The study of remotely sensed imagery and datasets for spatial analysis. Introduction to aerial photographic interpretation techniques and computer digital image processing of satellite and other spatial datasets, including preprocessing techniques, enhancements, classification and GIS modeling.
- GC 428 Spatial Analysis** 4 cr.
 Offered: Winter
 Prerequisites: GC 335 or GC 425 or instructor's permission.
 Examines the collection and management of spatial data. The application of appropriate quantitative, GIS and remote sensing techniques for the analysis of geographic problems is emphasized.
- GC 435 Geography of Michigan** 4 cr.
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Study of the physical, historical and cultural geography of Michigan.
- GC 445 Advanced Aerial Photograph Interpretation and Photogrammetry** 2 cr. (1-0-2)
 Offered: Every other winter.
 Prerequisites: GC 100, GC 225, GC 425 and junior standing or instructor's permission.
 An advanced examination of the principles of aerial photograph interpretation and photogrammetric methods. Personal student interests are encouraged through completion of an individual air photo interpretation and mapping project.
- GC 455 Digital Image Processing** 2 cr. (1-0-2)
 Offered: Every other winter.
 Prerequisites: GC 225, GC 425 and junior standing or instructor's permission.
 Digital image processing of satellite- and aircraft-derived remotely sensed data for earth resource management applications.
- GC 465 Hydrology** 4 cr. (3-0-2)
 Offered: Every other fall.
 Prerequisites: GC 235 or MA 171, junior standing or instructor's permission.
 Study of the hydrologic cycle. Precipitation, runoff, interception and groundwater processes are addressed. Measurement techniques and analytical methods are also presented. Informed decision making with regard to the water cycle is stressed. Some field work required.
- GC 470 Environmental Ethics** 4 cr.
 Offered: Fall
 Prerequisites: Twelve hours of GC credit, including ENV 101, GC 205 and senior standing or instructor's permission.
 Various perspectives and philosophies concerning the natural environment and resource utilization are explored to provide students with a basis to develop an ethical perspective. An in-depth survey of both historical and contemporary viewpoints will be conducted. The human factor in addressing natural resource issues is emphasized.
- GC 475 Environmental Impact Assessment** 4 cr.
 Offered: Fall
 Prerequisites: GC 205, GC 320 and senior standing or instructor's permission.
 A field course in which students develop and organize an environmental impact assessment for a local project. Involves the laws governing environmental decisions and the laws governing the content of environmental impact statements (as mandated by NEPA).
- GC 485 Planning Practicum** 4 cr.
 Offered: Winter
 Prerequisites: GC 205, GC 330, GC 335, GC 340 and senior standing or instructor's permission.
 Development of planning skills by working through planning problems in a real world context.
- GC 489 Human Impact Upon the Environment** 4 cr.
 Offered: Fall, winter
 Prerequisites: GC 205, GC 235 and 24 GC credit hours, junior standing or instructor's permission.
 Examination of historical and contemporary roles of humans as a major agent of environmental change on Earth. Emphasis will be on anthropogenic changes to plant and animal communities; water, air and soil resources; and the potential for human induced global climate change.

<p>GC 490 Seminar 2-4 cr. Offered: On demand Prerequisites: Departmental major and junior standing or instructor's permission. The opportunity to apply skills and concepts developed within departmental programs.</p>	<p>GR 201 Intermediate German I 4 cr. Offered: Fall Prerequisites: GR 102 or two years of high school German. • Satisfies the formal communication studies requirement. A continuation of GR 102. Students do considerably more reading and writing than in prior courses. The course expands their cultural proficiency.</p>
<p>GC 491 Internship 2-6 cr. Offered: Fall, winter Graded S/U Prerequisites: Overall grade point average of 2.75 and 88 credits hours or instructor's permission. A practical experience with a private, municipal, county, state and/or federal agency.</p>	<p>GR 202 Intermediate German II 4 cr. Offered: Winter Prerequisites: GR 201 or three years of high school German. • Satisfies the formal communication studies requirement. A continuation of GR 201. Students do considerably more reading and writing than in prior courses. The course expands their cultural and linguistic proficiency.</p>
<p>GC 492 Research in Water Science 2 cr. (0-0-6) Offered: On demand Prerequisites: Water science major and junior standing or instructor's permission. Introduction to environmentally related research. Projects are pursued in cooperation with a faculty research adviser. The research adviser and research problem must be selected a semester prior to registration. Students must submit a written and oral final report.</p>	<p>GR 299 Apprenticeship 1-2 cr. Offered: Fall, winter Graded S/U Prerequisites: Written department approval. Directed apprentice work and activities that require students to use their knowledge of German and develop their competencies in the language. This includes such things as oral expression, appreciation of grammatical structure, proofreading and editing skills, research skills in German and skills in teaching German to others. <i>Note: May be taken for a maximum of 2 credit hours.</i></p>
<p>GC 495 Special Topics in Geography 2-4 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission. Special study of problems and/or regions that are not part of the regular offerings.</p>	<p>GR 300 German Reading and Writing 4 cr. Offered: Every other winter. Prerequisites: GR 202 or instructor's permission. This course teaches essential reading and writing skills in German. Readings will include literary works in three genres. Student writings and revisions will serve as the basis for developing grammatical and stylistic skills.</p>
<p>GC 498 Directed Studies in Geography 1-4 cr. Offered: On demand Prerequisite: Major or minor in geography, earth science, conservation or planning, junior standing or instructor's permission. An opportunity for the student to work on a specific topic.</p>	<p>GR 305 Conversational German 4 cr. Offered: Every other winter. Prerequisites: Completion of the foundations of communication requirement, GR 202 or instructor's permission. • Satisfies the formal communication studies requirement. • Satisfies the upper division liberal studies requirement. GR 305 focuses on improving the conversational abilities of students through reinforcement of three basic language functions: description, narration and opinion. Students learn how to communicate and respond to problems and discuss major social issues.</p>
<p>GR - GERMAN Modern Languages and Literatures Department</p>	
<p>GR 101 Elementary German I 4 cr. Offered: Fall • Satisfies the formal communication studies requirement. GR 101 is an introduction to the German language and cultures of the people who speak it. Students learn rudimentary "survival" skills such as social pleasantries, shopping, exchanging money, eating in restaurants, and talking about family, school and weather.</p>	<p>GR 310 Introduction to German Civilization and Culture 3 cr. Offered: Fall Prerequisites: Completion of the foundations of communication requirement and sophomore standing. • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. This course is a multidisciplinary introduction to the culture and civilization of Germany. It offers a comprehensive view of the historical, geographical, political and economic factors which have helped shape today's German society. <i>Note: This course counts toward the German minor only upon completion of GR 410. GR 310 is taught in English.</i></p>
<p>GR 102 Elementary German II 4 cr. Offered: Winter Prerequisites: GR 101 or one year of high school German. • Satisfies the formal communication studies requirement. A continuation of GR 101. Students add to their proficiency in matters such as those related to health, free time, employment, travel and talking about the past.</p>	

GR 400 Advanced German Composition and Grammar 4 cr.
Offered: On demand
Prerequisites: GR 300 or instructor's permission.

A review of all major points of the German grammar system, with an especially intense focus on the rich verb system. In an interrelated way, it also provides the opportunity for students to refine their writing skills through the composition of essays, letters and resumes.

GR 410 Advanced German Civilization and Culture 1 cr.
Offered: Fall
Prerequisites: Completion of GR 202 or equivalent proficiency and completion of GR 310 or concurrent enrollment in GR 310.

This course explores in depth and in German the topics and perspectives explored in GR 310.

Note: GR 410 is taught in German.

GR 495 Special Topics in German 1-4 cr.
Offered: On demand
Prerequisites: Junior standing, instructor and department head permission.

This is an experimental course based on topics of authors, genres or literature periods not covered in other regularly approved German courses.

Note: May be repeated for credit if topic varies.

GR 498 Directed Study in German 1-4 cr.
Offered: On demand
Prerequisites: Junior standing, instructor and department head permission.

Independent study by qualified students. A directed study course is designed to meet a specific academic requirement of the student who is unable to earn the credit during regularly scheduled course offerings. The student and professor agree to the specific topic and requirements needed to earn the credit.

GRN - GERONTOLOGY

Sociology and Social Work Department

GRN 001 Internship Completion 0 cr.
Offered: On demand
Graded S/U

Prerequisites: Completion of 4 credits of GRN 490 or GRN 490 plus additional field placement credits to equal 4 credits.

Indicates that the student has completed the internship requirement for the gerontology minor.

GRN 101 Introduction to Gerontology 4 cr.
Offered: Winter

Course provides an overview of the physical, psychological and social aspects of aging. It examines the aging process as experienced by the individual and how aging impacts society. Topics include normal and abnormal aging and the impact that class, race, ethnicity and gender exert on the life course.

GRN 490 Gerontology Field Placement 1-4 cr.
Offered: On demand
Prerequisites: Gerontology minor, completion of gerontology minor core.

Students who are required to take a field placement for their major would have to enroll for at least one GRN 490 credit and make the additional three credit hours up with an approved gerontology minor course substitution.

Provides students in the gerontology minor with the opportunity to interact with older adults in a social or health care setting. Course also provides a learning experience for students. In cooperation with the professional community serving older adults, students get hands-on experience designed to benefit students in their career objectives.

HL - HEALTH

Health, Physical Education and Recreation Department

HL 101 Medical Terminology for Health Educators 1 cr.
Offered: Fall, winter

This self-directed course challenges students in the health professions to learn and apply common medical terms and abbreviations.

HL 110 Introduction to Health and Fitness Education 2 cr.
Offered: Fall

Introduction to the logic of health promotion and health education including historical context, professional organizations, behavior change models, professional ethics, programming models, career, internship and graduate school opportunities.

HL 111 Personal Wellness 4 cr.
Offered: Fall, winter

Study of the intellectual, emotional, social, physical, occupational, environmental and spiritual components of wellness with a view to addressing developmental tasks related to decisions concerning self-direction and self-management. Addresses health literacy.

HL 150 Health Education for the Elementary School Teacher 2 cr.
Offered: Fall, winter
Prerequisite: Admission to teacher education.

Provides a framework for comprehensive school health education. Emphasis on health information and strategies for teaching health-promoting and disease-preventing behaviors.

HL 211 Health Aspects of Aging 3 cr.
Offered: Fall

An exploration of preventive health behaviors impacting normal aging and common age-related disease processes. Theoretical issues in promoting the health of older adults are introduced and applied.

HL 212 Suicide Education 2 cr.
Offered: Every other fall.

Introduction to child, adolescent and adult suicides, the suicide personality, basic intervention techniques and the professional's personal values and attitudes toward suicide.

<p>HL 213 Death Education 2 cr. Offered: Every other fall. This is an interdisciplinary study of death, dying and bereavement in which cultural and individual values and beliefs are explored.</p>	<p>HL 311 Health Communication 2 cr. Offered: Fall Prerequisite: HL 111 and HL 240. The course provides theoretical and practical communication techniques required for health educators.</p>
<p>HL 215 Cardiovascular Risk Factor Education 1 cr. Offered: Winter and on demand. Exploration of factors that contribute to the development of diseases of the vascular system, including heart disease.</p>	<p>HL 315 Consumer Health and Quackery 3 cr. Offered: Fall Introduction to the health care delivery system in the United States and the use of that system by the consumer. Special emphasis on questionable health practices, health practitioners and health products.</p>
<p>HL 240 Community Health 2 cr. Offered: Fall This course provides an introduction to the health of populations through a study of community health and public health organization and practice in the United States.</p>	<p>HL 322 International Health Issues 4 cr. Offered: Winter Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>A survey of the cultural, economic, environmental, historical and political concepts associated with the delivery of health care to various world populations. Major determinants of health status in several regions of the world are studied in concert with patterns of intervention at the local, community, national and international levels.</p>
<p>HL 242 Emergency Health Care 2 cr. (1-0-2) Offered: Fall, winter Study of basic concepts and techniques for administering emergency first aid and cardio-pulmonary resuscitation to those who are sick or injured. Satisfactory completion of the course entitles the student to the American Red Cross certificate for "Responding to Emergencies."</p>	<p>HL 340 School Health Program 3 cr. Offered: Winter Survey of school health programs in middle and high schools including health instruction, school health services and the school health environment.</p>
<p>HL 245 Basic Emergency Medical Technician Training I 4 cr. (2-0-4) Offered: Fall Prerequisites: HL 101 and BI 104 or instructor's permission. Instruction in pre-hospital emergency medical care of the sick and injured. Successful completion of both HL 245 and HL 246 is required before the student may apply to take the National Registry Basic Emergency Medical Technician (EMT) licensing exam for the State of Michigan. <i>Note: May not be applied toward the secondary education major or secondary education minor in health education.</i></p>	<p>HL 350 Methods and Materials in Teaching Health Education 3 cr. Offered: Fall Prerequisites: Admission to the methods phase of teacher education and HL 340. Co-requisite: Concurrent enrollment in ED 349. Study of methods and scientific materials that support health instruction programs in the secondary schools and their measurement and evaluation. <i>Note: May not be applied toward a non-teaching major or minor in health education. May be applied to the secondary education health education minor if required.</i></p>
<p>HL 246 Basic Emergency Medical Technician Training II 4 cr. (2-0-4) Offered: Winter Prerequisite: HL 245. A continuation of HL 245. <i>Note: May not be applied toward any major or minor in health education other than the minor in Emergency Medical Services.</i></p>	<p>HL 367 Planning and Evaluation in Health and Fitness 4 cr. Offered: Fall, winter Focus on planning safe, relevant and effective health programs. Links to certified health education specialist (CHES) and American College of Sports Medicine (ACSM) outcomes.</p>
<p>HL 250 Applied Health Theory 2 cr. Offered: Fall Prerequisite: HL 110 or instructor's permission An applied study of health theory in relation to behavior change at the individual and community levels. Course materials will be taught within the context of the PRECEDE/PROCEED health-planning model.</p>	<p>HL 368 Programming in Health and Fitness 2 cr. Offered: Winter Prerequisite: HL 367 or instructor's permission. Explores how health promotion experts use planning and evaluation concepts/models to determine the effectiveness of their programs. Focus is on corporate/worksites health promotion.</p>
<p>HL 295 Special Topics in Health Education 1-4 cr. Offered: Fall, winter Detailed study of one or more special problems in health education.</p>	
<p>HL 296 Special Topics in Health Education 1-4 cr. Offered: Fall, winter Graded S/U Detailed study of one or more special problems in health education.</p>	

HL 430 Grant Writing for Health Educators 2 cr.
 Offered: Winter
 Prerequisites: Senior standing or instructor's permission
 An exploration of issues related to grant funding for health education programming. This will include the identification of grant sources, grant writing, grant management and continued funding.

HL 440 Critical Issues in Health Education 3 cr.
 Offered: Winter
 Prerequisites: HL 111, junior standing or instructor's permission.
 A multidisciplinary approach to the study of health-related issues within our changing society using critical thinking and scientific thinking methodologies. Focuses on health literacy competencies.

HL 450 Human Sexuality: Educational Issues 3 cr.
 Offered: Fall
 Prerequisites: Junior standing or instructor's permission.
 Study of materials relevant to sex education programs found in public school systems, as well as materials related to human sexuality.

HL 460 Human Disease Education 4 cr.
 Offered: Winter
 Prerequisites: HL 101, HL 111 and a course in human anatomy and physiology, junior standing or instructor's permission.
 Introduction to the rudiments of disease processes and basic components of diseases commonly found in our society.

HL 470 Electrocardiography 1 cr.
 Offered: Winter
 Prerequisites: Junior standing or instructor's permission.
 The course provides a study of the electrophysiological basis of the ECG. The development of a conceptual understanding of cardiac anatomy, events and metabolism underlying various ECG responses will be stressed.

HL 485 Drug Use and Abuse 3 cr.
 Offered: Fall, winter
 Prerequisites: Junior standing or instructor's permission.
 Survey of the psychosocial, medical and legal aspects of drug use as it exists in our country. Emphasis is placed on the non-medical use of drugs as well as on the self-destructive use of drugs leading to chemical dependencies.

HL 490 Seminar in Health Education 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Detailed exploration of special topics and faculty research.

HL 491 Internship in Management of Health and Fitness 2-8 cr.
 Offered: Fall, winter
 Graded S/U
 Prerequisites: PE 471 and PE 472 and junior standing or instructor's permission.

Supervised experience enabling the student to apply theoretical knowledge in a practical situation.
Note: Up to 4 credit hours may be earned for on-campus internship, up to 8 credit hours may be earned through an off-campus internship. If off-campus internship is chosen, approval of internship site and supervisor is required. (Refer to department's off-site internship packet.)

HL 492 Field Experience in Community Health 2-4 cr. (Arr.)
 Offered: Fall, winter
 Prerequisites: Prior approval of coordinator for health education, junior standing or instructor's permission. Approval of fieldwork site and supervisor required.
 Application of certified health education specialist (CHES) and health literacy competencies in a community health setting.

HL 495 Special Topics in Health Education 1-4 cr.
 Offered: Fall, winter
 Prerequisites: Junior standing or instructor's permission.
 Detailed study of one or more special topics in health education.

HL 496 Special Topics in Health Education 1-4 cr.
 Offered: Fall, winter
 Graded S/U
 Prerequisites: Junior standing or instructor's permission.
 Detailed study of one or more special topics in health education.

HL 497 Directed Studies in Health Education 1-4 cr.
 Offered: Fall, winter
 Graded S/U
 Prerequisites: Junior standing or instructor's permission.
 Independent study or research in health education.

HL 498 Directed Studies in Health Education 1-4 cr.
 Offered: Fall, winter
 Prerequisites: Junior standing or instructor's permission.
 Independent study or research in health education.

HM - HOSPITALITY MANAGEMENT Technology and Occupational Sciences Department

HM 100 Food Selection and Preparation 4 cr. (3-0-2)
 Offered: Contact department for information.
 Prerequisite or co-requisite: HM 111.

The student will be introduced to the principles of food selection, composition and preparation. This includes purchasing guides and nutritional principles. The lab portion will serve to reinforce the lecture sessions.

HM 111 Food Service Sanitation 2 cr.
 Offered: Fall, winter

A study of food service sanitation, emerging pathogens, personal hygiene and the role management plays in employee instruction relative to federal and Michigan food codes. Successful completion of an examination from the Educational Foundation will result in National Restaurant Association certification.

<p>HM 112 Introduction to the Hospitality Industry 4 cr. Offered: Fall</p> <p>This course provides a basic understanding of the hospitality industry and its various segments as they relate to organizational dynamics and career paths.</p>	<p>Students gain knowledge and experience while operating the Jacobetti Center Chez Nous restaurant. The student will be exposed to the development of production packets, the proper styles of service, the manager's role in the dining room and the computerized point-of-sale system.</p>
<p>HM 115 Professional Cooking I 4 cr. (1-0-9) Offered: Fall</p> <p>Prerequisite or co-requisite: HM 111, majors only.</p> <p>Students gain experience in quantity production by operating the Jacobetti Center Culinary Cafe, rotating through front and back of the house stations, learning to cook and serve quantity foods for public consumption.</p>	<p>HM 225 Banquets and Catering 4 cr. (1-0-6) Offered: Winter</p> <p>Prerequisites: HM 210 or instructor's permission.</p> <p>Hotel banquet operations and catering organization procedures including setup, layout, pricing, costing, on- and off- premise events, bar and wine service will be discussed in depth.</p>
<p>HM 116 Baking I 4 cr. (1-0-6) Offered: Contact department for information.</p> <p>Prerequisite or co-requisite: HM 111.</p> <p>Topics covered include ingredients and their purpose, mixing methods, the basic steps to baking and general procedures in the production of cookies, muffins, biscuits, breads, rolls and specialty items. Students gain practical experience by preparing baked goods for the Jacobetti Center Culinary Cafe operation and special function orders.</p>	<p>HM 226 Purchasing for the Hospitality Industry 2 cr. Offered: Winter</p> <p>This course examines selection and procurement of both food and non-food items from a management viewpoint. Topics include receiving, storage, distributing, accounting and security issues.</p>
<p>HM 120 Professional Cooking II 4 cr. (1-0-9) Offered: Winter</p> <p>Prerequisites: HM 111 and HM 115.</p> <p>Experience in restaurant food production by participating in the operation of the Jacobetti Center Chez Nous restaurant and Culinary Cafe.</p>	<p>HM 240 Hotel and Lodging Operations 3 cr. Offered: Fall</p> <p>A study of the organizational structure within which a hotel operates, with special emphasis on the economic and financial aspects of lodging operations. Basic information about departmental development, marketing and industry trends will be provided.</p>
<p>HM 125 Professional Baking II 4 cr. (1-0-6) Offered: Contact department for information.</p> <p>Prerequisites: HM 111 and HM 116.</p> <p>Students further their knowledge of baking through learning the techniques and the preparation of cakes, pies, pastries, tortes, puff pastry and specialty items. Preparing baked goods and desserts for the Jacobetti Center Chez Nous restaurant operation, Culinary Cafe and special functions provides practical experience.</p>	<p>HM 298 Special Topics in Hospitality 1-4 cr. Offered: Contact department for information.</p> <p>Various topics of current interest to the student. Topics will require departmental approval and will pertain to the food service and hospitality industry.</p>
<p>HM 210 Supervision in the Hospitality Industry 4 cr. (1-0-9) Offered: Fall</p> <p>Prerequisites: HM 111 and HM 120.</p> <p>A study of the supervisory skills necessary to manage a staff of hospitality employees. Students get hands-on supervisory experience in the Jacobetti Center Culinary Cafe and production areas and in using a computerized point-of-sale system.</p>	<p>HM 310 Menu Analysis and Design 4 cr. Offered: Fall</p> <p>Prerequisite: HM 221.</p> <p>A study of the essential elements necessary for developing a successful food service menu. Aspects of design, sales mix, marketing and menu analysis will be discussed. Exercises will result in students designing a food service menu.</p>
<p>HM 214 Cost Control for the Hospitality Industry 4 cr. Offered: Fall</p> <p>Prerequisites: MA 100 or instructor's permission.</p> <p>This course presents practical techniques for protecting profits in the hospitality industry by building a sound foundation of management cost and quality control procedures throughout the hospitality operation.</p>	<p>HM 315 Multicultural Foods 4 cr. (3-0-2) Offered: Contact department for information.</p> <p>Prerequisite: HM 221 or instructor's permission.</p> <p>A study of the culinary practices of various cultures. Practical experience in preparing and tasting foods of selected cultures in a laboratory situation will be provided.</p>
<p>HM 221 Hospitality Services Management 4 cr. (1-0-6) Offered: Winter</p> <p>Prerequisite: HM 210.</p>	<p>HM 318 Resort Development 4 cr. Offered: Contact department for information.</p> <p>Prerequisites: Junior standing or department approval.</p> <p>A study of the world of resorts and resort management. The resort industry will be examined from a managerial point of view, with emphasis on project planning, marketing, promotion and recreational activities.</p>

HM 330 Beverage and Bar Management 4 cr.
 Offered: Fall
 Prerequisites: HM 214 or instructor's permission.
 This course provides a study of the purchase, receipt, storage, control and retail sales of both alcohol and non-alcohol beverages. A thorough overview of wines, beers and spirits is provided.

HM 401 Internship 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Practical, applied experience involving placement in a job situation.

HM 450 Hospitality Operations Plan and Design 4 cr.
 Offered: Winter
 Prerequisite: HM 310, junior standing or instructor's permission.
 This course will teach students about planning and design techniques used in the construction of a hospitality facility from the initial concept to the opening of the facility for business.

HM 480 Current Issues in the Hospitality Industry 4 cr.
 Offered: Winter
 Prerequisites: Senior status, majors and minors only or instructor's permission.
 This course will look at contemporary issues in the field of hospitality management and address their implications for the hospitality professional.

HM 495 Special Topics in Hospitality 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: Departmental approval, junior standing.
 Various topics of current interest to the student. Topics will require departmental approval and will pertain to the hospitality industry.

HM 498 Directed Study in Hospitality Management 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing and instructor's permission.
 Individual study of a significant topic or problem in the practice of hospitality management.

HN - HUMAN NUTRITION

Health, Physical Education and Recreation Department

HN 210 Nutrition for Humans 4 cr.
 Offered: Fall, winter, summer
 Survey of dietary requirements and processes, sources of the various nutrients, the relationships of food to health, the role of diet in prevention of diseases and methods of improving eating habits at different age levels and in different cultures.

HN 297 Directed Studies in Nutrition 1-4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Instructor and department head permission. For freshmen or sophomore students only.
 Individual study.

HN 298 Directed Studies in Nutrition 1-4 cr.
 Offered: On demand
 Prerequisites: Instructor and department head permission. For freshmen or sophomore students only.
 Individual study.

HN 301 Nutrition for Health Professions 4 cr.
 Offered: Fall, winter
 Principles of normal and therapeutic nutrition as they relate to the treatment of various physical and mental disorders and to various medications.

HN 362 Cultural Food Patterns 4 cr.
 Offered: Winter
 Prerequisites: Junior standing or instructor's permission.
 Consideration of economic, environmental, historical and psychological aspects of food habits; influence of national and international dietary patterns on nutrition of individuals.

HN 415 Obesity and Weight Management 4 cr.
 Offered: Fall
 Prerequisites: HN 210, BI 202 junior standing or instructor's permission.
 Study of current theories surrounding the causes and control of obesity. Students will apply their understanding of the fundamentals of human nutrition and exercise to construct programs containing sound principles of weight management and total fitness.

HN 451 Advanced Nutrition 4 cr.
 Offered: On demand
 Prerequisites: Students are encouraged to select a total of eight credits from the following: CH 107, CH 108, BI 104, BI 202, HN 210. Junior standing or instructor's permission.
 Study of human nutrition based on fundamental knowledge of biochemistry and physiology. Lectures and reports of current research.

HN 495 Special Topics in Nutrition 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Basic course in area of study.

HN 496 Special Topics in Nutrition 1-4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Junior standing or instructor's permission.
 Basic course in area of study.

HN 497 Directed Studies in Nutrition 1-4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Junior standing and instructor and department head permission.
 Individual study.

HN 498 Directed Studies in Nutrition 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing and instructor and department head permission.
 Individual study.

HON - HONORS

Honors Program

HON 001 Honors Program Completion 0 cr.

Offered: Fall

Graded S/U

Prerequisites: Enrollment in the honors program, senior status, completion of core and cognate honors courses.

Indicates that the student has successfully completed all of the requirements of the honors program, including the honors thesis or equivalent. Student registers in this course during the semester in which they complete the honors program requirements by co-enrolling in a senior thesis-type course.

HON 101 Origins of Western Values-Antiquity 4 cr.

Offered: Winter

Prerequisites: Enrollment in the honors program.

This interdisciplinary course investigates the origins of the ideas and values central to Western culture through primary sources of antiquity.

HON 102 Origins of Western Values-Medieval to Modern 4 cr.

Offered: Winter

Prerequisites: Enrollment in the honors program; successful completion of HON 101.

This interdisciplinary course investigates the origins of the ideas and values central to Western culture through primary sources since the Middle Ages.

HON 111 Modern Art-European Sources 4 cr.

Offered: Fall

Prerequisite: Enrollment in honors program.

This interdisciplinary course will investigate the aesthetic theories and art forms that influenced music, literature, performance and the visual arts with a non-exclusive focus on Europe.

HON 112 Modern Art-American Sources 4 cr.

Offered: Winter

Prerequisites: Enrollment in the honors program; successful completion of HON 111.

This interdisciplinary course will investigate the aesthetic theories and art forms that influenced music, literature, performance and the visual arts in the Western hemisphere.

HON 211: The Social Sciences 4 cr.

Offered: Winter

Prerequisites: Sophomore status, successful completion of the first-year honors sequence, and enrollment in the honors program.

This interdisciplinary course introduces the evolution, application and social impact of major ideas and developments in the social sciences such as anthropology, economics, geography, history, political science and sociology.

HON 212: The Natural Sciences 4 cr.

Offered: Fall

Prerequisites: Sophomore status; successful completion of the first-year honors sequence, and enrollment in the honors program.

This interdisciplinary course introduces the evolution, application and social impact of major ideas and developments in the natural sciences such as astronomy, biology, chemistry, mathematics, physics, psychology and earth sciences.

HP - HEALTH PROMOTION

Health, Physical Education and Recreation Department

HP 090 Geriatric Swimming 1 cr.

Offered: Fall, winter, summer

Swimming exercise for senior citizens.

HP 091 Geriatric Exercise 1 cr.

Offered: Fall, winter, summer

Conditioning exercise for senior citizens.

HP 200 Physical Well Being 1 cr.

Offered: Fall, winter, summer

A lecture class on the foundations and principles of physical fitness and health. Students learn to recognize the hazards of being unfit and inactive, determine individual levels of physical fitness, and acquire the knowledge and skills to achieve and maintain a personal satisfaction level of physical fitness.

HP 205 Archery 1 cr.

Offered: On demand

Students learn skills and techniques of archery.

HP 206 Backpacking 1 cr.

Offered: Fall

Students learn about backpacking and planning a trip. A weekend trip off-campus is required.

HP 207 Badminton-Beginning 1 cr.

Offered: Winter

Students learn basic skills and techniques of badminton.

HP 208 Basketball 1 cr.

Offered: Fall

Students learn skills and techniques of basketball.

HP 209 Bicycling-Mountain 1 cr.

Offered: Fall

Students learn skills and techniques of off-road bicycling.

HP 211 Bowling-Beginning 1 cr.

Offered: Fall, winter

Students learn skills and techniques of bowling. Lab fee required.

HP 212 Flat Water Canoeing 1 cr.

Offered: Fall

Emphasis on tandem flat water canoeing, although solo paddling is also introduced. A swim test must be passed during the first class to continue in the course.

<p>HP 212S Solo Flat Water Canoeing 1 cr. Offered: On demand</p> <p>Emphasis on solo flat water canoeing. A swim test must be passed during the first class to continue in the course. Course usually meets on two weekends.</p>	<p>HP 226 Modern Dance-Beginning 1 cr. Offered: Fall</p> <p>Students learn skills and techniques of modern dance.</p>
<p>HP 212F Freestyle Canoeing 1 cr. Offered: On demand Prerequisite: HP 212 or HP 212S.</p> <p>Students may emphasize solo or tandem freestyle canoeing. A swim test must be passed during the first class to continue in the course. Course usually meets on two weekends.</p>	<p>HP 226A Modern Dance-Intermediate 1 cr. Offered: Winter</p> <p>Designed for the student who already has basic modern dance skills.</p>
<p>HP 213 Sea Kayaking 1 cr. Offered: On demand</p> <p>Students learn sea kayaking techniques, trip planning and navigation, weather and environmental hazards, and safety. Students provide their own equipment or they may rent it. A swim test must be passed during the first class to continue in the course. Course usually meets on two weekends.</p>	<p>HP 226C Aerobics 1 cr. Offered: Fall, winter</p> <p>Students learn and participate in various forms of aerobic exercise, including step aerobics.</p>
<p>HP 216 Skating-Beginning 1 cr. Offered: Fall, winter</p> <p>Students learn basic skills and techniques of skating.</p>	<p>HP 227 Orienteering 1 cr. Offered: On demand</p> <p>Students learn skills and techniques of running in wooded terrain utilizing maps and compasses.</p>
<p>HP 216A Skating-Figure 1 cr. Offered: On demand</p> <p>Students learn basic skills and techniques of figure skating.</p>	<p>HP 228 Power Skating and Hockey 1 cr. Offered: Winter</p> <p>Students learn skills and techniques of power skating and hockey.</p>
<p>HP 216B Skating-Intermediate Figure 1 cr. Offered: On demand</p> <p>Designed for the figure skater who already has basic skills.</p>	<p>HP 229 Racquetball 1 cr. Offered: Fall, winter</p> <p>Students learn skills and techniques of racquetball.</p>
<p>HP 217 Fly and Bait Casting 1 cr. Offered: Summer</p> <p>Students learn skills and techniques of fly and bait casting.</p>	<p>HP 230 Rock Climbing 1 cr. Offered: Fall, winter, summer</p> <p>Students learn skills and techniques of rock climbing.</p>
<p>HP 218 Folk Dance 1 cr. Offered: Fall</p> <p>Students learn skills and techniques of folk dance.</p>	<p>HP 230A Rock Climbing-Intermediate 1 cr. Offered: Winter</p> <p>Designed for the climber who already has basic skills.</p>
<p>HP 219 Golf-Beginning 1 cr. Offered: Summer</p> <p>Students learn skills and techniques of golf.</p>	<p>HP 231 Skiing-Beginning 1 cr. Offered: Winter</p> <p>Students learn skills and techniques of downhill skiing. Lab fee required. Students may rent equipment if needed.</p>
<p>HP 222 Hiking 1 cr. Offered: Fall, winter, summer</p> <p>Students learn about hiking in the wilderness and planning hiking trips.</p>	<p>HP 231A Skiing-Intermediate 1 cr. Offered: Winter</p> <p>Designed for the skier who already has basic skills. Lab fee required. Students may rent equipment if needed.</p>
<p>HP 223 Individually Prescribed Program 1 cr. Offered: On demand</p> <p>Individually designed activity for someone who is physically unable to participate in any other HP activity.</p>	<p>HP 231B Skiing-Cross Country 1 cr. Offered: Winter</p> <p>Students learn skills and techniques of cross country skiing. Lab fee required. Students may rent equipment if needed.</p>
<p>HP 224 Jogging 1 cr. Offered: Fall, winter</p> <p>Students learn skills and techniques of jogging.</p>	<p>HP 232 Snowboarding-Beginning 1 cr. Offered: Winter</p> <p>Students learn skills and techniques of snowboarding.</p>
	<p>HP 233 Snowshoeing 1 cr. Offered: Winter</p> <p>Students learn skills and techniques of snowshoeing.</p>

HP 234 Soccer	1 cr.	HP 239E Swimming-Advanced SCUBA	2 cr.
Offered: Fall, winter		Offered: Fall	
Students learn skills and techniques of soccer.		Prerequisite: HP 239D or instructor's permission.	
		Designed for the diver who already has basic skills.	
HP 235A Country and Square Dancing	1 cr.	HP 241 Tennis-Beginning	1 cr.
Offered: Winter		Offered: Fall, summer.	
Students learn skills and techniques of traditional western-style American dancing. The emphasis will be on square, contra and set dances.		Students learn skills and techniques of tennis.	
Country line and old fashioned partner dancing will also be taught.			
HP 235B Ballroom and Latin Dancing	1 cr.	HP 241A Tennis-Intermediate	1 cr.
Offered: Fall		Offered: On demand	
Students learn skills and techniques of American ballroom dancing.		Designed for the tennis player who already has basic skills.	
Waltz, Tango, Fox Trot, Rumba, Cha Cha and Mambo will be emphasized. Polkas, party dances and mixers will also be taught.			
HP 235C Swing and Salsa Dancing	1 cr.	HP 242 Touch Football	1 cr.
Offered: Winter		Offered: Fall	
Students learn skills and techniques of swing dancing. Emphasis will be on East Coast Swing (or Jitterbug), Salsa, Merengue and Samba. West Coast Swing will also be taught.		Students learn the skills and techniques of touch football.	
HP 236 Softball	1 cr.	HP 244 Volleyball-Beginning	1 cr.
Offered: On demand		Offered: Fall, winter	
Students learn skills and techniques of softball.		Students learn skills and techniques of volleyball.	
HP 238 Winter Camping	1 cr.	HP 244A Volleyball-Intermediate	1 cr.
Offered: Winter		Offered: Fall, winter	
An introduction to winter camping. Major topics include clothing, equipment, food and outdoor cooking, trip planning, shelters, health and safety, basic principles of outdoor living and winter travel techniques. Two weekend trips are required.		Designed for the volleyball player who already has basic skills.	
HP 239 Swimming-Beginning	1 cr.	HP 245 Weight Training and Conditioning	1 cr.
Offered: Fall		Offered: Fall, winter	
Students learn skills and techniques of swimming.		Students learn skills and techniques of weight training and conditioning.	
HP 239A Swimming-Intermediate	1 cr.	HP 245A Weight Training and Conditioning-Intermediate	1 cr.
Offered: Fall, winter		Offered: Winter	
Designed for the swimmer who already has basic skills.		Designed for the student who already has basic weight-training skills.	
HP 239B Swimming-Lifeguard Training	1 cr.	HP 246 Karate	1 cr.
Offered: Winter		Offered: Fall, winter	
American Red Cross training for lifeguard certification.		Students learn skills and techniques of karate.	
HP 239C Swimming-WSI	1 cr.	HP 247 Yoga-Beginning	1 cr.
Offered: On demand		Offered: Fall, winter	
American Red Cross training for certification as a swimming instructor.		Students learn skills and techniques of yoga.	
HP 239D Swimming-SCUBA	1 cr.	HP 249 Hunter Safety Education	1 cr.
Offered: Fall, winter		Offered: Fall	
Students learn skills and techniques of SCUBA.		Students learn basics of hunting safety and receive a Michigan Hunter Safety certificate.	
		HP 253 Adventure Based Learning	1 cr.
		Offered: Fall, winter	
		Involves active participation and experiential learning in a variety of adventure-based activities (games, initiatives, climbing wall, ropes course) with an emphasis on the development, application and transfer of individual and group skills.	

HP 259 Tai-Chi-Beginning 1 cr.

Offered: Fall, winter

Students will learn the techniques of Tai Chi Chuan, a soft style Chinese martial art that involves low impact exercises.

HP 259A Tai Chi-Intermediate 1 cr.

Offered: On demand

This form of Tai Chi is different from other forms in that it consists of more dramatic turns, kicks and jumps. It is more appropriate for those who have some experience with Tai Chi practice.

HP 260 Rape Aggression Defense Systems 1 cr.

Offered: Fall, winter

The rape aggression defense approach to personal safety education embodies a practical blend of threat avoidance strategies and real-world assault resistance tactics for women.

HP 295 Special Topics in Health Promotion 1 cr.

Offered: On demand

Students learn skills and techniques of new activities.

Note: May be repeated if topic differs.

HR-COSMETOLOGY INSTRUCTOR

Technology and Occupational Sciences Department

HR 060 Theory of Cosmetology Fundamentals 4 cr.

An orientation and review of all cosmetology curricula. The curriculum discussed is set by the State of Michigan. The related knowledge is necessary for successful completion of the state test for licensure.

HR 061 Theory of Cosmetology Supervision 4 cr.

Applications and awareness are discussed regarding the monitoring of students practicing cosmetology application on the general public and mannequins. Strategies for making practical and theory presentations that relate to the practice of cosmetology are also discussed. The procedures presented meet State of Michigan standards for licensure.

HR 062 Theory of Cosmetology Administration 2 cr.

An awareness of the laws and rules required by the State of Michigan for cosmetology school administration and record keeping are discussed.

HR 063 Practice of Cosmetology Fundamentals 4 cr.

Assisting students in developing competencies in all practical and theory-related areas set by the State of Michigan curriculum.

HR 064 Practice of Cosmetology Supervision 4 cr.

Monitoring student activities in all classroom and lab situations for the safe and sanitary practice of cosmetology activities. In addition, attention to compliance with state law is observed.

HS - HISTORY

History Department

HS 101 History of Western Civilization to 1600 4 cr.

Offered: Fall, winter

- Satisfies the foundations of humanities requirement.

Development of culture from the earliest times to 1600. Emphasis is distributed equally among the ancient, medieval and Renaissance worlds.

HS 102 History of Western Civilization Since 1600 4 cr.

Offered: Fall, winter

- Satisfies the foundations of humanities requirement.

Development of culture from 1600 to the present day. Cultural, social, economic and political ideas and institutions are traced as background to the understanding of contemporary problems.

HS 104 The Third World in Historical Perspective 4 cr.

Offered: Fall, winter

- Satisfies the foundations of social sciences requirement.
- Satisfies the world cultures requirement.

Survey of Asia, Africa and Latin America in the 19th and 20th centuries, including the colonial pattern, the anti-colonial movements for national independence, the reassessment of tradition, the strategies for development, and the understanding of human rights.

HS 126 The United States to 1865 4 cr.

Offered: Fall, winter

- Satisfies the foundations of social sciences requirement.

Survey of early American history from the colonial period through the Civil War. Emphasis on political developments within a broad economic, social and cultural context.

HS 127 The United States Since 1865 4 cr.

Offered: Fall, winter

- Satisfies the foundations of social sciences requirement.

Survey of recent American history from reconstruction to the present. Political, economic, social, cultural, educational and diplomatic facets of the American experience are emphasized.

HS 200 Historical Thinking and Writing 4 cr.

Offered: Fall, winter

Prerequisites: EN 111 with grade of "C" or better.

The study of the past as a way of thinking and writing about evidence, interpretation and explanation. Explores difficulties inherent in examining the human past and asks basic questions about historical study as both a social science and an art.

Note: History majors should take this course prior to their senior year or with instructor's permission.

<p>HS 233 Native American History 4 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the world cultures requirement. <p>Study from origins to the present. Central theme is the persistence of Native American ethnic identity in the face of white conquest and efforts at elimination or assimilation.</p>	<p>HS 256 Approaching China 4 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>Historical introduction to the distinctive cultural integration of pre-revolutionary China, approached comparatively as an original style of thinking, feeling and organizing life.</p>
<p>HS 234 Indigenous People of Latin America 4 cr. Offered: Summer, even years.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>A study of the Indians of Latin America which traces their general development from the pre-Columbian era to the contemporary period. The national Indian policies of the 19th and 20th centuries will be stressed.</p>	<p>HS 258 The Emergence of Modern Japan 4 cr. Offered: Fall</p> <p>The main emphasis is on a study of the changes in Japanese ideas and institutions since the country was forced open by the West in 1853 to the present day.</p>
<p>HS 244 The American Labor Movement 2 cr. Offered: Contact department for information.</p> <p>This course provides a historical perspective on the history of the American worker's response to the Industrial Revolution, the origins and development of the union movement and an analysis of the current problems facing the American worker and the union movement today.</p>	<p>HS 273 Gay and Lesbian History 4 cr. Offered: Contact department for information.</p> <p>An introduction to the historical development of gay and lesbian social, cultural and political identities and movements. Investigation of the development of discussions and discourses relevant to homosexuality and homosexuals, primarily in 19th- and 20th-century North America.</p>
<p>HS 245 The American West 4 cr. Offered: Contact department for information.</p> <p>Development and settlement of the trans-Mississippi west from the mid-19th century to the present. Myths and realities are contrasted in order to understand and appreciate the role of the West in the past and present and its influence on the American character.</p>	<p>HS 283 The American Woman 4 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>The story of American women. Emphasis on the accomplishments and contributions of women in history, on understanding the historical relationship between women and men and on the individual perception associated with these relationships.</p>
<p>HS 251 Latin American Civilization 4 cr. Offered: Fall</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>Introduction to the development of culture, society and values through a study of pertinent topics from the colonial origins to the present.</p>	<p>HS 293 Minorities in American History 4 cr. Offered: Fall</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Examination of the origin, development and significance of selected minority groups. Emphasis on women, African Americans, Chicanos, Japanese and Native Americans as well as on such problems as cultural identity, racism and sexism.</p>
<p>HS 252 Arab-Islamic History 4 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>Introduction to the political, social, economic, intellectual and artistic history of the Arabic-speaking peoples from the seventh century to the present. The religious history of Islam and the Islamic way of life is intrinsic to the whole course.</p>	<p>HS 295 Special Topics in History 1-4 cr. Offered: Fall, winter</p> <p>Investigation of a significant topic or problem in history. Content varies depending upon the intention of the instructor and the needs of the student.</p> <p><i>Note: May be repeated for credit if topic differs.</i></p>
<p>HS 254 Introduction to the History of Africa 4 cr. Offered: Fall</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>Survey of the history of the continent south of the Sahara desert. Consideration of pre-colonial African peoples, cultures and ecology. Emphasis on 19th-century imperial rivalries, the rise of nationalism and the creation of present day independent states.</p>	<p>HS 300 Ancient Egypt 4 cr. Offered: Contact department for information.</p> <p>Survey of culture in the Age of the Pharaohs (3100 B.C. to 300 B.C.) and into the Ptolemaic, Roman and Christian eras, with an epilogue on Muslim Egypt from the conquest to the present.</p>
	<p>HS 302 Ancient Rome 4 cr. Offered: Contact department for information.</p> <p>Rome from the earliest times, the republic, the conquest of the Mediterranean world, the Roman revolution, Caesar and Augustus, the Pax Romana and the later empire. Cultural, political and social institutions are reviewed.</p>

<p>HS 304 The Middle Ages 4 cr. Offered: Contact department for information.</p> <p>Europe from the fall of the Roman Empire (300 A.D.) to the beginning of modern civilization with the Renaissance (1400 A.D.). Topics include the barbarian invasions, Carolingian times, feudalism, the growth of the Catholic Church, the Crusades, philosophy and the arts.</p>	<p>HS 316 The Holocaust 4 cr. Offered: Contact department for information.</p> <p>The course concerns the mass murder of approximately six million Jews by the Nazi regime and its allies from 1939-1945. Course employs literature and psychology as well as historical works in its discussion of the "Shoah."</p>
<p>HS 305 Renaissance-Reformation 4 cr. Offered: Contact department for information.</p> <p>Europe from 1300 to 1600: the transition from the medieval to the modern world. The development of the modern state, society and economy; the age of humanism, Renaissance art, exploration and science; and the Protestant, Catholic and counter reformations.</p>	<p>HS 325 Colonial America in the Atlantic World 4 cr. Offered: Contact department for information.</p> <p>An examination of the development of the American colonies in the context of the emerging European empires in the Western Hemisphere and the development of a mature colonial system leading to the rise of a separate sense of "Americanness."</p>
<p>HS 307 Early Modern Europe, 1600-1815: A Thematic Approach 4 cr. Offered: Contact department for information.</p> <p>The course provides in-depth study both in terms of content and historiography of some of the main themes of early modern European history. The number of topics and the approach will vary according to the instructor.</p> <p><i>Note: Cannot be repeated unless failing grade is received on first attempt.</i></p>	<p>HS 326 America from Revolution to Jackson 4 cr. Offered: Contact department for information.</p> <p>This course examines the causes of the revolution, the course of the revolutionary war, as well as the problems faced by post-revolutionary society, and the extent to which Americans continued to contest the meaning of the Revolution in the Early Republic. The courses will examine the question of a "revolutionary settlement" and the differing interpretations regarding the final settling of the American Revolution. The course will examine how the conflict of the 1770s and 1780s affected different segments of American society.</p>
<p>HS 308 Modern Europe, 1815-Present: A Thematic Approach 4 cr. Offered: Contact department for information.</p> <p>The course provides in-depth study both in terms of content and historiography of some of the main themes of modern European history, 1815 to the present. The number of topics and the approach will vary according to the instructor.</p> <p><i>Note: Cannot be repeated unless failing grade is received on first attempt.</i></p>	<p>HS 327 The Civil War Era in America 4 cr. Offered: Contact department for information.</p> <p>This course is a study of the social, political, economic and military developments starting with the causes and the background of the Civil War in the Jacksonian era, extending through the War and Reconstruction with a consideration of the long-term consequences of the War on American History.</p>
<p>HS 312 Revolutionary Russia 4 cr. Offered: Contact department for information.</p> <p>Study of autocracy, nationality and orthodoxy in imperial Russia and the reformist movements culminating in the Revolutions of 1917, and the theory and practice of communism from 1917 to the present.</p>	<p>HS 328 America in the Age of Industrialization and Reform 4cr. Offered: Contact department for information.</p> <p>This course offers an in-depth examination of selected major topics in the era of Industrialization and Reform. The course will primarily focus on the period from Gilded Age (1876) through the New Deal (1942) and put the American experience with industrialization and reform in its world context. The economic and social consequences of industrialization and the intellectual, social, and political responses to the changes wrought by industrialization form the core focus of this course.</p>
<p>HS 314 Modern Britain, 1485-Present 4 cr. Offered: Contact department for information.</p> <p>A survey of the history of Great Britain and Ireland from the accession of the Tudor dynasty in 1485 to present times. Attention is given to political development and reform, economic life, empire, foreign relations and changes in society and culture.</p>	<p>HS 335 Michigan History 4 cr. Offered: Winter</p> <p>Survey of state developments from the coming of the European to the present. Emphasis is on its regional and national context.</p>
<p>HS 315 Imperialism 4 cr. Offered: Winter</p> <p>Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>The course investigates the development of modern Imperialism from the 18th century to the present, from the rise of European economic interests in Asia and Africa to the process of decolonization in the 20th century.</p>	<p>HS 336 History of the Upper Peninsula 4 cr. Offered: Contact department for information.</p> <p>Survey of Michigan's Upper Peninsula from its Indian origins to the present.</p>

<p>HS 337 American Economic History 4 cr. Offered: Winter Prerequisites: Completion of the foundations of communication requirement and sophomore standing. Cross listed with EC 337.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>Transformation of the American economy with particular emphasis on the modern period of industrialization. Special attention will be devoted to the role of the corporation, ethics, advertising, environment, labor, public policy decisions, critics and defenders of the economic order.</p>	<p>HS 362 History of Mexico 4 cr. Offered: Winter Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>A history of the Mexican people from their prehistoric origins through the colonial development, independence, the rise of national Mexico and the era of Diaz. Special attention will be paid to the Mexican Revolution (1910) and the development of modern Mexico.</p>
<p>HS 350 Methods and Materials in Teaching Social Studies Education 4 cr. Offered: Fall, winter Prerequisite: Admission to the methods phase of teacher education. Co-requisite: Concurrent enrollment in ED 349.</p> <p>Teaching of the social studies at the secondary level. Course covers the objectives, the organization of subject matter, the evaluation and use of materials and the development of classroom procedures and techniques.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in history.</i></p>	<p>HS 363 Canadian History and Culture 4 cr. Offered: Contact department for information.</p> <p>Survey of geography, history and culture from the arrival of the white man to the present, with considerable emphasis on contemporary Canada.</p> <p>HS 380 Public History 4 cr. Offered: Contact department for information.</p> <p>This course provides a background in public history which deals with historical administration, grantship and fund raising, editing, preservation, management, and use of historical resources in historical societies, museums, galleries, governmental agencies and private consulting firms.</p>
<p>HS 352 African American History 4 cr. Offered: Winter Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>An overview of African American history in the United States with particular emphasis on such topics as the slave experience, the civil rights movement and significant contributions to the nation's history.</p>	<p>HS 382 Historical Role Playing 2 cr. Offered: Winter Prerequisites: HS 126 and HS 127 highly recommended.</p> <p>Required for Michigan Bureau of History living history role players.</p> <p>Study of role playing in America with special concentration on a specific site such as Fort Wilkins State Park, Fayette State Park or other parks. Students study the philosophy of role playing, the role of park interpretation and the social history of the period.</p> <p><i>Note: May be repeated for credit if the site differs.</i></p>
<p>HS 353 The Finnish Immigrant in America 4 cr. Offered: Contact department for information.</p> <p>Focus on the inner meaning of immigration for Finnish Americans and on the institutional pattern they created in the new environment of America, particularly the Upper Peninsula. Written project consisting of a social history of a Finnish-American family spanning three generations is required.</p>	<p>HS 410 Seminar in Approaches to History 4 cr. Offered: Fall, winter Prerequisites: Junior standing and completion of at least 12 credit hours of history, or post-baccalaureate standing or instructor's permission.</p> <p>This course offers an examination of various approaches to history and how those approaches shape the way historians ask historical questions, conduct historical research and formulate historical arguments.</p>
<p>HS 360 Chinese Revolution, 1800-Present 4 cr. Offered: Contact department for information.</p> <p>The transformation of life patterns in China induced by the collision between China and the West. Emphasizes the causes and implications of this collision for China and ourselves.</p>	<p>HS 444 Research in Labor History 2 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission.</p> <p>An examination of case studies in American labor history to ascertain the dimensions of the human struggle in achieving organizational goals concerning working conditions, compensation and the labor market.</p>
<p>HS 361 History of the Americas 4 cr. Offered: Fall Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>A comparative and thematic history of the people and history of the Western hemisphere. The topical approach will concentrate on the comparison and contrast of concepts and ideas throughout the hemisphere from the prehistoric Native American cultures to the contemporary scene.</p>	<p>HS 481 Oral History 1 cr. Offered: Winter Prerequisites: Junior standing or instructor's permission.</p> <p>Study of the history, techniques and application of interviewing individuals for historical purposes.</p> <p><i>Note: May be taken only once.</i></p>

HS 490 Junior/Senior Seminar in History 4 cr.

Offered: Fall, winter
Prerequisites: HS 200 and 12 additional credits in history. Junior standing or instructor's permission.

Seminar dealing with an important historical problem or with important historians or texts as determined by the instructor. Major work will consist of researching and writing an article-length, student-critiqued historical essay.

Note: May be repeated if topic differs.

HS 491 Internship in History 1-6 cr.

Offered: On demand
Prerequisites: HS 200, 2.5 grade point average, junior standing and departmental permission.

Professional internship experience, such as in a museum, historical society or archives, or in historical preservation advocacy.

Note: May be taken more than once for up to six credits with a maximum of three counting for the minor.

HS 495 Special Topics in History 1-4 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.

Investigation of a significant topic or problem in history. Content varies depending upon the intentions of the instructor and the needs of the students.

Note: May be repeated if topic differs.

HS 498 Directed Study in History 1-4 cr.

Offered: On demand
Prerequisites: Junior standing and department permission.

Individual investigation of a significant topic or problem in the study, teaching or writing of history.

HV-HEATING AND VENTILATION

Technology and Occupational Sciences Department

HV 170 Applied Electricity for Trades 4 cr. (2-0-4)

Offered: Fall, winter
This course covers the basic concepts of electrical circuits as applied to heating, ventilation, refrigeration, air conditioning, industrial maintenance and related trades. Circuit fundamentals, components, wiring diagrams and symbols, motors, motor control devices and power supplies are covered.

HV 171 Basic Heating 4 cr. (2-0-4)

Offered: Fall
Prerequisites: HV 170 or concurrent enrollment.

An introduction to the principles and components used in heating systems. Pipe and tube fitting, theory of heat flow, sources of energy, combustion, electrical controllers, humidification, air filtering, venting and code requirements.

HV 172 Basic Refrigeration 4 cr. (2-0-4)

Offered: Fall
Prerequisites: HV 170 or concurrent enrollment.

Introduction to the components necessary for mechanical refrigeration. Students become familiar with the functions, operations and relationship of the components. Emphasis is placed on designs, operations and variations of component parts and control systems.

HV 173 Heating Systems I 4 cr. (2-0-4)

Offered: Winter
Prerequisites: HV 170 and HV 171 or instructor's permission.

Gas heating systems, gas piping design and installation, mid-and high-efficiency gas heating equipment, basic and advanced gas heating controls, integrated microprocessor controls, venting, installation, troubleshooting, service and code requirements.

HV 174 ACR Systems I 4 cr. (2-0-4)

Offered: Winter
Prerequisites: HV 172 or instructor's permission.

This course is the study of air conditioning, heat pumps, psychrometrics and the specialized tools and techniques used to service these types of equipment. Specific emphasis will be on sequence of operation, electrical systems and service techniques.

HV 175 Air Delivery Systems 4 cr. (2-0-4)

Offered: Winter

Study of psychrometrics (the properties of air), air flow principles and duct system configurations and fabrication. Emphasis will be placed on testing (measuring), adjusting and balancing air delivery systems.

HV 270 Heating Systems II 4 cr. (2-0-4)

Offered: Fall
Prerequisites: HV 170 and HV 171 or instructor's permission.

Oil heating systems, hydronic (hot water) controls and circuits, hydronic heating system components and design, zoned systems, system control strategies, installation, troubleshooting, service and code requirements.

HV 271 ACR Systems II 4 cr. (2-0-4)

Offered: Fall
Prerequisites: HV 172 or instructor's permission.

This is an advanced mechanical refrigeration course that includes the study and application of total system operation with specific emphasis on accessories, defrost systems, pressure controls, pressure regulating devices, multiple systems, commercial pipe sizing, motor starters and controllers.

HV 273 Comfort Systems Design 4 cr.

Offered: Winter
Prerequisites: HV 171 and HV 172 or concurrent enrollment in HV 172 and HV 173.

This course is designed to teach the fundamentals of residential heating and cooling load calculations and basic residential duct design. The course uses the industry standard Air Conditioning Contractors of America (ACCA) Manual J and Manual D design methods.

HV 275 HVACR Technical Problems 4 cr. (2-0-4)

Offered: Fall

Prerequisites: HV 173 and HV 174; HV 270 and HV 271 or concurrent enrollment.

Advanced laboratory experience in installation and service of air conditioning and refrigeration systems. Emphasis is placed on completion of specialized laboratory projects involving application, installation and service of equipment.

HV 291 HVACR Internship 1-4 cr.

Offered: Fall, winter

Prerequisite: Instructor's permission.

Internship work as an HVACR technician under the supervision of a professional HVACR technician.

HV 298 Directed Study and Research 1-4 cr.

Offered: On demand

Prerequisite: Department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

IM - INDUSTRIAL MAINTENANCE**Technology and Occupational Sciences Department****IM 110 Industrial Measurement and Fabrication** 2 cr. (1-0-2)

Offered: Fall

This course covers the proper use and care of industrial maintenance tools, including pullers, bearing heaters, oxyacetylene torches, taps, dies, portable and stationary drill presses, metal brakes, punches, shears, cut-off saws, grinders, hydraulic presses, band saws, measuring tools, levels and power hand tools.

IM 214 Alignment, Power Transmission and Conveyors 4 cr. (2-0-4)

Offered: Fall

Prerequisites: IM 110 and IT 215, or instructor's approval.

Principles of operation and applications of industrial conveyors, power transmission equipment and alignment. Component examples are couplings, sheaves, bushings, bearings, housings, belts, chains, sprockets, seals, variable-speed drives and gear reducers. Includes installation and maintenance.

IM 220 Pumps, Piping and Valves 4 cr. (2-0-4)

Offered: Winter

Prerequisites: IM 110 and IT 215 or instructor's approval.

Principles of design, operation and maintenance of pumps, industrial valves and piping systems used to move liquids and materials in industry.

IM 298 Directed Study and Research 1-4 cr.

Offered: On demand

Prerequisite: Department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

IP - INTERNATIONAL STUDIES**Modern Languages and Literatures Department****IP 285 Study Abroad: Special Topics** 1-12 cr.

Offered: Contact department for information.

Courses taken abroad in the student's area of study. NMU credits determined by applicable departments.

IP 286 Study Abroad: Special Topics 1-12 cr.

Offered: Contact department for information.

Graded S/U

Courses taken abroad in the student's area of study. NMU credits determined by applicable departments.

IP 485 Study Abroad: Special Topics 1-12 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

Courses taken abroad in the student's area of study. NMU credits determined by applicable departments.

IP 486 Study Abroad: Special Topics 1-12 cr.

Offered: Contact department for information.

Graded S/U

Prerequisites: Junior standing or instructor's permission.

Courses taken abroad in the student's area of study. NMU credits determined by applicable departments.

IP 490 International Studies Seminar 4 cr.

Offered: Contact department for information.

Prerequisites: Completion of study abroad experience and 75 credit hours, junior standing or instructor's permission.

The objective of the course is to discuss and analyze the various experiences of traveling, studying and living in a foreign culture. Discussion focuses on the various stages of "culture-shock" and the adaptation process that a person experiences while abroad.

IP 498 Directed Study in International Studies 1-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing and permission of advising department.

Individual research in international studies. Final report must be filed with the instructor.

IS - INFORMATION SYSTEMS**College of Business**

CIS majors or minors must earn a minimum grade of C- in each CIS/IS course applying to their CIS major/minor.

CIS 110 is the equivalent of IS 100, IS 101, IS 102 and IS 104.

IS 100 Introduction to Windows, E-mail and the Internet 1 cr.

Offered: Fall, winter

- Satisfies 1 credit hour of the formal communication studies requirement.

This course will introduce students to the use of the Microsoft Windows operating system, e-mail and the Internet. Students must successfully complete this course or pass the waiver exam to enroll in any of the other IS software application courses.

Note: If CIS 110 has been completed, this course may not be taken for credit.

IS 101 Beginning Word Processing 1 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will develop basic skills in the operation of word processing software. Emphasis is on creating, formatting and revising documents and tables, merging documents and working with graphics.

Note: If CIS 110 has been completed, this course may not be taken for credit.

IS 102 Beginning Spreadsheets 1 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will develop basic skills in the operation of spreadsheet software. Emphasis is on the principles of spreadsheet design and creating and formatting basic spreadsheets and charts.

Note: If CIS 110 has been completed, this course may not be taken for credit.

IS 104 Beginning Database 1 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will develop basic skills in the use of database software. Emphasis is on database terminology, manipulating database files and creating queries.

Note: If CIS 110 has been completed, this course may not be taken for credit.

IS 105 Presentation/Multimedia Software 1 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will develop proficiency in the use of presentation and multimedia software. Emphasis is on the principles of presentation design and development of multimedia presentations. In addition, students will learn how to use projection devices for audience viewing.

IS 107 Beginning Desktop Publishing 1 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

This course will introduce students to desktop publishing, including the principles of page layout and design. The emphasis will be on the elements of design through hands-on applications.

IS 111 Computerized Personal Accounting 1 cr.
Offered: Contact department for information.
Prerequisite: IS 100.

This course will provide students with an ability to use a computerized software program to manage their personal finances.

IS 112 Computerized Small Business Accounting 1 cr.
Offered: Winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.

This course will provide students with basic business literacy by having them operate a business using a popular small business accounting software program. Students develop confidence in recording business transactions using an up-to-date commercial software program designed for small to mid-size businesses.

IS 120 Computer Concepts 2 cr.
Offered: Fall, winter
Prerequisite: IS 100.

- Satisfies 2 credit hours of the formal communication studies requirement.

Students will develop an understanding of basic computer concepts. Computer technology, hardware and software, security, and technology in organizations will be covered. No hands-on computer applications are included.

IS 201 Advanced Word Processing 1 cr.
Offered: Periodically
Prerequisites: IS 100 and IS 101.

Students will develop advanced skills in the operation of word processing software. Emphasis is on working with large documents, arranging text and text objects, and creating and modifying charts and forms.

IS 202 Intermediate Spreadsheets 1 cr.
Offered: Every other fall, even years.
Prerequisites: IS 100 and IS 102.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will expand their skills in the operation of spreadsheet software. Emphasis is on manipulating large spreadsheets, applying advanced formulas and functions to solve problems, and sorting and querying lists of data.

IS 203 Advanced Spreadsheets 1 cr.
Offered: Periodically
Prerequisites: IS 100, IS 102 and IS 202.

Students will develop advanced skills in applying spreadsheet software tools to work-related problems. Emphasis is on working with macros, custom charts, data tables and pivot tables.

IS 204 Advanced Database 1 cr.
Offered: Winter
Prerequisites: IS 100 and IS 104.

- Satisfies 1 credit hour of the formal communication studies requirement.

Students will expand their skills in the use of database software. Emphasis is on creating databases and creating and modifying reports.

IS 206 Software Integration 1 cr.

Offered: Every other winter, even years.
Prerequisites: IS 100, IS 101, IS 102, IS 104 and IS 105.

- Satisfies 1 credit hour of the formal communication studies requirement.
- Students will develop skills in integrating word processing, spreadsheet, database and presentation graphics documents. Emphasis will be on merging word processing and database files, linking and embedding work sheets and charts in word processing documents, and integrating word processing, spreadsheet and database documents with presentation graphics documents.

IS 207 Intermediate Desktop Publishing 1 cr.

Offered: Fall, winter
Prerequisites: IS 100 and IS 107.

- Satisfies 1 credit hour of the formal communication studies requirement.
- This course will provide students with more advanced application in desktop publishing including design concepts, working with multiple pages and advanced graphics. The emphasis will be on the elements of design through hands-on applications.

IS 208 Web Page Development 1 cr.

Offered: Winter
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.
- This course focuses on Web design concepts and building Web pages with an editing tool.

IS 295 Special Topics in Information Systems 1 cr.

Offered: Contact department for information.
Prerequisite: IS 100.

- Satisfies 1 credit hour of the formal communication studies requirement.
- A detailed study of one or more special topics in information systems.
Note: If topic differs, may be repeated for credit with instructor's permission.

IT-INDUSTRIAL TECHNOLOGY

Engineering Technology Department

IT 145 Power Transmission Methods 2 cr.

Offered: On demand

A study of principles, concepts and applications of various mechanisms encountered in industrial applications of engineering technology. Such mechanisms include belt drives, chain drives, linkages, actuators, valves, fans and blowers.

IT 150 Industrial Practices I 2 cr.

Offered: Fall

This seminar-oriented course addresses topics including employee orientation, organizational structure and other topics appropriate for manufacturing employees.

IT 151 Industrial Practices II 2 cr.

Offered: Winter
Prerequisite: IT 150.

This seminar-oriented course addresses topics including orientation, organizational structure, corporate culture, industrial safety issues and other topics appropriate for a manufacturing employee.

IT 180 Introduction to Fluid Power 3 cr. (2-0-2)

Offered: Fall, winter
Prerequisites: MA 104 or above.

An overview of fluid power technology and a working introduction to each of the components used in fluid power circuits. Hydraulic and pneumatic fundamentals of fluid dynamics, conventional fluid circuits and fluid power components.

IT 210 Non-Destructive Testing 3 cr. (2-0-2)

Offered: On demand

Review of conventional non-destructive testing and evaluation of materials. The aim is to detect and characterize flaws and microstructural changes in materials using laboratory equipment and reporting the findings.

IT 214 Industrial Observation 1 cr.

Offered: Fall, winter

An introduction to the methods and equipment used in manufacturing. The main focus of this course is to take field trips to a variety of manufacturing and fabrication plants to observe and study their processes.

IT 215 General Industrial Safety 2 cr.

Offered: Winter

The application of the Occupational Safety and Health Administration regulations to industrial and manufacturing work places and effects on the individual and collective work force.

IT 220 Statistical Process Control 1 cr.

Offered: On demand

The introduction of a set of procedures using statistical techniques for the control of a manufacturing process.

IT 260 Fluid Power Controls 2 cr. (1-0-2)

Offered: On demand
Prerequisites: IT 180 and ET 252.

Introduction of electronically controlled fluid power systems including a study of proportional control components, service valves, circuits, closed loop and open loop systems.

IT 261 Robotics/Automation Systems 4 cr. (2-1-2)

Offered: Winter
Prerequisites: IT 180, ET 110, or ET 100 and ET 101.

This course uses the principles of control systems and how they are applied to achieve automation. The interfacing of controllers, sensors and actuators will be accomplished using a computer integrated manufacturing cell and industrial robots.

IT 265 Total Productive Maintenance 1 cr.

Offered: Fall
Prerequisite: Sophomore standing.

A study of the concept and principles that underlie industrial maintenance and the partnership that exists between maintenance and production personnel. An exposure to the types of condition monitoring equipment and software used to determine equipment reliability are included in this course.

IT 295 Special Topics in Industry and Technology 1-4 cr.
Offered: On demand
Prerequisite: Adviser permission.
Specialized work not covered by other courses.

IT 298 Directed Study and Research 1-4 cr.
Offered: On demand
Prerequisite: Department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

IT 300 Industrial Supervision 3 cr.
Offered: Fall
Prerequisites: EN 111 and upper division standing.

Designed to provide the potential first-line supervisor with the knowledge and skills necessary to function effectively in the role of directing and facilitating the work of subordinates.

IT 340 Enterprise Resource Planning 3 cr.
Offered: Winter
Prerequisite: IT 300.

The concepts and techniques utilized by manufacturing practitioners to accomplish manufacturing control functions. These functions include forecasting, production planning, production scheduling, production control, inventory management, inventory control and manufacturing cost estimating.

IT 380 Facility Planning 3 cr. (2-0-2)
Offered: Fall
Prerequisites: DD 100 or instructor's permission.

Planning of facilities including office, work and service areas. Planning for materials handling equipment and preparing plant layout sketches and drawings. Detailing of conveyor component installation along with mechanical support systems.

IT 400 Industrial Safety and Ergonomics 2 cr.
Offered: Winter
Prerequisites: Junior standing or instructor's permission.

The technology and management of industrial occupational activities with specific reference to the causes, investigation, analysis and prevention of accidents. The dynamics of an ever-changing work place and the effects on the human and his or her place in the work environment will be integrated into the discussion of laws and legislation affecting safety.

IT 420 Quality Control 3 cr.
Offered: Fall
Prerequisites: MA 171, junior standing or instructor's permission.

The application of product and process improvement techniques, including statistical process control methods to accomplish total quality control.

IT 483 Studies in Business and Industry 4 cr.
Offered: On demand
Prerequisite: Junior standing and instructor's permission.
Cross listed as TE 483.

Cooperative work experience to provide up-to-date technical skills in the area of specialization; includes work experience with business and industrial operations, services and materials, processes and techniques.

IT 495 Special Topics in Industry and Technology 1-4 cr.
Offered: On demand
Prerequisites: Junior standing and adviser permission.
Specialized work not covered by other courses.

IT 498 Directed Study and Research 1-4 cr.
Offered: On demand
Prerequisites: Junior standing and department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

LB - LIBERAL STUDIES PROGRAM

Liberal Studies Program

LB 121 Origins of Western Values: Greeks and the Bible 4 cr.
Offered: Fall

- Satisfies the foundations of humanities requirement.

Study of some of the significant intellectual, spiritual and cultural roots of Western values as they originated and developed among the Greeks and the Biblical peoples.

LB 295A Special Topics in Liberal Studies: Visual and Performing Arts 2-4 cr.
Offered: On demand

- Satisfies the foundations of visual and performing arts requirement (minimum 3 credit hours needed to satisfy this requirement).

Study of a particular topic in the visual and performing arts. The exact title will be indicated in the *Schedule of Classes* document.

Note: May be repeated for credit if topic varies.

LB 295F Special Topics in Liberal Studies: Formal Communication Studies 2-4 cr.
Offered: On demand

- Satisfies the formal communication studies requirement (minimum 3 credit hours needed to satisfy this requirement).

Study of a particular topic in formal studies. The exact title will be indicated in the *Schedule of Classes* document.

Note: May be repeated for credit if topic varies.

LB 295H Special Topics in Liberal Studies: Humanities 4 cr.
Offered: On demand

- Satisfies the foundations of humanities requirement.

Study of a particular topic in the area of the humanities. The exact title will be indicated in the *Schedule of Classes* document.

Note: May be repeated for credit if topic varies.

LB 295N Special Topics in Liberal Studies: Natural Sciences 4 cr.
Offered: On demand

- Satisfies the foundations of natural sciences/mathematics requirement.

Study of a particular topic in the area of natural science. The exact title will be indicated in the *Schedule of Classes* document. If a laboratory is included, it may be used to meet the laboratory requirement.

Note: May be repeated for credit if topic varies.

LB 295S Special Topics in Liberal Studies: Social Sciences 4 cr.
Offered: On demand

- Satisfies the foundations of social sciences requirement.

Study of a particular topic in the area of the social sciences. The exact title will be indicated in the *Schedule of Classes* document.

Note: May be repeated for credit if topic varies.

LG 399 Graduation Assessment for Language Minors 0 cr.
Offered: Fall, winter
Graded S/U
Prerequisite: Concurrent application for graduation.

Graduating students meet with faculty in November (for fall graduates) or March (for winter or summer graduates) to show their skills in the language of their minor. Includes reading, writing, conversation and culture-related skills. An "S" grade will be granted for participating in the assessment.

LG 495 Special Topics in Languages 1-4 cr.
Offered: On demand
Prerequisites: Junior standing and instructor's permission.

Study of languages not regularly offered or of special topics in a particular language.

LG 499 Graduation Assessment for Language Majors 0 cr.
Offered: Fall, winter
Graded S/U
Prerequisite: Concurrent application for graduation.

Graduating students meet with faculty in November (for fall graduates) or March (for winter or summer graduates) to show their skills in the language of their major. Include reading, writing, conversation and culture-related skills. An "S" grade will be granted for participating in the assessment.

LG - LANGUAGES

Modern Languages and Literatures Department

LG 295 Special Topics in Languages 1-4 cr.
Offered: On demand
Prerequisite: Instructor's permission.

Study of languages not regularly offered or of special topics in a particular language.

LG 317 World Studies through Literature in Translation 4 cr.
Offered: Winter, summer
Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.
- Satisfies the world cultures requirement when offered as LG 311Z.

An examination of the art, culture, language, history and humanity of different areas of the world through their literature. At least two-thirds of the texts are translations into English of works originally written in other languages.

Note: May be repeated if topic differs.

LG 350 Methods and Materials in Teaching Language Education 4 cr.
Offered: Fall
Prerequisites: Admission to methods phase of teacher education.

This course introduces students to the theory and practice of teaching languages in public schools.

Note: May not be applied toward a non-teaching major or minor in modern languages. May be applied to a secondary education minor in French, German or Spanish if required.

LSP-LABOR STUDIES PROGRAM

Advised by the History Department

LSP 101 Introduction to Labor Studies 4 cr.
Offered: On demand

An overview of topics including the origin and development of contemporary labor organizations including social inequality, labor and employment law; the structure and function of unions, collective bargaining, contract administration, grievance procedures, and arbitration; and leadership development, the future of work in American society and the global economy.

LSP 101A Introduction to Labor Studies 2 cr.
Offered: On demand

The first half of LSP 101. Topics include the origins and development of unions, labor law, social inequality, the structure and function of unions and leadership development.

LSP 101B Introduction to Labor Studies 2 cr.
Offered: On demand

The second half of LSP 101. Topics include collective bargaining, contract administration, the arbitration process, the impact of labor organizations on the economy and society, the future of work in American society and the global economy.

LSP 295 Special Topics in Labor Studies 1-4 cr.
Offered: On demand

Investigation of a significant topic or problem in the field of labor studies. Content varies depending upon the intentions of the instructor and the needs of the students.

LSP 490 Seminar in Labor Leadership 4 cr.

Offered: On demand

Prerequisites: Junior standing or instructor's permission.

This course explores the various roles that leaders are required to fulfill in labor organizations if these organizations are to be effective in representing their membership and successful in the competitive political and economic environment of American society.

LSP 495 Special Topics in Labor Studies 1-4 cr. (Arr.)

Offered: On demand

Prerequisites: Junior standing or instructor's permission.

Investigation of a significant topic or problem in the field of labor studies. Content varies depending upon the intentions of the instructor and the needs of the students.

MA - MATHEMATICS

Mathematics and Computer Science Department

All students must pass prerequisite courses with a grade of "C-" or higher unless otherwise indicated. Education students must pass required courses with a grade of "C" or higher.

MA 090 Beginning Algebra 4 cr.

Offered: Fall, winter

Prerequisites: OC 080 (B- or better) or satisfactory score on the math placement exam.

A developmental course, applying to some diplomas and certificates but not to associate or bachelor's degrees; not included in the NMU grade point average calculation. Topics include such areas as the following: the fundamental operations of algebra, graphing, linear equations, exponents, and introductory probability and statistics.

MA 100 Intermediate Algebra 4 cr.

Offered: Fall, winter, summer

Prerequisites: MA 090 or satisfactory score on math placement exam.

The study of polynomials, graphing, algebraic fractions, radicals, lines and linear equations and inequalities, quadratic and exponential equations and systems of equations. Applications are emphasized.

MA 103 Finite Mathematics 4 cr.

Offered: Fall, winter, summer

Prerequisites: MA 100 or satisfactory score on math placement exam. A graphing calculator or equivalent computer software is required.

- Satisfies the foundations of natural sciences/mathematics requirement.

Linear equations, systems of linear equations, inequalities, linear programming, functions, the mathematics of finance, matrices, permutations, combinations and probability.

MA 104 College Algebra with Applications in the Sciences and Technologies 4 cr.

Offered: Fall, winter

Prerequisites: MA 100 or satisfactory score on the math placement exam. A graphing calculator or equivalent computer software is required.

- Satisfies the foundations of natural sciences/mathematics requirement.

Continued development of students' abilities to manipulate algebraic statements and solve problems. A study of functions, graphing, equation solving techniques, exponents and logarithms, and systems of equations. Emphasis is on the application of algebra to the applied sciences.

MA 105 College Algebra for Calculus Preparation 4 cr.

Offered: Fall, winter

Prerequisites: MA 100 (B- or better) or satisfactory score on math placement exam. A graphing calculator or equivalent computer software is required.

- Satisfies the foundations of natural sciences/mathematics requirement.

Continued development of students' abilities to manipulate algebraic statements and solve problems. A study of functions, graphing, equation solving techniques, exponents and logarithms, and systems of equations. Topics, applications and pace are tailored for those students intending to take calculus.

MA 106 Trigonometry 3 cr.

Offered: Fall, winter

Prerequisites: MA 103, or MA 104, or MA 105 or satisfactory score on math placement exam. Credit cannot be earned for both MA 106 and MA 115, except by written permission from the department. Students planning to take MA 161 should enroll in MA 115 instead of this course. A graphing calculator or equivalent computer software is used in this course.

- Satisfies the foundations of natural sciences/mathematics requirement.

Right triangle trigonometry, laws of sines and cosines, circular functions, graphs of trigonometric functions, trigonometric identities and equations, inverse trigonometric functions and other selected topics. The emphasis will be on applications in the applied sciences.

MA 115 Precalculus 4 cr.

Offered: Fall, winter

Prerequisites: MA 104 (B- or better), or MA 105, or satisfactory score on the math placement exam. A graphing calculator or equivalent computer software is used in this course.

- Satisfies the foundations of natural sciences/mathematics requirement.

This course provides the necessary foundation for students who plan to study calculus. Topics include trigonometric functions and identities, basic laws in trigonometry, polar coordinates, complex numbers, transcendental functions, the conics, parametric equations, vectors, three dimensional analytical geometry, sequences, series, limits, permutations and combinations and mathematical induction.

Note: Credit cannot be earned for both MA 106 and MA 115, except by written permission from the department.

MA 150 Mathematics for the Elementary School Teacher I 4 cr.

Offered: Fall, winter

Prerequisites: MA 100 or equivalent.

Set theory, numeration, operations on whole numbers, integers, rational numbers and real numbers, and problem solving.

MA 151 Mathematics for the Elementary School Teacher II 4 cr.

Offered: Fall, winter

Prerequisite: MA 150.

Probability and statistics, formal and informal geometry and measurement.

<p>MA 161 Calculus I 5 cr. Offered: Fall, winter Prerequisites: MA 115 or satisfactory score on math placement exam. A graphing calculator or equivalent computer software is used in this course.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. <p>Meaning and use of the derivative, differentiation formulas including transcendental functions, applications of the derivative; Fundamental Theorem of calculus and the meaning and use of the definite integral.</p>	<p>MA 265 Calculus III 3 cr. Offered: Fall Prerequisite: MA 163 and MA 211.</p> <p>Limits, continuity of a function of several real variables, partial differentiation, multiple integrals, and vector analysis.</p>
<p>MA 163 Calculus II 4 cr. Offered: Fall, winter Prerequisites: MA 161. A graphing calculator or equivalent computer software is used in this course.</p> <p>Methods of integration, numerical integration, improper integrals, applications of integration, sequences and series, and Taylor polynomials.</p>	<p>MA 271 Calculus with Applications 4 cr. Offered: Winter Prerequisite: MA 103 or MA 104 or MA 105 or instructor's permission. A laptop computer is required.</p> <p>Designed for students of electronics, industrial technologies, biology, psychology, social sciences and business. Real numbers, functions, limits, differentiation, integration and partial derivatives with emphasis on applications of derivatives and integration.</p>
<p>MA 171 Introduction to Probability and Statistics 4 cr. Offered: Fall, winter, summer. Prerequisites: MA 103, or MA 104, or MA 105 or equivalent. A laptop computer is required.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. <p>Descriptive statistics, discrete and continuous probability distributions, Central Limit Theorem, hypothesis testing, confidence intervals, regression and correlation, ANOVA, and categorical data.</p>	<p>MA 275 Sample Survey Methods 4 cr. Offered: On demand Prerequisite: MA 171 or instructor's permission.</p> <p>Study of the most appropriate sampling procedures for various situations and the associated problems of estimation, costs and sample size, followed by an introduction to the most efficient methods for designing and analyzing statistical experiments. Emphasis is on applications and data analysis. The software packages MINITAB and SPSS are introduced.</p>
<p>MA 211 Introduction to Matrix Theory and Linear Algebra 3 cr. Offered: Fall, winter Prerequisites: MA 161 or instructor's permission.</p> <p>Matrices, matrix operations, systems of linear equations, determinants, vector spaces, linear transformations and characteristic roots and vectors.</p>	<p>MA 295 Special Topics in Mathematics 1-4 cr. Offered: On demand Prerequisites: Designed for freshmen and sophomores.</p> <p>Study of topics reflecting the special interests of students and staff. <i>Note: May be repeated, with instructor's permission, if topic differs.</i></p>
<p>MA 240 Discrete Mathematics 3 cr. Offered: Fall Prerequisites: CS 120 and MA 103 or equivalent.</p> <p>The mathematical foundations of Computer Science.</p> <p>Topics: logic, proof techniques, permutations, combinations, automata theory, regular expressions.</p>	<p>MA 297 Directed Studies in Mathematics 1-4 cr. Offered: On demand Graded S/U Prerequisite: Department head permission.</p> <p>Individual investigations of a special topic.</p>
<p>MA 250 Algebraic Structures for the Elementary School Teacher 4 cr. Offered: Fall Prerequisite: MA 151.</p> <p>Relations, functions, algebraic structures and their role in elementary school mathematics.</p>	<p>MA 298 Directed Studies in Mathematics 1-4 cr. Offered: On demand</p> <p>Same as MA 297 except that letter grades are given.</p>
<p>MA 251 Probability and Statistics for the Elementary School Teacher 4 cr. Offered: Winter Prerequisite: MA 151.</p> <p>The concepts of function, probability and statistical reasoning and their roles in elementary school mathematics.</p>	<p>MA 310 Mathematical Models and Problem Solving 4 cr. Offered: Fall Prerequisites: MA 211 and CS 120.</p> <p>Exploration of the application of mathematics in the physical and social sciences with an emphasis on problem solving.</p>
	<p>MA 312 Abstract Algebra with Applications 3 cr. Offered: Fall Prerequisites: MA 211 and MA 163 or instructor's permission.</p> <p>Topics chosen from universal algebraic notions, graphs, trees, lattices, Boolean algebras, groups, rings, fields, and applications.</p>
	<p>MA 331 Geometry I 3 cr. Offered: Winter Prerequisites: MA 211 or instructor's permission.</p> <p>Geometry from a modern axiomatic viewpoint. The objective of this course is to prepare students to teach high school geometry.</p>

<p>MA 340 Combinatorics 4 cr. Offered: Fall Prerequisites: CS 120 and MA 211.</p> <p>Combinatorics and applied abstract algebra, including enumeration, counting, sorting, searching and graph algorithms.</p>	<p>MA 363 Advanced Calculus I 3 cr. Offered: On demand Prerequisites: MA 211 and MA 265.</p> <p>Sets and functions, topological ideas, and sequences. Continuity and uniform continuity. Properties of continuous functions and mean value theorems. Integration theory in one and two variables. Evaluation of double and improper integrals.</p>
<p>MA 350 Methods and Materials in Teaching Senior High School Mathematics Education 3 cr. Offered: Fall Prerequisites: Admission to the methods phase of teacher education, MA312 and MA331. ED349 should be taken concurrently or have been completed already.</p> <p>A course designed to acquaint prospective secondary teachers with contemporary methods and materials employed in the teaching of mathematics in the secondary school. Field experiences are required.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in mathematics.</i></p>	<p>MA 366 General Topology 3 cr. Offered: On demand Prerequisites: MA 211 and MA 265.</p> <p>Introduction to concepts such as topological space, connectedness, compactness and homeomorphism.</p>
<p>MA 351 Models and Problem Solving for the Elementary School Teacher 4 cr. Offered: Winter Prerequisite: MA 250 or instructor's permission.</p> <p>An emphasis on problem solving from the following areas: historical mathematics, number theory, algebra, geometry, trigonometry and recreational mathematics.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in mathematics.</i></p>	<p>MA 371 Applied Probability and Statistics 3 cr. Offered: Every other winter. Prerequisites: MA 211 and MA 265.</p> <p>A general introduction to the basics of statistics, introduction to discrete and continuous probability distributions and generating functions, and derivation of distributions of functions of random variables. Finally, sampling distributions and limit theorems.</p>
<p>MA 353 Methods and Materials in Teaching Elementary School Mathematics Education 3 cr. Offered: Fall, winter Prerequisites: Admission to the methods phase of teacher education, MA 150 and MA 151.</p> <p>A course designed to acquaint prospective elementary teachers with contemporary methods and materials employed in the teaching of mathematics in the elementary school. Field experiences are required.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in mathematics.</i></p>	<p>MA 380 Linear Programming 3 cr. Offered: Every other winter. Prerequisite: MA 211.</p> <p>Introduction to the fundamental principles and techniques of linear programming with strong emphasis on mathematical modeling, analysis and application to non-trivial problems arising in various areas of the physical, social and decision sciences.</p>
<p>MA 354 Methods and Materials in Teaching Junior High School Mathematics Education 2 cr. Offered: Winter Prerequisites: Admission to the methods phase of teacher education, junior standing and either MA 151 or ED 349 (may be taken concurrently).</p> <p>Examination of the current middle school curriculum and effective methodology for this level. Field experiences are required.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in mathematics.</i></p>	<p>MA 381 Integer Programming and Network Flows 3 cr. Offered: On demand Prerequisite: MA 380.</p> <p>Introduction to the basic concepts, algorithms and methodology of network and integer programming with strong emphasis on mathematical modeling, analysis and application to non-trivial problems arising in various areas of the physical, social and decision sciences, and applied mathematics.</p>
<p>MA 361 Differential Equations 3 cr. Offered: Winter Prerequisite: MA 265.</p> <p>First-order equations, theory of second-order linear equations, higher-order linear equations and systems, series solutions, Laplace transform and applications, and stability.</p>	<p>MA 410 Mathematical Modeling 3 cr. Offered: On demand Prerequisites: MA 312, MA 361, MA 371, MA 380, junior standing or instructor's permission.</p> <p>The focus of this course is the application of a wide variety of mathematical tools and techniques to construct and analyze several substantial classes of discrete, continuous, deterministic and stochastic models arising in many areas of science, engineering, operations research and other disciplines outside of mathematics.</p>
	<p>MA 412 Abstract Algebra II 3 cr. Offered: On demand Prerequisite: MA 312, junior standing or instructor's permission.</p> <p>Topics selected from the following: groups, subgroups, homomorphisms, the isomorphism theorems. Sylow theorems, rings, ideals, quotient rings, Euclidean rings, integral domains, factorization of ring elements, extension fields, splitting fields and Galois theory.</p>

<p>MA 462 Higher Mathematics for the Sciences 3 cr. Offered: On demand Prerequisites: MA 211, MA 265, junior standing or instructor's permission. The difference calculus and differential equations, least squares, vector analysis, theorems of Green, Gauss and Stokes. Fourier series, partial differential equations, the method of separation of variables and applications and calculus of variations.</p>	<p>MA 482 Foundations of Mathematics 3 cr. Offered: On demand Prerequisites: Junior standing and instructor's permission. Informal axiomatic set theory, cardinal and ordinal arithmetic, transfinite induction and issues in the philosophy of mathematics.</p>
<p>MA 464 Advanced Calculus II 3 cr. Offered: On demand Prerequisites: MA 363, junior standing or instructor's permission. Infinite series and uniform convergence, power series, transformations, inverse function and implicit function theorems, and calculus of several variables.</p>	<p>MA 483 Introduction to Number Theory 3 cr. Offered: On demand Prerequisites: MA 312, junior standing or instructor's permission. Peano's axioms, Euclidean algorithm, congruence, quadratic reciprocity law, Gaussian integers, continued fractions, Diophantine equations and theory of equations.</p>
<p>MA 465 Complex Variables 3 cr. Offered: On demand Prerequisites: MA 211, MA 265, junior standing or instructor's permission. Complex numbers, analytic functions, conformal mapping, residues and poles, analytic continuation and Riemann surfaces.</p>	<p>MA 484 History of Mathematical Thought 3 cr. Offered: Fall Prerequisites: MA 312 or MA 331, junior standing or instructor's permission. A historical view of mathematics. Studies in discovery, rigorization and generalization through abstraction.</p>
<p>MA 472 Advanced Applied Statistics 3 cr. Offered: On demand Prerequisites: MA 371, junior standing or instructor's permission. Multivariate normal and other multivariate distributions are introduced. The theory of estimation and hypothesis testing is discussed in detail. The theory of regression, correlation and other linear models are briefly touched upon.</p>	<p>MA 485 Stochastic Models in Operations Research 3 cr. Offered: On demand Prerequisites: MA 371, MA 381, junior standing or instructor's permission. Survey of stochastic models in operations research with emphasis on dynamic programming, Markovian decision processes, queuing, inventory control, production planning and simulation models.</p>
<p>MA 473 Numerical Analysis 4 cr. Offered: Every other fall. Prerequisites: MA 211 and either MA 265 or MA 361, junior standing or instructor's permission. Notions and definitions of numerical analysis and study of numerical methods applied to systems of linear algebraic equations, non-linear equations, polynomial equations, integration, ordinary and partial differential equations and integral equations.</p>	<p>MA 490 Senior Seminar 1 cr. Offered: On demand Prerequisites: Senior standing or instructor's permission. A series of presentations by students, both research talks about individual and group projects and expository talks about contemporary issues in applied mathematics and about interesting papers selected from undergraduate mathematics journals.</p>
<p>MA 475 Intermediate Statistics 4 cr. Offered: On demand Prerequisites: MA 171, junior standing or instructor's permission. Application of statistics in research using the SPSS and SAS computer packages. Topics include multiple and curvilinear regression analysis, analysis of variance, discriminant analysis and factor analysis, and time series.</p>	<p>MA 491 Internship in Applied Mathematics 3-6 cr. Offered: On demand Graded S/U Prerequisites: Junior status in good standing with an overall grade point average of 2.75, a GPA in the major of 3.00 and departmental approval. Supervised practical experience in some area of applied mathematics in an industrial, business or governmental setting. Students are required to document their work experience and write a report which will be evaluated by their faculty supervisor in consultation with the employer.</p>
<p>MA 478 Probability 3 cr. Offered: On demand Prerequisites: MA 211, MA 265, junior standing or instructor's permission. Theory of probability, probability distributions, combinatorial analysis, generating functions and stochastic processes.</p>	<p>MA 495 Special Topics in Mathematics 1-4 cr. Offered: On demand Prerequisites: For upper division students and majors and minors or instructor's permission. Topics of special interest to students and staff. <i>Note: May be repeated, with instructor's permission, if topic differs.</i></p>
<p>MA 481 Mathematical Logic 3 cr. Offered: Winter 2007; every third winter thereafter. Prerequisites: Junior standing and instructor's permission. The propositional and predicate calculi, syntax and semantics, consistency and completeness and undecidability. Included are Goedel's theorems, recursive function theory, model theory and applications.</p>	<p>MA 496 Special Topics in Mathematics 1-4 cr. Offered: On demand Graded S/U Same as MA 495.</p>

MA 497 Directed Studies in Mathematics 1-4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Junior standing and department head permission.
 Individual investigations of a special topic in mathematics.

MA 498 Directed Studies in Mathematics 1-4 cr.
 Offered: On demand
 Same as MA 497 except that letter grades are given.

MET-MECHANICAL ENGINEERING TECHNOLOGY

Engineering Technology Department

MET 200 Introduction to Alternative Energies 3 cr. (3-0-0)
 Offered: Fall
 Prerequisite: MA 100.
 Survey course of the primary sources of alternative energies such as wind, solar, bioenergy, geothermal, hydroelectric and fuel cells. The history of their development will be covered in addition to the basic physics of their operation. Design and operational issues will be covered in brief.

MET 211 Mechanics-Statics 4 cr.
 Offered: Fall, winter
 Prerequisites: MA 104 or MA 105.
 Introduction to mechanics—the study of forces that act upon rigid bodies—and to statics, which deals with the distribution and effects of forces on rigid bodies at rest.

MET 213 Materials Science I 3 cr. (2-0-2)
 Offered: Fall, winter
 Prerequisite: EN 211D.
 An introduction to the nature, processing, application and testing of materials used in industry today. Students will perform laboratory tests on plastics, wood, concrete, steel and other metals in order to understand the behavior and characteristics of materials under specific conditions.

MET 216 Material Science II 3 cr. (2-0-2)
 Offered: Fall
 Prerequisite: MA 104.
 Processes and equipment in metallurgy and a comparison of the physical properties and structures of metals.

MET 230 Bioenergy 3 cr. (3-0-0)
 Offered: Winter
 Prerequisite: MA 100.
 A detailed overview of the issues around bioenergy fuels and their conversions to renewable energies. The physics of fuel production and its combustion will be covered. Economics, operational issues and practical aspects of operating both large and small scale bioenergy combustors will be covered.

MET 310 Mechanics-Dynamics 3 cr.
 Offered: Fall
 Prerequisites: MA 104 or MA 105 and MET 211.
 An introductory study of linear and angular displacement, velocity and acceleration; absolute and relative motion; mechanisms, planar motion, work, energy, power and momentum.

MET 311 Strength of Materials 4 cr.
 Offered: Winter
 Prerequisite: MET 211.
 Analysis of the relationship between externally applied forces and internal reactions in materials of the loaded bodies.

MET 320 Mechanical Design 4 cr. (2-2-1)
 Offered: Winter
 Prerequisites: DD 202, MET 213, MET 310 and MET 311.
 Applying engineering concepts to components such as gears, shafts, fasteners and structural members. In addition to theoretical analysis, this course incorporates solid modeling and finite element analysis software to model strain and motion behavior of complex systems.

MET 410 Applied Thermodynamics 4 cr.
 Offered: Winter
 Prerequisites: MA 271, CH 105, IT 310, junior standing or instructor's permission.
 The study of energy, heat, work, the properties of the media employed and the processes involved as applied to solving problems in engineering.

MET 430 Senior Project 2 cr.
 Offered: Fall, winter
 Prerequisites: Senior standing or instructor's permission.
 Cross listed with ET 430.
 A project-based course that provides students with an opportunity to focus on a design or engineering problem. A formal presentation is a required part of the course.

MF-MANUFACTURING TECHNOLOGY

Engineering Technology Department

MF 133 Machinery Handbook 2 cr.
 Offered: Winter
 This course introduces students to the technical content found in the *Machinery Handbook*. Students will understand the organization of the handbook and gain experience in using this reference volume to solve typical machine shop problems.

MF 134 Manufacturing Process 4 cr. (2-0-4)
 Offered: Fall
 An introduction to the processes and materials of manufacturing with emphasis on the metal removal technology.

MF 233 Numerical Control	4 cr. (2-1-2)	MGT 215 Entrepreneurship	3 cr.
Offered: On demand		Offered: Winter	
Numerical control and automation fundamentals, testing of materials and suitability of fabrication.		A study of people who create new businesses in the face of risk and uncertainty for the purposes of achieving profit and growth potential. This includes a study of identifying opportunities and assembling the necessary resources to capitalize on these opportunities.	
MF 235 Computer Numerical Control	3 cr.	MGT 221 Business Law I: Legal Environment of Business	3 cr.
Offered: Winter		Offered: Fall, winter	
Prerequisite: Instructor's permission.		Overview of the areas of law affecting business operations. Students are introduced to basic legal rights and social forces affecting business.	
An advanced computer numerical control class utilizing a Tsugami 5 axis turning center with live tooling.		MGT 225 Operations Management	3 cr.
MF 295 Special Topics in Manufacturing	1-4 cr.	Offered: Fall, winter	
Offered: On demand		Prerequisites: MA 103, MA 171 and CIS 110 or equivalent IS courses.	
Prerequisite: Adviser permission.		Survey of problems that production-operations managers face and the quantitative tools that are helpful in solving these problems.	
Specialized work not covered by other courses.		MGT 228 Customer Service	2 cr.
MF 298 Directed Study and Research	1-4 cr.	Offered: Fall	
Offered: On demand		Provides a clear, usable process for developing skills, attitudes, and thinking patterns necessary to deliver excellent customer service. Individual success is contingent on how effectively fundamental customer service skills are mastered and carried out. This course emphasizes self-assessment and mastery of those skills too often ignored or taken for granted.	
Prerequisite: Department permission.		MGT 240 Organizational Behavior and Management	3 cr.
Independent research of a special technical topic. Written reports of work are required.		Offered: Fall, winter, summer	
MF 383 Computer-Aided Manufacturing	4 cr. (2-1-2)	MGT 240R Organizational Behavior and Management-Recitation	1 cr.
Offered: Fall		Offered: Fall, winter	
Prerequisite: MF 233 and DD 202		Prerequisite: MGT 240 (may be taken concurrently).	
The integration of numerical control (CNC) and computer graphics for increasing productivity.		Provides students the opportunity to further develop management-related knowledge and skills through a series of integrated assignments and additional topics in management.	
MF 384 Flexible Manufacturing Cells	4 cr. (2-1-2)	<i>Note: Complements MGT 240. MGT 240R is not required for business majors; it is intended for those non-business majors who need/require a four-credit course in introductory management.</i>	
Offered: On demand		MGT 285 International Business Seminar	3-4 cr.
Prerequisites: MF 383 and IT 340 or instructor's permission.		Offered: Contact department for information.	
The integration of computers, industrial robots, numerical control machines and material handling devices to create a manufacturing cell capable of independent production of a product.		Enriches students' understanding of factors that influence business activity within world markets. Classroom/seminar sessions are combined with an international trip, focused on studying domestic and international firms as they compete abroad. Students better understand the development of business strategy in the global marketplace.	
MF 495 Special Topics in Manufacturing	1-4 cr.	MGT 295 Special Topics in Management	1-4 cr.
Offered: On demand		Offered: Contact department for information.	
Prerequisites: Junior standing and adviser permission.		Topic dependent on individual instructor and student needs.	
Specialized work not covered by other courses.		<i>Note: May be repeated if topic differs.</i>	
MF 498 Directed Study and Research	1-4 cr.		
Offered: On demand			
Prerequisite: Junior standing and department permission.			
Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.			

MGT - MANAGEMENT

College of Business

MGT 210 Time Management	1 cr.		
Offered: Winter			
The primary objective of this course is to provide a practical approach to the misuse of managerial time and to design a mechanism to improve management effectiveness.			

<p>MGT 322 Business Law II 3 cr. Offered: Contact department for information. Prerequisite: MGT 221, junior standing.</p> <p>A continuation of MGT 221 with emphasis on topics of interest to management and marketing majors and to students preparing for the CPA examination. Topics include commercial paper, creditors' rights, partnerships and corporations, agency and employment and estates.</p>	<p>MGT 326 Deterministic Models in Business 3 cr. Offered: Winter Prerequisite: MGT 225, junior standing.</p> <p>Develops selective quantitative tools useful in operations management and managerial decision making. The focus of the course is deterministic quantitative analysis of business systems. The course covers both development and application of selected MS/OR tools such as linear programming, network analysis and dynamic programming.</p>	<p>MGT 327 Random Models in Business 3 cr. Offered: Fall Prerequisite: MGT 225, junior standing.</p> <p>Develops selected quantitative tools useful in operations management and managerial decision making. The focus of the course is probabilistic quantitative analysis of business systems. The course covers both development and application of selected MS/OR tools such as the decision theory, Markov chains, stochastic inventory problems, simulation, queuing theory, etc.</p>	<p>MGT 343 Human Resource Management 3 cr. Offered: Fall, winter Prerequisite: MGT 240, junior standing.</p> <p>Introduction to research and principles pertinent to the development of human resources through the use of case studies and resource persons in relevant management situations.</p>	<p>MGT 344 Managerial Communication 3 cr. Offered: Fall, winter Prerequisite: Junior standing.</p> <p>Principles of effective written and oral communication. Communication theory as related to business letters, reports and oral presentations. Emphasis on psychology underlying these means of communication.</p>	<p>MGT 355 Methods of Training 4 cr. Offered: Winter Prerequisite: Junior standing.</p> <p>This course provides an application of theories of learning and instructional development to the education and training of employees in office systems. Emphasis is on instructional design and the implementation, evaluation and management of training in an organizational environment.</p>	<p>MGT 360 Controversial Issues in Marketing and Management 3 cr. Offered: Periodically Prerequisites: MKT 230, MGT 240, junior standing or instructor's permission. Cross listed with MKT 360.</p> <p>Businesses and non-profit organizations are confronted with a variety of controversial issues, making both strategic and day-to-day decision-</p>	<p>making difficult. The course examines contemporary critical issues facing businesses and non-profit organizations, focusing on recent developments and a review of some "best practices" of organizations that have taken leadership roles.</p>	<p>MGT 412 Compensation Administration 3 cr. Offered: Periodically Prerequisites: MGT 343, junior standing or instructor's permission.</p> <p>Study of the administration of the wage and salary function of an organization, including the determinants of wages, job evaluation, compensation plans, employee evaluation and the administration of fringe benefits.</p>	<p>MGT 414 Small Enterprise Management 3 cr. Offered: Fall Prerequisites: MGT 240, junior standing or instructor's permission.</p> <p>Survey of information and assistance helpful in the initiation, operation and growth of a small business enterprise. Each student develops a complete prospectus for starting and operating a small business.</p>	<p>MGT 415 Small Business Consulting 3 cr. Offered: Winter Prerequisites: Completion of business core, junior standing or instructor's permission; minimum overall GPA of 2.70 or GPA of 3.00 for previous semester (at least 12 credits).</p> <p>Application of students' skills, developed in their academic programs, to real problems faced by independent businesses in this area. Teams are formed to provide a blend of academic disciplines and to be responsive to the situation and problems of the client.</p>	<p>MGT 417 Organizational Theory 3 cr. Offered: Winter Prerequisites: MGT 240, junior standing or instructor's permission.</p> <p>An integrated view of the theories relevant to organizations and human behavior in organizations. The active role of managers adapting organizations to environments is studied utilizing knowledge of such areas as perception, motivation, leadership, conflict resolution, interpersonal and group dynamics and organizational design.</p>	<p>MGT 419 Seminar in Human Resource Management 3 cr. Offered: Periodically Prerequisites: MGT 343, junior standing or instructor's permission.</p> <p>Discussion of industrial and manpower management and research in advanced problems. Individual research by students.</p>	<p>MGT 421 Labor Law 3 cr. Offered: Contact department for information. Prerequisites: MGT 240, junior standing or instructor's permission.</p> <p>Study of the major pieces of legislation relating to labor and labor-management relations. Intensive case study.</p>	<p>MGT 422 Business and Government Policy 3 cr. Offered: Fall Prerequisites: Junior standing or instructor's permission.</p> <p>Examination of the policy relationships between government and business in the United States. Operationally the course considers the influence of government policies on the firm and the consumer.</p>
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MGT 423 Seminar in Organizational Theory 3 cr.
 Offered: Periodically
 Prerequisites: MGT 240, junior standing or instructor's permission.
 A course in which students examine areas of organizational theory and behavior of particular interest to them and share their discoveries and insights. Emphasis is placed upon critical study of selected theoretical views and their practical implications for decision makers in organizations.

MGT 424 Collective Bargaining 3 cr.
 Offered: Periodically
 Prerequisites: MGT 240, junior standing or instructor's permission.
 Review of major legislation and judicial decisions affecting labor.

MGT 425 Business Research 3 cr.
 Offered: Fall, winter
 Prerequisites: 4 credit hours in IS courses, MA 171, junior standing or instructor's permission.
 Develops an appreciation for the role of research in problem solving and decision making. Topics include science and the scientific method, problem definition techniques, role of objectives and hypotheses in research, research design, measurement, data collection, surveys, interviews, observation, simulation, sampling types, sample size, hypothesis testing, and the role of statistics in research.

MGT 426 Advanced Business Research 3 cr.
 Offered: Contact department for information.
 Prerequisites: MGT 425, junior standing or instructor's permission.
 Further refinement of an understanding of business research. A business presents a general area of concern from which the student defines an actual management problem, develops objectives and hypotheses, specifies a research design, performs the analysis and writes up the final research report.

MGT 436 Strategic Management 3 cr.
 Offered: Fall, winter
 Prerequisites: MKT 230, MGT 240, FIN 351, junior standing or instructor's permission.
 Integrated analysis of a cross-section of decision-making situations faced by top managers. Realistic cases and decision-making simulation games assist students in moving from academic theory to specific applications of management strategy.

MGT 475 International Business 3 cr.
 Offered: Periodically
 Prerequisites: Admission to the College of Business, junior standing or instructor's permission.
 Introduction to the difficulties and opportunities inherent in international business. Focuses on students acquiring an awareness and appreciation of the cultural variables that abound in the global arena rather than a procedural guide to conducting business overseas. Special emphasis is on administrative and marketing concepts unique to foreign trade.

MGT 491 Internship in Management 1-4 cr.
 Offered: Fall, winter, summer
 Graded S/U
 Prerequisites: Junior standing and College of Business permission.

Professional experience for qualified management majors working with accounting or other business firms. Written paper required; students evaluated by faculty supervisor in consultation with employer. Counts as an elective in the management or marketing program. Repeatable up to a total of four credits.

MGT 495 Special Topics in Management 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: Junior standing or instructor's permission.
 Variable topics of current interest.
Note: May be repeated if topic differs.

MGT 498 Directed Study in Management 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: Limited to students with a superior grade point average, junior standing and College of Business permission.
 Individual research in management. Work is supervised through conferences with an adviser. A written final report must be filed with the college.

MKT - MARKETING

College of Business

MKT 230 Introduction to Marketing 3 cr.
 Offered: Fall, winter, summer
 Study of the basic marketing functions from a managerial aspect. Emphasis is placed on the development of a marketing mix to enhance the operational performance of all organizations that undertake marketing activities.

MKT 230R Introduction to Marketing—Recitation 1 cr.
 Offered: Fall, winter
 Prerequisite: MKT 230 (may be taken concurrently).
 Students further develop marketing-related knowledge and skills through integrated assignments and exposure to additional topics in marketing; emphasis is on the strategic implications of marketing decision-making.
Note: Complements MKT 230. MKT 230R is not required for business majors; it is intended for those non-business majors who need/require a four credit course in introductory marketing.

MKT 310 Marketing for Entrepreneurship 3 cr.
 Offered: Every other fall.
 Prerequisite: Junior standing.
 Applies the basic tools of marketing to entrepreneurial settings. The focus of this course includes principles and applications of marketing plans and strategies for entrepreneurs, generation and evaluation of product/market concepts, and the development, testing and commercialization of new products and businesses.

MKT 331 Retail Administration 3 cr.
 Offered: Fall
 Prerequisite: MKT 230, junior standing.
 Study of retailing and its role in the distribution of goods and services from the total systems approach. Emphasis on overall planning, control and coordination of retail institutions.

<p>MKT 335 Consumer Behavior Analysis 3 cr. Offered: Fall Prerequisite: MKT 230, junior standing. Study of important psychological, sociological and cultural determinants of buying. Students are expected to make applications of concepts, theories and principles to specific marketing problems.</p>	<p>MKT 435 Marketing Strategy 3 cr. Offered: Fall Prerequisites: MKT 230, plus two other marketing courses and junior standing or instructor's permission. Marketing majors only. Improvement of students' ability to define marketing problems and develop decisions for their solutions. Realistic cases cover the conceptual areas of marketing including demand, advertising, personal selling, physical distribution, channels, product policy, pricing, marketing research and integrated marketing programs.</p>
<p>MKT 337 Marketing Channels 3 cr. Offered: Contact department for information. Prerequisite: MKT 230, junior standing. Survey of distribution channels as a functional part of the marketing system. Emphasis is placed on the economic and social relationships that determine channel efficiency.</p>	<p>MKT 438 Marketing Management 3 cr. Offered: Winter Prerequisites: MKT 230, plus two other marketing courses and junior standing or instructor's permission. Marketing majors only. Study of the following marketing management tools and their application in marketing decisions: experience curves; profit impact of market strategy (PIMS); strategic marketing windows; perceptual mapping and product positioning; growth share models; and product portfolio analysis.</p>
<p>MKT 360 Controversial Issues in Marketing and Management 3 cr. Offered: Periodically Prerequisites: MKT 230, MGT 240, junior standing or instructor's permission. Cross listed with MGT 360. Businesses and non-profit organizations are confronted with a variety of controversial issues, making both strategic and day-to-day decision-making difficult. The course examines contemporary critical issues facing businesses and non-profit organizations, focusing on recent developments and a review of some "best practices" of organizations who have taken leadership roles.</p>	<p>MKT 466 International Marketing 3 cr. Offered: Fall Prerequisites: MKT 230, junior standing or instructor's permission. Focuses on global marketing management concepts and decisions. The following concepts are developed: framework for a conceptual understanding of global marketing; the global environment and targeting global markets; formulating global marketing strategy; and the global marketing mix.</p>
<p>MKT 410 Sales Management 3 cr. Offered: Fall Prerequisites: MKT 230, junior standing or instructor's permission. Examination of sales force management and the role and character of creative personal selling. The course emphasizes actual selling conditions including role playing and analysis of case settings.</p>	<p>MKT 470 E-Commerce and Marketing 3 cr. Offered: Periodically Prerequisites: MKT 230, junior standing or instructor's permission. Explores a range of strategic issues influencing firms engaged in e-commerce. Given the powerful influence that the World Wide Web and Internet have had on marketing, it is critical for firms to understand the interrelationships between their core offering, customers and existing and new competitors.</p>
<p>MKT 411 Personal Selling 3 cr. Offered: Winter Prerequisites: MKT 230, junior standing or instructor's permission. Review of the role of a sales representative and the value of that role to customers as well as employers. The selling process is explored in an in-depth analysis, and students learn specific selling techniques.</p>	<p>MKT 491 Internship in Marketing 1-4 cr. Offered: Fall, winter, summer Graded S/U Prerequisites: College of Business permission, junior standing or instructor's permission. Professional experience for qualified marketing students. Working relationships will be established with organizations. Students are required to write a paper and will be evaluated by their faculty supervisor in consultation with the employer. <i>Note: May be repeated for up to four credits total. Counts as an elective in the marketing program.</i></p>
<p>MKT 430 Services Marketing 3 cr. Offered: Winter Prerequisites: Junior standing or instructor's permission. Service organizations require a distinctive approach to developing marketing strategy and delivering service products. Students develop theoretical, conceptual, research and practical skills for careers in service industries or in industries where services are becoming an important component of a firm's product/marketing mix.</p>	<p>MKT 495 Special Topics in Marketing 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission. Variable topics of current interest. <i>Note: May be repeated if topic differs.</i></p>
<p>MKT 432 Advertising and Sales Promotion 3 cr. Offered: Winter Prerequisites: MKT 230, junior standing or instructor's permission. Survey of non-personal efforts by firms to stimulate demand. A survey of advertising and sales promotion. Real cases are analyzed to understand major tasks and decisions involved in promoting products.</p>	

MKT 498 Directed Study in Marketing 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: College of Business permission, junior standing or instructor's permission.
 Limited to students with a superior GPA. Individual research in marketing. Work is supervised through conferences with an adviser. A written final report must be filed with the department.

MS 279 Army History Research 1 cr.
 Offered: Fall, winter, summer
 Prerequisite: Department permission.
 The systematic preparation of an analytical research paper on an Army history subject.

MS - MILITARY SCIENCE

Military Science Department

MS 139 Leadership and Confidence Building 1 cr. (0-0-2)
 Offered: Fall

Introduction to military leadership techniques and confidence building. Students introduced to ethics instruction and the role of the U.S. Army. Leadership and confidence building taught through application of learned skills during hands-on training including marksmanship, rappelling, orienteering and first aid. Student involvement in planning and performance increases poise and self-confidence.

MS 159 Leadership, Confidence Building and Winter Training 1 cr. (0-0-2)
 Offered: Winter

Introduction of military leadership techniques and confidence building, with concentration on outdoor winter training. Introduction of communication and ethics instruction. Leadership and confidence building taught through application during hands-on training including cross-country skiing, snowshoeing, winter orienteering and first aid. Student involvement in planning and performance increases poise, self-confidence and leadership.

MS 239 Leadership at the Unit Level 1 cr. (2-0-1)
 Offered: Fall

Co-requisite: Contracted cadets must participate in Leadership Laboratory. Study of tactics, command and planning procedures for the Army's basic combat unit, the infantry rifle squad. Land navigation, communication, ethics, professionalism and the role of the Army are also covered. Self-confidence building exercises are implemented. Leadership labs supplement the instruction by allowing students to assume junior leadership roles.

MS 259 Troop Leader Training 1 cr. (2-0-1)
 Offered: Winter

Co-requisite: Contracted cadets must participate in Leadership Laboratory. Advanced individual tactical training centered around leadership and tactical orders. Ethics, professionalism, communication and advanced land navigation are also covered. Leadership labs supplement the instruction by allowing students to assume junior leadership roles.

MS 269 Army Physical Fitness Training 1 cr. (0-0-3)
 Offered: Fall, winter, summer

Development of skills and physical fitness by participating in and conducting exercises. Emphasis is placed on aerobic exercises. Physical fitness testing and team sports supplement the program. May be used as an HP activity credit.

MS 339 Advanced Leadership Training 4 cr. (3-0-2)
 Offered: Fall
 Prerequisite: Completion of the Basic Course of Instruction or the equivalent and/or department permission.
 Co-requisite: Contracted cadets must participate in Leadership Laboratory.

Study of the techniques of junior officer leadership. Examines leadership skills such as counseling, coordination, communication and delegation of authority. The science of command and control through personal leadership is practiced. Military skills are taught in preparation for Advanced Camp.

MS 359 Applied Leadership Training 4 cr. (3-0-2)
 Offered: Winter
 Prerequisite: MS 339 and/or department permission.
 Co-requisite: Contracted cadets must participate in Leadership Laboratory.

Duties and responsibilities of a junior officer, with emphasis on the leader's role in planning, directing, coordinating individual and team training, and in motivating subordinates through human relations and counseling skills. Covers the principles of command, control and leadership techniques. Military skills are taught in preparation for Advanced Camp.

MS 439 Leadership 4 cr. (3-0-2)
 Offered: Fall
 Prerequisites: MS 339 and MS 359, junior standing and/or department permission.
 Co-requisite: Contracted cadets must participate in Leadership Laboratory.

Development of an appreciation for command and staff organization and functions. Stresses processes for arriving at sound and timely decisions and the translation of decisions into plans and orders. Develops skills in long-range planning, coordination of diverse groups and activities, written communication and briefing techniques.

MS 459 Team Development 4 cr. (3-0-2)
 Offered: Winter
 Prerequisite: MS 439, junior standing and/or department permission.
 Co-requisite: Contracted cadets must participate in Leadership Laboratory.

Students prepare for and participate in a seminar that focuses on the role of the Army officer in areas such as military law, professional ethics and the obligations and responsibilities of the commissioned officer and organizational leader.

MS 495 Special Topics in Military Science 3 cr.
 Offered: On demand
 Prerequisite: Junior standing and department permission.

Study of a significant topic in military science. The requirements of this course may be met through seminars, lectures, participation in outdoor activities or readings.

MS 498 Directed Study in Military Science 1-3 cr.
 Offered: On demand
 Prerequisite: Junior standing and department permission.
 Individual directed study on a selected military science topic.

MSED-SCIENCE EDUCATION

School of Education

MSED 250 Physical Science for Educators 4 cr.
 Offered: Fall, winter and occasionally summer
 Prerequisites: Admission to elementary education or special education program.

Basic concepts and principles of physics and chemistry that are important for elementary school teachers to understand. Discussions and hands-on laboratory experiences emphasize the use of higher-level thinking skills without the prerequisite of advanced mathematics.

MSED 251 Life Science for Educators 4 cr.
 Offered: Fall, winter and occasionally summer
 Prerequisites: Admission to elementary education or special education program.

Life science course for the pre-service elementary teacher. This inquiry-based laboratory course is designed to give the future teacher a strong conceptual understanding of life science content including the structure and function of plant and animal cells, organization of living things, heredity, adaptation and evolution.

MSED 252 Earth Science for Educators 4 cr.
 Offered: Fall, winter and occasionally summer
 Prerequisites: Admission to elementary education or special education program.

Earth science course for the pre-service elementary teacher. This inquiry-based laboratory course is designed to give the future teacher a strong conceptual understanding of the earth science content via an earth-systems approach and highlighting concepts from the areas of geology, hydrology, meteorology and astronomy.

MSED 340 Fundamental Concepts in Science 4 cr.
 Offered: Winter
 Prerequisites: This course is a professional education requirement for all secondary science education majors. Students should be admitted to the pre-methods phase of the educational program.

This laboratory-based course provides deeper investigations into fundamental, unifying concepts in science through inquiry methods employing an integrated approach. Content includes energy, form and function, homeostasis and equilibrium, change and evolution, and historical perspectives. An independent research project is required.

MSED 350 Methods and Materials in Teaching Science Education 4 cr.
 Offered: Winter
 Prerequisites: Admission to the methods phase of teacher education.
 Co-requisite: Concurrent enrollment in ED 349.

Preparation to teach science in middle and high schools. State and national trends and initiatives in science education provide a foundation on which students build a philosophy and structure for teaching science.

Instructional strategies are examined, and students participate in practicum experiences with middle or high school students.

MU - MUSIC

Music Department

MU 101 Theory I 2 cr.
 Offered: Fall

Introduction to basic musical skills and fundamentals of theory through the study of structural elements in music. This course is required of all music majors and minors.

MU 102 Sight Singing and Ear Training I 2 cr.
 Offered: Fall

A course in basic singing at sight of melodic material from all periods and ear training including rhythmic, melodic and contrapuntal material.

MU 103 Piano I 2 cr.
 Offered: Fall

A course designed to gain elementary keyboard facility and skill in sight reading with pieces up to grade two. The electronic piano lab is used in both individual and group playing.

MU 104 Theory II 2 cr.
 Offered: Fall, winter
 Prerequisite: MU 101.

Continuation of the development begun in MU 101, with emphasis on seventh chords, modulation, secondary dominants, four-part chorale writing and analysis of small forms.

MU 105 Sight Singing and Ear Training II 2 cr.
 Offered: Winter
 Prerequisite: MU 102.

Continued development of the skills pursued in MU 102. Emphasis is placed upon four-part exercises, simple and compound meters and triadic harmony.

MU 106 Piano II 2 cr.
 Offered: Winter
 Prerequisite: MU 103 or the equivalent of performance.

Continuation of MU 103; designed for students with an elementary background in piano. Development of keyboard facility, sight-reading techniques and transposition.

MU 108 Madrigal Choir 0.5 cr.
 Offered: Fall, winter

Open to all students through audition.

A select choral ensemble that performs chamber repertoire largely from the early Renaissance period. The ensemble meets two times per week.

Note: May be repeated for credit.

<p>MU 111 University Choir 0.5 cr. Offered: Fall, winter Open to all university students. Required of vocal music students. Emphasis is on familiarizing students with a broad choral repertoire. Performs a public concert at least once each semester. <i>Note: May be repeated for credit.</i></p>	<p>Duos, trios, quartets and quintets are formed depending on available players. Ensembles must rehearse a minimum of two times per week and are coached by a faculty member. Number of performances is established by the faculty member when the group is formed. <i>Note: May be repeated for credit. Required of BME instrumental majors for two semesters.</i></p>
<p>MU 112 Choral Society 0.5 cr. Offered: Fall, winter Prerequisite: Director permission. A large, mixed community chorus. Repertoire includes major choral works, sometimes with instrumental accompaniment. Performs a pair of concerts each semester. <i>Note: May be repeated for credit.</i></p>	<p>MU 119 Musical/Opera Workshop Ensemble 0.5 cr. Offered: Winter Prerequisite: Audition. A small instrumental ensemble, usually conducted, which meets one or two times per week before production schedule. <i>Note: May be repeated for credit. May be elective credit for music major.</i></p>
<p>MU 113 Symphonic Band 0.5 cr. Offered: Winter Prerequisite: Audition; required of all music majors whose performance area is wind/percussion. A band that performs traditional and contemporary band repertoire as well as transcriptions from symphonic literature. Performs only during the winter semester. <i>Note: May be repeated for credit.</i></p>	<p>MU 122 Jazz Improvisation 2 cr. Offered: Contact department for information. Prerequisite: Audition or instructor's permission. Explores jazz harmony and improvisational techniques in common practice in the jazz tradition. Styles include blues, swing, bebop, fusion and contemporary pop. Skills will be applied in a performance situation. <i>Note: May be repeated up to four semesters as elective credit.</i></p>
<p>MU 114 Marching Band 0.5 cr. Offered: Fall Open to all university students. The marching band performs only during the fall semester; performances include football games and the December commencement ceremony. <i>Note: May be repeated for credit. Required for all wind/percussion BME majors for one semester.</i></p>	<p>MU 125 Music in Society 4 cr. Offered: Fall, winter • Satisfies the foundations of visual and performing arts requirement. A study of a wide variety of music, including Western European art music, contemporary American music (for example, Afro-American music, the blues, jazz, rock 'n' roll, experimental art music) and non-Western music. An approach to investigation and the accumulation of objective listening skills will be used to develop the understanding that music, like any art form, is a cultural expression of the society that produced it.</p>
<p>MU 116 University Orchestra 0.5 cr. Offered: Fall, winter Open to all university string players. Required of string music majors. A group that performs major compositions for small orchestra. <i>Note: May be repeated for credit.</i></p>	<p>MU 131 Performance I-Brass 1 cr. Offered: Fall, winter Prerequisite: Audition. Trumpet, horn, trombone, baritone, tuba. One individual half-hour lesson per week with emphasis on proper embouchure development, breath control, styles of articulation, major and minor scales and solo literature compatible with the student's level of proficiency. <i>Note: May be repeated for credit.</i></p>
<p>MU 117 Jazz Band 0.5 cr. Offered: Fall, winter Prerequisite: Open to qualified players with instructor's permission. A band that performs many concerts throughout the school year and is the featured ensemble at the NMU Jazz Festival. <i>Note: May be repeated for credit.</i></p>	<p>MU 140 Piano III 2 cr. Offered: Fall A course for the intermediate piano student including development of keyboard facility, sight-reading, harmonization and transposition. Pieces up to grade three are studied. The electronic piano lab is used in both individual and group instruction.</p>
<p>MU 118 Chamber Ensemble 0.5 cr. Offered: Fall, winter Prerequisite: Open to other students by audition. New students must audition during the first week of classes.</p>	<p>MU 141 Performance I-Keyboard 1 cr. Offered: Fall, winter Prerequisite: Audition. One individual half-hour lesson per week with emphasis on development of repertoire, technical dexterity and musicianship. <i>Note: May be repeated for credit.</i></p>

<p>MU 142 Piano IV 2 cr. Offered: Contact department for information. Further development of facility, score reading, harmonization, transposition and sight-reading.</p>	<p>MU 170 Class Voice 1 cr. Offered: Fall, winter Classroom instruction in vocal technique for those students with little or no previous instruction. <i>Note: May be repeated for credit.</i></p>
<p>MU 146 Classroom Instruments 1 cr. Offered: Fall Open to all university students. A course designed for prospective teachers for the elementary grades K-6 introducing the use of appropriate instruments. A functional approach develops skills in playing the recorder, autoharp, Orff instruments, small percussion instruments and guitar.</p>	<p>MU 171 Performance I-Vocal 1 cr. Offered: Fall, winter Prerequisite: Audition. One individual half-hour lesson per week with emphasis on understanding the technical aspects of singing: good posture and breathing, diction, and resonance. Repertoire will be at the discretion of the instructor but should include Italian and English literature. <i>Note: May be repeated for credit.</i></p>
<p>MU 148 Elementary Guitar 1 cr. Offered: Fall, winter A functional approach developing basic skills in playing the guitar.</p>	<p>MU 172 Musical Diction in Singing I 2 cr. Offered: Contact department for information. Usage of the International Phonetic Alphabet for clear expressive English diction for singing and Italian pronunciation.</p>
<p>MU 149A Music in the Elementary School I 2 cr. Offered: Fall, winter Not open to music majors. An introductory course for students in elementary or special education. The course covers musical concepts, skills (performing, analyzing, creating), and the appreciation needed for teaching music in the elementary classroom. Students will become familiar with music of various eras, styles and cultures.</p>	<p>MU 173 Musical Diction in Singing II 2 cr. Offered: Contact department for information. Prerequisite: MU 172. Continuation of material from MU 171 with additional study of German and French diction for singing.</p>
<p>MU 149B Music in the Elementary School II 2 cr. Offered: Winter Prerequisite: MU 149A. Not open to music majors. A continuation of MU 149A. Includes more advanced work in rhythm and pitch (minor keys, harmony and polyphony), concepts of timbre and dynamics and musical performance emphasizing skills in accompanying.</p>	<p>MU 174 Opera Theatre Workshop 1 cr. Offered: Contact department for information. The course offers practical experience in the performance of operatic scenes or whole operas. Techniques of operatic acting, analysis of roles, musical pantomime and exercises in visualization and concentration. <i>Note: May be repeated for credit.</i></p>
<p>MU 150 Percussion Class 2 cr. Offered: Contact department for information. A course of study for prospective instrumental teachers. Percussion instruments are taught through class instruction; knowledge of all percussion instruments is stressed.</p>	<p>MU 181 Performance I-Woodwind 1 cr. Offered: Fall, winter Prerequisite: Audition. Flute, oboe, clarinet, bassoon, saxophone. One individual half-hour lesson per week with concentration on tone production, embouchure formation, breath control and articulation. Representative solos and technical exercises are used. Students who play clarinet must accept the soprano B-flat for their study. Similarly, any student who plays a secondary saxophone (tenor, baritone) may take no more than one semester before switching to the E-flat alto saxophone. <i>Note: May be repeated for credit.</i></p>
<p>MU 151 Performance I-Percussion 1 cr. Offered: Fall, winter Prerequisite: Audition. One individual half-hour lesson per week with emphasis on the fundamental performance concepts and techniques of percussion instruments. Snare drum and keyboard instruments are stressed for this level of study. <i>Note: May be repeated for credit.</i></p>	<p>MU 201 Theory III 2 cr. Offered: Fall Prerequisite: MU 104. Study, analysis and composition of counterpoint, chromatic harmony and larger forms with historical applications to Renaissance, Baroque and Classical periods.</p>
<p>MU 161 Performance I-Strings 1 cr. Offered: Fall, winter Prerequisite: Audition. Violin, viola, violoncello, string bass. One individual half-hour lesson per week with emphasis on the development of independence of the left hand, scales and shifting in seven positions. <i>Note: May be repeated for credit.</i></p>	

<p>MU 202 Sight Singing and Ear Training III 2 cr. Offered: Fall Prerequisite: MU 105.</p> <p>Continuation of development begun in MU 105; emphasis on transient modulations and altered chords.</p>	<p>A course including vocal fundamentals in rehearsals, rehearsal techniques, literature, scheduling, curriculum, promotional activities, organizing the singers, style and traditions, and performances.</p>
<p>MU 203 Music History and Literature I: Ancient Music to 1750 3 cr. Offered: Contact department for information. Prerequisites: MU 125 and MU 201 or instructor's permission.</p> <p>Chronological study of music literature and its development in Western civilization from ancient music through the Baroque period.</p>	<p>MU 230H High Brass Class 1 cr. Offered: On demand</p> <p>A course designed for prospective instrumental teachers. Fundamentals of all brass instruments are studied with emphasis on teaching procedures. Students concentrate sufficiently on one instrument (cornet or horn).</p> <p><i>Note: May be repeated once for credit.</i></p>
<p>MU 204 Theory IV 2 cr. Offered: Winter Prerequisite: MU 201.</p> <p>Continuation of the study of chromatic materials begun in MU 201 with additional study of extended harmony. Nineteenth and 20th centuries are explored through analysis, study and composition.</p>	<p>MU 230L Low Brass Class 1 cr. Offered: On demand</p> <p>A course designed for prospective instrumental teachers. Fundamentals of all brass instruments are studied with emphasis on teaching procedures. Students concentrate sufficiently on one instrument (trombone or tuba).</p> <p><i>Note: May be repeated once for credit.</i></p>
<p>MU 205 Form and Analysis 2 cr. Offered: On demand Prerequisite: MU 201.</p> <p>Examination of the components of musical structural design. Basic elements of homophonic and contrapuntal forms are studied through scores and recordings. Emphasis is placed on the study of forms of the Middle Ages through the 20th century.</p>	<p>MU 231 Performance II-Brass 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. A continuation of MU 131 with advanced levels of études and solo literature studied. Students perform on a student recital at least once a semester. Satisfactory completion of this level and promotion to the next are required before students can qualify for a senior recital.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 206 Music History and Literature II: 1750 to the Present 3 cr. Offered: Every other winter. Prerequisites: MU 201 and MU 203 or instructor's permission.</p> <p>A continuation of MU 203. A chronological study of music literature and its development in Western civilization from the classic period through the 20th century.</p>	<p>MU 241 Performance II-Keyboard 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. A continuation of MU 141 with advanced levels of repertoire. Students perform in a student recital at least once a semester. Satisfactory completion of this level and promotion to the next are required before students can qualify for a senior recital.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 208 Conducting I 2 cr. Offered: On demand Prerequisites: MU 104 and MU 105.</p> <p>A course designed to develop comprehension of the musical score and the acquisition of a baton technique that exemplifies this understanding.</p>	<p>MU 251 Performance II-Percussion 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. A continuation of MU 151 with inclusion of timpani, drum set and more advanced levels of proficiency in keyboard and accessory percussion instruments. Students perform on a student recital at least once a semester. Satisfactory completion of this level and promotion to the next are required before student can qualify for a senior recital.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 209 Conducting II 2 cr. Offered: Contact department for information. Prerequisite: MU 208.</p> <p>Continuation of MU 208 with emphasis on rehearsal technique, score comprehension and expressive conducting.</p>	<p>MU 260U Upper Strings Class 1 cr. Offered: On demand</p> <p>A course devoted to teaching the basic skills of violin and viola to prospective teachers. Principles of bow control and elementary left-hand techniques are studied.</p> <p><i>Note: May be repeated once for credit.</i></p>
<p>MU 210 Sight Singing and Ear Training IV 2 cr. Offered: Winter Prerequisite: MU 202.</p> <p>Further development of the skills involving more complex modulations, changing meters and 20th-century melodic and harmonic idioms.</p>	
<p>MU 212 Choral Methods 2 cr. Offered: Contact department for information. Prerequisite: MU 208 or instructor's permission.</p>	

<p>MU 260L Lower Strings Class 1 cr. Offered: On demand</p> <p>A course devoted to teaching the basic skills of cello and bass to prospective teachers. Principles of bow control and elementary left-hand techniques are studied.</p> <p><i>Note: May be repeated once for credit.</i></p>	<p>One individual half-hour lesson and one class per week. Continuation of MU 181 with advanced études and solo literature. Students perform a recital at least once a semester. Satisfactory completion of this level and promotion to the next is required before the student can qualify for a senior recital.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 261 Performance II-Strings 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p> <p>Violin, viola, violoncello, string bass. One individual half-hour lesson and one class per week. Continuation of MU 161 with emphasis on vibrato and development of detached and legato bowings. Satisfactory completion of this level and promotion to the next is required before a student can qualify for a senior recital and graduation. Students perform on a student recital at least once during the year.</p> <p><i>Note: May be repeated for credit.</i></p>	<p>MU 295 Special Topics in Music 1-4 cr. Offered: On demand</p> <p>Topics dependent on students' needs and interests.</p> <p>MU 320 Survey of Jazz, from its Origins to the Present 4 cr. Offered: Winter Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. • Satisfies the upper division liberal studies requirement. <p>This course explores jazz from its origins at the turn of the century to its present forms. Emphasis will be on the music itself, with some consideration of the socio-cultural situations that act as catalysts to the music's various stylistic features.</p>
<p>MU 265 Piano Pedagogy 2 cr. Offered: On demand</p> <p>Specialized training in materials and techniques for piano teachers. The course includes a survey of current methods, observation of individual and group lessons, preparation of mini-lessons and discussion of business procedures for establishing a piano studio.</p>	<p>MU 325 World Music 4 cr. Offered: Fall, winter Prerequisite: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. • Satisfies the upper division liberal studies requirement. • Satisfies the world cultures requirement. <p>A survey of non-Western music from a representative music culture (or cultures) emphasizing music's place in a culture, its historical development, and analysis and interpretation of forms of aesthetic expression.</p>
<p>MU 271 Performance II-Vocal 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. Continuation of MU 171 with more work on technique and further development of a concept of singing, agility and range. Repertoire should include German Lieder with continued study of Italian and English songs. Students perform on a student recital at least once during the year.</p> <p><i>Note: May be repeated for credit.</i></p>	<p>MU 331 Performance III-Brass 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. Continuation of MU 231 with advanced levels of études and solo literature studied. Students perform on a student recital each semester.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 280D Double Reeds Class 1 cr. Offered: On demand</p> <p>A class demonstrating the characteristics unique to the oboe, bassoon and English horn. Students are exempt from studying their major instrument.</p> <p><i>Note: May be repeated once for credit.</i></p>	<p>MU 341 Performance III-Keyboard 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam.</p> <p>One individual half-hour lesson and one class per week. Continuation of MU 241 with advanced levels of literature. Students perform on a student recital each semester.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 280F Flute Class 1 cr. Offered: On demand</p> <p>Teaching procedures demonstrating the characteristics unique to the flute. Flute majors are exempt from this course.</p>	<p>MU 345A Marching Band Practicum 1 cr. Offered: On demand Prerequisite: MU 114.</p> <p>Study of marching band procedures, such as drill writing, marching styles, uniforms, instrument care, music selection, auxiliary percussion and flags. Students serve as assistant drill instructors with marching band.</p> <p><i>Note: May be repeated for credit.</i></p>
<p>MU 280S Single Reeds Class 1 cr. Offered: On demand</p> <p>Teaching procedures demonstrating the characteristics unique to the clarinet and saxophone. Students are exempt from the study of their major instrument.</p> <p><i>Note: May be repeated once for credit.</i></p>	
<p>MU 281 Performance II-Woodwind 1 cr. Offered: Fall, winter Prerequisite: Passing 200-level proficiency exam.</p>	

<p>MU 345B Symphonic Band Practicum 1 cr. Offered: On demand Study of literature, methods of instruction and procedures for symphonic bands. <i>Note: May be repeated for credit.</i></p>	<p>MU 381 Performance III-Woodwind 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 281 with continued emphasis on repertoire. Students perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 349 Methods and Materials in Teaching Music Education I 2 cr. Offered: Every other fall; Every other winter. Prerequisites: MU 201 and MU 202 or instructor's permission. An in-depth study of contemporary music education in grades K-6. The course includes a study of performance objectives, philosophical and musical concepts, instructional methods and materials, and various innovative approaches used in the general music class. Each student observes and participates in general music classes in area schools on a limited basis. <i>Note: May not be applied toward a non-teaching major or any minor in music.</i></p>	<p>MU 431 Performance IV-Brass 1 cr. Offered: Fall, winter Prerequisites: Passing 400-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 331 representing the highest level of undergraduate achievement. More challenging works are studied. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 350 Methods and Materials in Teaching Music Education II 2 cr. Offered: Every other fall; Every other winter. Prerequisites: Admission to the methods phase of teacher education. All core courses MU 101- MU 210; and instructor's permission. A study of contemporary music education in today's secondary schools (grades 7-12). The course includes a study of teaching and administrative procedures. Students are exposed to various philosophies of vocal and instrumental music education. Technical problems such as the changing voice and general music classes are discussed. <i>Note: May not be applied toward a non-teaching major or any minor in music.</i></p>	<p>MU 441 Performance IV-Keyboard 1 cr. Offered: Fall, winter Prerequisite: Passing 400-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 341 representing the highest level of undergraduate achievement. More challenging works are studied. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 351 Performance III-Percussion 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 251 with emphasis upon mallet keyboard and multiple percussion. Care and maintenance of percussion are applied. Composition and improvisation are encouraged. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>	<p>MU 451 Performance IV-Percussion 1 cr. Offered: Fall, winter Prerequisite: Passing 400-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 351 with study of all percussion instruments. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 361 Performance III-Strings 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam. Violin, viola, viollo, cello, string bass. One individual half-hour lesson and one class per week. Continuation of MU 261 with stress on bowing strokes (sautille and flying staccato) and pacing the bowing for phrasing. Students perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>	<p>MU 461 Performance IV-Strings 1 cr. Offered: Fall, winter Prerequisite: Passing 400-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 361 with further development of technique, tone and repertoire. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 371 Performance III-Vocal 1 cr. Offered: Fall, winter Prerequisite: Passing 300-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 271 with more work on technique. Repertoire should expand into the French literature with some simple oratorio and/or operatic arias. Students perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>	<p>MU 471 Performance IV-Vocal 1 cr. Offered: Fall, winter Prerequisite: Passing 400-level proficiency exam. One individual half-hour lesson and one class per week. Continuation of MU 371 with work on technique and repertoire of all areas of vocal literature. Students are expected to perform on a student recital each semester. <i>Note: May be repeated for credit.</i></p>
<p>MU 478 Advanced Seminar in Music Theory 1-2 cr. Offered: Contact department for information. Prerequisites: MU 204 and instructor's permission. Topics may vary (advanced theory, counterpoint, etc.). <i>Note: May be repeated if topic differs.</i></p>	

MU 480 Advanced Topics in Music History 1-2 cr.

Offered: Contact department for information.
 Prerequisites: MU 203, MU 204, MU 205, MU 206 and instructor's permission.
 Topics vary (period, genre, composer or select group of compositions) and are announced when the course is offered.

Note: May be repeated if topic differs.

MU 481 Performance IV-Woodwind 1 cr.

Offered: Fall, winter
 Prerequisite: Passing 400-level proficiency exam.
 One individual half-hour lesson and one class per week. Continuation of MU 381 representing the highest level of undergraduate achievement. Advanced repertoire and stylistic interpretation is emphasized. Students are expected to perform a recital each semester.

Note: May be repeated for credit.

MU 490 Senior Recital 1 cr.

Offered: Fall, winter
 Prerequisite: Promotion to the 300 level, junior standing or instructor's permission. Completion of all proficiency exams.
 A required public recital (full or partial) or its equivalent prepared with the approval and assistance of a faculty member. Works programmed must meet the standard of the department (Performance Level III) and be performed with satisfactory style and skill.

MU 491 Senior Project 1 cr.

Offered: Fall, winter
 Prerequisites: MU 203, MU 204, MU 206 and MU 210. Junior standing or instructor's permission. Promotion to 300 level required for those seeking a performance project. Completion of all proficiency exams.
 Senior Project may be a composition, paper or performance. A project proposal must be approved by the supervising teacher and department head. A pre-presentation review must be approved by area faculty two weeks before final presentation.

MU 495 Special Topics in Music 1-4 cr.

Offered: Contact department for information.
 Prerequisites: Junior standing or instructor's permission.
 Topics dependent on student needs and interests.

MU 498 Directed Studies in Music 1-4 cr.

Offered: Contact department for information.
 Prerequisites: Junior standing and instructor and department head permission.
 Independent study of a topic determined by the student and instructor.

NAS-NATIVE AMERICAN STUDIES

Center for Native American Studies

NAS 101 Anishinaabe Language, Culture and Community I 4 cr.

Offered: Fall
 • Satisfies the formal communication studies requirement.

An introduction to Anishinaabemowin language including grammar, vocabulary, idioms and syllabics. Students will learn to read, write and speak basic Anishinaabemowin. This course also promotes the preservation of Anishinaabe culture by examining various facets of Anishinaabe everyday life and contemporary issues.

NAS 102 Anishinaabe Language, Culture and Community II 4 cr.

Offered: Winter
 Prerequisite: NAS 101 or equivalent.

- Satisfies the formal communication studies requirement.

An in-depth study of Anishinaabemowin language. This course is a continuation of materials introduced in NAS 101. Students will focus on higher-level use of the language and will apply it in situations related to contemporary Anishinaabe cultural issues and community structures.

NAS 204 Native American Experience 4 cr.

Offered: Fall, winter, summer
 • Satisfies the foundations of humanities requirement.
 • Satisfies the world cultures requirement.

A study of the development of Native American history, culture, attitudes and issues from the prehistoric era to the contemporary scene, focusing on native culture in the Great Lakes region. Shared native world view, contact experience and native peoples' contributions to world culture are an important part of the course.

NAS 280 Storytelling by Native American Women 4 cr.

Offered: Winter
 This course examines a myriad of historic and contemporary aspects of native life through the eyes and stories of Native American women. Subjects include customs, culture, family, generations, mothers, daughters, grandmothers, art, education, fiction, poetry, political activism and spirituality.

NAS 287 The Legal and Political History of Michigan Indian Education 2 cr.

Offered: Fall
 Students will examine the legal and political history of Indian education within the State of Michigan. Designed for students interested in Indian education programs, the course covers pre-colonial considerations, early colonial policy, treaties with education provisions, the boarding school era, and self-determination/self-education efforts.

NAS 288 The Politics of Indian Gaming 4 cr.

Offered: Winter
 • Satisfies the social sciences requirement.
 Students will gain insight into contemporary issues surrounding the laws and politics of Indian gaming. It is designed to introduce students to the complexity of inter/intra-governmental relationships that bring together tribal governments and other external governments (i.e. local, state, federal and international).

NAS 295 Special Topics 1-4 cr.

Offered: Contact department for information.
 Investigation of significant topic, theme or group of works. Content varies.

NAS 298 Directed Study in Native American Studies 1-4 cr.
Offered: On demand

Students are able to pursue further study in an area of interest under the direction of the director of the Center for Native American Studies or a Native American Studies faculty member. Prior to taking this course, students must have completed NAS 204.

Note: All directed studies must be pre-approved.

NAS 310 Tribal Law and Government 4 cr.
Offered: Fall

- Satisfies the social sciences requirement.

A focus on the relationship between American Indian tribes, the federal government and states. Emphasis is placed on examining the current state of tribal governments and tribal citizens within the State of Michigan. Students will examine the U.S. Constitution, treaties and tribals, federal and state laws and court cases.

NAS 484 Native American Inclusion in the Classroom 2 cr.
Offered: Fall

This course will challenge students' preconceptions of what Native American inclusion means and provide methods and materials that will help them meet state standards while effectively including Native American cultural concepts across the curriculum. Emphasis is on State of Michigan standards and Anishinaabe language and cultural concepts.

NAS 485 American Indian Education 3 cr.
Offered: Winter

Students will explore significant American Indian education policy from pre-colonial times to the present day. Students will investigate treaties with educational provisions, current U.S. federal Indian education law; standards-based reform and Native American inclusion. Through online chat rooms, students will discuss these issues with individuals from different parts of the world.

NAS 488 Native American Service Learning Project 1-4 cr.
Offered: On demand

This is a capstone course for the Native American Studies minor. Students will complete an approved service learning project in Native American Studies under the guidance of the Director of the Center for Native American Studies upon completion of all other requirements for the minor.

NE - NURSING

School of Nursing

NE 001 through NE 009 Bachelor of Nursing Assessment Examinations and Review Course
Graded: S/U

Examinations and a review course required for BSN students, designed to assist students in their progression through the curriculum. Course descriptions list the appropriate co-requisite.

NE 200 Basic Health Assessment, Interviewing and Communication (Theory) 2 cr.

Offered: Fall, winter

Prerequisite: Admission to the nursing major or instructor's permission.

Co-requisite: NE 002 Fundamentals.

Taken concurrently with NE 200L, NE 201, NE 202 and NE 222.

The focus of this course is learning basic assessment skills. Assessments of mental status, psycho-social status, functional patterns and physical status will be taught with a systems approach. Skills in interviewing, communication, history taking and physical assessment will be attained.

NE 200L Basic Health Assessment, Interviewing and Communication (Lab) 1 cr. (0-0-2)

Offered: Fall, winter

Graded S/U

Prerequisite: Admission to the nursing major or instructor's permission.

Taken concurrently with NE 200, NE 201, NE 202 and NE 222.

The focus of this course is the application of theory taken in NE 200. Students will practice organization, analysis and communication of data using a basic diagnostic reasoning process. The development of these skills will take place in a laboratory setting.

NE 201 Introduction to Nursing Concepts (Theory) 4 cr.

Offered: Fall, winter

Prerequisite: Admission to the nursing major.

Taken concurrently with NE 200, NE 200L, NE 202 and NE 222.

Students will be introduced to major concepts in the nursing model, laying a foundation for the major. The client as an individual is viewed as a total system. Focus is on health promotion and maintenance with adaptive mechanisms identified.

NE 202 Introduction to Nursing Skills I (Lab) 1 cr. (0-0-2)

Offered: Fall, winter

Graded S/U

Prerequisite: Admission to the nursing major or instructor's permission.

Taken concurrently with NE 200, NE 200L, NE 201 and NE 222.

This course focuses on skills required to care for adult clients using demonstration and simulated practice.

NE 204 Introduction to Nursing Skills II (Clinical) 2 cr. (0-0-4)

Offered: Fall, winter

Graded S/U

Prerequisites: NE 200, NE 200L, NE 201 and NE 202.

Taken concurrently with NE 301, NE 302 and NE 212.

Students will use the skills taught in NE 202 in a structured, non-emergent environment.

NE 212 Pharmacology and Therapeutics 2 cr.

Offered: Fall, winter

Prerequisites: BI 104 or BI 201 and BI 202.

Usually taken concurrently with NE 301, NE 302 or PN 116, PN 122 and PN 126.

This course focuses on the fundamentals of drug actions, the application of specific drugs in treatment of disease, normal and abnormal responses to drug therapy and appropriate nursing actions to achieve desired outcomes of drug therapy.

Note: May be taken by non-nursing majors.

<p>NE 222 Concepts of Altered Health States 3 cr. Offered: Fall, winter Prerequisites: BI 104 or BI 201 and BI 202.</p> <p>How normal physiological processes are altered by disease. Theories relating to pathogenesis, etiology and clinical manifestations are used to study common diseases. Concepts from anatomy and physiology provide the foundation for exploring altered physiologic function and are basic to the nursing practice.</p> <p><i>Note: May be taken by non-nursing majors.</i></p>	<p>of NE 311 in the care of adult clients experiencing complex health needs in a structured environment in the hospital, home or community setting.</p>
<p>NE 295 Special Topics in Nursing 1-4 cr. Offered: Winter Prerequisite: Instructor's permission.</p> <p>Study of a particular topic reflecting special interests of students and instructor. Intended for freshmen and sophomores.</p> <p><i>Note: May be repeated if topic differs.</i></p>	<p>NE 322 Introduction to Nursing Research 2 cr. Offered: Fall, winter Prerequisites: NE 200, NE 200L, NE 201, NE 202, NE 204 and NE 301/302. Usually taken concurrently with NE 311 and NE 312.</p> <p>This course is intended to provide an introduction to the research process in nursing, an appreciation of the development and use of the scientific method in the discipline of nursing, and its application to human responses and health behavior across the life span.</p>
<p>NE 301 Psychiatric/Mental Health Nursing (Theory) 3 cr. Offered: Fall, winter Prerequisites: NE 200, NE 200L, NE 201 and NE 202. Co-requisites: NE 003 Mental Health Nursing, NE 003 Therapeutic Communication, NE 204 Introduction to Nursing Skills II (Clinical).</p> <p>The focus of this course is on the use of the nursing process to provide care for individuals and groups of mental health clients. Stress adaptation, development and psychological models are used as a theoretical foundation for the development and implementation of nursing care that promotes and/or maintains mental health.</p>	<p>NE 336 Nursing in a Multi-Cultural Society 2 cr. Offered: On demand Prerequisites: NE 301 and NE 302 or instructor's permission.</p> <p>Explores cultural practices and patterns relative to health and illness among special populations. Emphasis is on the use of the nursing process to provide culturally sensitive care to clients within the American culture.</p>
<p>NE 302 Psychiatric/Mental Health Nursing (Clinic) 3 cr. (0-0-6) Offered: Fall, winter Graded S/U Prerequisites: NE 200, NE 200L, NE 201 and NE 202. Taken concurrently with NE 301.</p> <p>Students will develop and implement therapeutic modalities that promote and/or maintain mental health with mentally ill clients. Opportunities are provided to integrate learning into practice in clinical settings that include in and out-patient mental health programs.</p>	<p>NE 352 Advanced Concepts in Family Nursing 4 cr. Offered: On demand Prerequisites: NE 311 and NE 312 or concurrent enrollment, or instructor's permission.</p> <p>An exploration of family nursing in which the family unit is the focus of care. Family assessment models provide the framework for planning nursing care for families in a variety of health care settings.</p>
<p>NE 311 Adult Health Nursing (Theory) 4 cr. Offered: Fall, winter Prerequisites: NE 222, NE 212, NE 301, NE 302, BI 203 and HN 210/ HN 301. Co-requisites: NE 004 Adult Health I, NE 004 Adult Health II (Medical-Surgical), NE 312 Adult Health Nursing (Clinical).</p> <p>This course provides the theoretical foundation necessary to make critical decisions in planning and implementing therapeutic nursing interventions in caring for the adult experiencing acute complex health needs in a structured hospital or home environment.</p>	<p>NE 370 Cardiac Arrhythmias and Nursing Care 2 cr. Offered: On demand Prerequisites: BI 104 or BI 201, BI 202, NE 200, NE 200L, NE 201, NE 202, NE 212 and NE 222.</p> <p>This course covers the fundamentals of single-lead, basic cardiac rhythm and arrhythmia interpretation and current treatments. The student will be able to recognize common cardiac rhythms and arrhythmias and describe related nursing care.</p>
<p>NE 312 Adult Health Nursing (Clinical) 6 cr. (0-0-12) Offered: Fall, winter Graded S/U Prerequisites: NE 222, NE 212, NE 301, NE 302, BI 203 and HN 210 or HN 301. Taken concurrently with NE 311.</p> <p>This clinic provides an opportunity to implement the theoretical foundation</p>	<p>NE 371 Maternal-Infant Nursing (Theory) 2 cr. Offered: Fall, winter Prerequisite: NE 311 and NE 312. Taken concurrently with NE 372, NE 381 and NE 382.</p> <p>Emphasis is on the family unit during pregnancy. Physiological adaptation of the mother/baby following delivery are explored, as are the psycho-social adaptations that are required.</p>
	<p>NE 372 Maternal-Infant Nursing (Clinical) 2 cr. (0-0-4) Offered: Fall, winter Graded S/U Prerequisite: NE 311 and NE 312. Co-requisite: NE 009 Childbearing Taken concurrently with NE 371, NE 381 and NE 382.</p> <p>The emphasis of the clinic is to apply the nursing process in maternal-infant care in an acute care maternal/child setting as well as community settings. Students are assigned a 1:1 intrapartum care experience.</p>

<p>NE 381 Child and Family Nursing (Theory) 4 cr. Offered: Fall, winter Prerequisites: NE 311 and NE 312. Co-requisites: NE 005 Pediatric Nursing, NE 371, NE 372 and NE 382. This course focuses on the nursing care of children from infancy through adolescence and their family units. Growth and development, health promotion, family theories, disease prevention and care of the child with simple and complex health needs are examined.</p>	<p>NE 420 Community Health Nursing and Continuity of Care (Theory) 4 cr. Offered: Fall, winter Prerequisites: NE 371 and NE 372, NE 381 and NE 382. Co-requisites: NE 007 Community Health Review (RNs are not exempt), NE 001 RN-CAT (RNs are exempt), NE 421, NE 422. The focus is the use of the nursing process in the care of health aggregates to provide seamless care. Public health nursing principles are applied to promote desired health outcomes in community and home environments.</p>
<p>NE 382 Child and Family Nursing (Clinic) 3 cr. (0-0-6) Offered: Fall, winter Graded S/U Prerequisites: NE 311 and NE 312. Taken concurrently with NE 381, NE 371 and NE 372. This course provides an opportunity for students to practice nursing skills and apply nursing theory with children and their families in community and in-patient settings. <i>Note: This course is taught in a seven-week block.</i></p>	<p>NE 421 Community Health Nursing and Continuity of Care (Clinic) 4 cr. (0-0-8) Offered: Fall, winter Graded S/U Prerequisites: NE 371, NE 372, NE 381 and NE 382. Taken concurrently with NE 420 and NE 422. The focus is on application of NE 420 concepts to the nursing process using various role dimensions in community and home-care nursing. Care is provided to individuals, families and aggregates in selected structured and unstructured environments.</p>
<p>NE 391 Transitions in Professional Nursing: Theory 2 cr. Offered: Winter Prerequisite: Must be a registered or graduate nurse. An overview and synthesis of professional concepts of nursing. Historical influences, philosophical perspectives, factors that influence socialization into the profession and the development of professional self-concept are explored.</p>	<p>NE 422 Nursing Issues Seminar 2 cr. Offered: Fall, winter Prerequisites: NE 371, NE 372, NE 381 and NE 382. Taken concurrently with NE 420 and NE 421. This course is designed to provide a forum to examine, analyze and develop positions on issues influencing current nursing practice. A variety of teaching and learning strategies will be used to explore topics pertinent to today's professional nurse.</p>
<p>NE 392 Transitions in Professional Nursing: Clinic 1 cr. Offered: Winter Graded S/U Prerequisites: NE 391 or concurrent enrollment. Must be a registered or graduate nurse. Demonstration and practice of selected nursing and physical assessment skills in a laboratory setting. Provides an opportunity to implement the theoretical foundations of NE 391.</p>	<p>NE 431 Management Concepts in Nursing (Theory) 2 cr. Offered: Fall, winter Prerequisites: NE 420, NE 421 and NE 422. Taken concurrently with NE 432 and NE 435. The primary focus is to provide the requisite knowledge and skills for development of the leader/manager roles including provider, collaborator and coordinator. Focus is on the competencies needed in the delivery of care and to those needed to function within the organizational structure of clinical and community settings.</p>
<p>NE 399 Advanced Nursing Apprenticeship 1-2 cr. Offered: Winter Prerequisites: Registered nurse graduate accepted into nursing major. Application of clinical knowledge to a variety of settings. Directed apprentice activities in laboratory sections of undergraduate courses, specifically in the Nursing Technology Center. The RN to BSN student would work under the direction and supervision of the clinical instructor. <i>Note: May be repeated in different settings. Not to exceed four credits total.</i></p>	<p>NE 432 Management Concepts in Nursing (Clinic) 4 cr. (0-0-8) Offered: Fall, winter Graded S/U Prerequisites: NE 420, NE 421 and NE 422. Taken concurrently with NE 431 and NE 435. The primary focus is to provide opportunities to apply the knowledge and skills for the development of leader/manager role with clients with complex health problems developed in NE 431.</p>
<p>NE 404 Human Sexuality for Health Care Providers 4 cr. Offered: Fall, winter Prerequisites: NE 301 concurrently, junior standing or instructor's permission. Uses a developmental view of human sexuality to apply health teaching to a variety of sexual problems. This course is designed to meet the needs of those students who will provide sexual health care to clients in various settings.</p>	<p>NE 435 Senior Nursing Seminar 2 cr. Offered: Fall, winter Prerequisites: NE 420, NE 421 and NE 422. Co-requisites: NE 006 Review Course (RNs are exempt), NE 431 and NE 432.</p>

This is a capstone experience to synthesize knowledge from liberal education courses and nursing for the purpose of making critical judgments and creating holistic nursing care that demonstrates mastery of the BSN program's terminal objectives.

NE 491 Nursing Practicum/Internship 1-4 cr.

Offered: On demand

Prerequisites: Junior or senior nursing status, RN's accepted into the nursing major.

Supervised clinical experience through university-arranged placements which would include in-patient, out-patient and/or community-focused agencies. The student would work under the direction and supervision of the clinical instructor and identified preceptors at the specified agencies.

NE 495 Special Topics in Nursing 1-4 cr.

Offered: Winter

Prerequisite: Junior standing and instructor's permission.

Study of a particular topic reflecting the special interest of students and the instructor.

Note: May be repeated for credit if topic varies.

NE 498 Directed Study in Nursing 1-4 cr.

Offered: On demand

Prerequisites: Junior standing and instructor and department head permission.

Independent study by qualified undergraduates in an area to be defined by the student and instructor.

OC - OCCUPATIONAL STUDIES

Technology and Occupational Sciences Department

OC 080 General Mathematics 4 cr.

Offered: On demand

Remedial or developmental course. Does not meet requirements for associate or bachelor's degrees, but may meet requirements for vocational diplomas and certificates. Course is not calculated in the NMU grade point average and is not counted as earned credit hours toward an associate or bachelor's degree.

A review of whole numbers, decimals, fractions, ratio and proportion, and percent. Stress is placed on learning the basic concepts of algebra, use of formulas, the metric system, powers and roots of numbers and calculator use. Includes an introduction to geometry. This course is intended to serve students in certificate and degree programs that do not possess the skills necessary to succeed in MA 090, Elementary Algebra.

OIS - OFFICE INFORMATION SYSTEMS

College of Business

OIS 101 Keyboarding for Information Processing 1 cr.

Offered: Fall, winter

Development of basic touch keyboarding skills for persons who will be using a computer for processing information. Course meets seven weeks.

OIS 103 Beginning Formatting 1 cr.

Offered: Fall, winter

Prerequisite: OIS 101 or equivalent.

Development of keyboarding skills using the computer with major emphasis on formatting basic business letters, tables and reports.

Note: Course meets eight weeks.

OIS 121 Introduction to Business 4 cr.

Offered: Fall, winter

Introduction to the principles, organizational structure and functions of the business system. Study of business careers, influence of business in the American culture, informed citizenship, human factors and the decision-making process of business in a free enterprise system.

OIS 161 Word Processing I 4 cr.

Offered: Fall, winter

Prerequisite: OIS 103 or equivalent.

Introduces common business documents and basic word-processing techniques. Students have hands-on practice formatting and editing a variety of business documents including correspondence, tables and reports. Keyboarding speed and accuracy skills are developed. Effective use of the Microsoft Windows operating system, e-mail and the Internet will also be covered.

OIS 171 Medical Terminology 4 cr.

Offered: Fall, winter

The terminology for each major body system is presented. Emphasis is placed on correct identification and spelling of the body systems and the commonly used disease and treatment terms for each system.

OIS 172 Diagnostic and Therapeutic Terminology 4 cr.

Offered: Winter

Prerequisite: Grade of "C-" or better in OIS 171.

This course will enable the student to correctly identify and spell commonly used diagnostic, laboratory and medical procedure terminology. Emphasis is on specialty areas such as radiology, pharmacology, nuclear medicine and pathology.

OIS 183 Business Administrative Procedures 4 cr.

Offered: Fall

Course deals with administrative and general business procedures for the office. Content includes efficient procedures for managing appointments, handling mail, telephone, office supplies and equipment, records processing, reprographics and customer service.

OIS 185 Introductory Software Applications 4 cr.

Offered: Fall, winter

Students develop basic skills in the operation of spreadsheet and database software. Spreadsheet competencies include spreadsheet design, creating and formatting basic spreadsheets and charts, creating basic and advanced formulas and functions, and manipulating large spreadsheets. Database competencies include terminology, creating and manipulating files, queries, and creating and modifying forms and reports.

<p>OIS 190 Professional Development 3 cr. Offered: Fall, winter</p> <p>This course is designed to help students take control of their lives by developing an awareness of their emotional, intellectual and physical potential. Through a process of self-development, students will discover their values, increase their commitment to professional goals and balance their technical skills with human relations competencies.</p>	<p>A lecture/application course that emphasizes processing health information in ambulatory care settings including, but not limited to, physicians' offices, outpatient surgery and medical clinics. Students will use office management skills as they apply to the health care industry.</p>
<p>OIS 244 Applied Office Communication 3 cr. Offered: Fall, winter</p> <p>Development of skills in production of business messages for office personnel. Application of oral and written communication for office support personnel is emphasized. Not open to students who have completed MGT 344.</p> <p><i>Note: It is recommended that students enroll in this course after completing EN 111 College Composition.</i></p>	<p>OIS 273 Medical Coding 3 cr. Offered: Winter Prerequisites: Grade C- or better in OIS 171, OIS 172, OIS 270, OIS 271 or instructor's permission.</p> <p>A lecture/application course in which students develop entry-level medical diagnostic and procedural coding skills using current protocol like the International Classification of Diseases, Clinical Modification (ICD-CM) and Current Procedural Terminology (CPT). Emphasis is placed on accurate and ethical coding practices as they effect reimbursement for health care services.</p>
<p>OIS 261 Word Processing II 3 cr. Offered: Winter Prerequisite: Grade of "C-" or better in OIS 161.</p> <p>This course enables students to further develop production skill in the use of word processing software programs. Students will develop proficiency in advanced word processing techniques.</p>	<p>OIS 280 Introduction to Law, Legal Assistant 4 cr. Offered: Contact department for information.</p> <p>Introduction to the American legal system with an emphasis on the Michigan court system. Emphasis is on the role of the legal secretary in the law office.</p>
<p>OIS 263 Business Document Editing 4 cr. Offered: Fall, winter Prerequisites: OIS 161.</p> <p>Emphasis is on grammar, usage and the chief elements of style—punctuation, number expression, capitalization, word choice, abbreviations, and plurals and possessives. Students develop skill in processing text from oral to printed form by transcribing on the computer from recorded media or through the use of voice recognition software.</p>	<p>OIS 281 Legal Office Procedures 4 cr. Offered: Contact department for information. Prerequisites: OIS 261, OIS 262 and OIS 280.</p> <p>A course dealing with office duties of special interest to the legal secretary. Proper client relationships and legal ethics are emphasized. Practical experience is provided in the preparation of various legal documents.</p>
<p>OIS 266 Medical Transcription 3 cr. Offered: Fall Prerequisites: Grade of "C-" or better in OIS 161, OIS 162, OIS 171 and OIS 172.</p> <p>A course in which the student transcribes a variety of common medical reports covering a wide range of medical specialties from prepared tapes. It requires approximately 60 hours of machine transcription practice on materials such as the American Medical Records Association study tapes and other supplemental materials.</p>	<p>OIS 285 Advanced Software Applications and Integration 3 cr. Offered: Fall, winter Prerequisites: OIS 185, OIS 261 and IS 105.</p> <p>Students further develop skills using spreadsheet and database software. In addition, students develop skills integrating word processing, spreadsheet, database and presentation graphics documents. Emphasis is on merging, linking and embedding worksheets, charts and tables into word processing and presentation documents, as well as analyzing database information in a spreadsheet program.</p>
<p>OIS 270 Health Information Processing 4 cr. Offered: Fall Prerequisites: Grade of "C-" or better in OIS 171 and OIS 172.</p> <p>This lecture/application course covers health information processing activities in hospital and other in-patient settings. Topics include, but are not limited to, organization of the health care industry, legal issues related to health information processing; assembly, analysis, filing, storage and retrieval of health information; and computer applications in health information processing.</p>	<p>OIS 291 Medical Transcription Internship 2 cr. Offered: Winter Prerequisites: Grade of C- or better in OIS 171, OIS 172 and OIS 266 or instructor's permission.</p> <p>This course is designed to enable students to develop proficiency as an entry-level medical transcriptionist through a medical transcription placement experience and a post-placement seminar.</p>
<p>OIS 271 Medical Office Procedures 3 cr. Offered: Winter Prerequisites: Grade of "C-" or better in OIS 171, OIS 172, OIS 270 and OIS 183.</p>	<p>OIS 293 Integrated Office 4 cr. Offered: Fall, winter Prerequisites: OIS 183, OIS 190, OIS 261 and OIS 262.</p> <p>Students reinforce office skills and develop new office skills through employment testing experiences, an office placement experience and comprehensive exit examinations. Students gain experience in problem solving, performance appraisal, and accepting responsibility. Students further develop communication skills and have the opportunity to develop and demonstrate initiative and positive work attitude.</p>

<p>OIS 295 Special Topics in Office Information Systems 1-4 cr. Offered: Contact department for information. A detailed study of one or more special topics in office information systems.</p>	<p>PE 101 Volleyball 0.5 cr. Offered: Winter Students learn the skills, techniques and teaching aspects of volleyball.</p>
<p>OIS 296 Special Topics in Office Information Systems 1-4 cr. Offered: Contact department for information. Graded S/U Detailed study of one or more special topics in Office Information Systems.</p>	<p>PE 103 Tumbling Activities 0.5 cr. Offered: Winter Students learn the skills, techniques and teaching aspects of tumbling.</p>
<p>OIS 350 Methods and Materials in Teaching Business Education 4 cr. Offered: Fall Prerequisites: Admission to the methods phase of teacher education. Orientation to the field of business education with attention to objectives, procedures, instructional materials and evaluation, as well as to keyboarding/typewriting, accounting, basic business subjects, economics, marketing, management, information technologies and office procedures/office block courses. <i>Note: May not be applied toward a non-teaching major or any minor in the College of Business.</i></p>	<p>PE 110 Introduction to Physical Education 2 cr. Offered: Fall, winter Designed for first-year physical education majors/minors. The heritage, philosophies, basic concepts, objectives, careers and educational interrelationships of physical education. Emphasis is upon the foundations of physical education and career alternatives.</p>
<p>OIS 450 Advanced Desktop Publishing 3 cr. Offered: Contact department for information. Prerequisites: IS 107, IS 207 and junior standing or instructor's permission. This course builds on Beginning and Intermediate Desktop Publishing. Students produce printed materials including brochures, newsletters, flyers and other communication documents in camera-ready format for publication and distribution. Emphasis will be on understanding the printing process, planning the printed piece, design for effective communication and the use of color.</p>	<p>PE 111 Introduction to Sports Science 1 cr. Offered: Winter Overview of basic and applied research questions and career alternatives in the specific disciplines of sports science, including anatomical kinesiology, biomechanics, exercise physiology and sports nutrition.</p>
<p>OIS 483 Studies in Business and Industry 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing and College of Business permission. Coordinated work experience providing up-to-date skills in the area of specialization. Work experience evaluated for vocational endorsement. Each hour of work will apply as five hours toward vocational endorsement.</p>	<p>PE 199 Team Sports 0.5 cr. Offered: Fall Students learn the skills, techniques and teaching aspects of team sports.</p>
<p>OIS 495 Special Topics in Office Systems and Business Education 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission. Topics based on the special interests of the students.</p>	<p>PE 200 Track and Field 0.5 cr. Offered: Winter Students learn the skills, techniques and teaching aspects of track and field.</p>
<p>OIS 498 Directed Study 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing and College of Business permission. Special individual project.</p>	<p>PE 201 Strength Training and Conditioning 0.5 cr. Offered: Winter Students learn the skills, techniques and teaching aspects of strength training and conditioning.</p>
<p>OIS 495 Special Topics in Office Systems and Business Education 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission. Topics based on the special interests of the students.</p>	<p>PE 205 Tennis 0.5 cr. Offered: Fall Students learn the skills, techniques and teaching aspects of tennis.</p>
<p>OIS 495 Special Topics in Office Systems and Business Education 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing or instructor's permission. Topics based on the special interests of the students.</p>	<p>PE 207 Badminton 0.5 cr. Offered: Fall Students learn the skills, techniques and teaching aspects of badminton.</p>
<p>OIS 498 Directed Study 1-4 cr. Offered: Contact department for information. Prerequisites: Junior standing and College of Business permission. Special individual project.</p>	<p>PE 211 Dance Survey 1 cr. Offered: Fall A broad survey of traditional and exploratory dance experiences used in education, recreation and therapeutic settings for children and adults. PE 211 is intended primarily for physical education majors and minors.</p>

PE - PHYSICAL EDUCATION

Health, Physical Education and Recreation Department

<p>PE 100 Rhythmic Movement Fundamental 0.5 cr. Offered: Fall Students learn the skills, techniques and teaching aspects of rhythmic movement.</p>	<p>PE 217 Motor Development and Elementary School Physical Education 3 cr. Offered: Winter A study of the growth and development of elementary school children. Identification and practice of suitable program content organized in a sequence of activities. Work with elementary students on implementation of proposed activities and evaluation of their suitability.</p>
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<p>PE 224 Developmental Physical Education for Elementary Teachers 2 cr. Offered: Fall, winter, summer</p> <p>A study of the developmental characteristics of children, preschool through eighth grade, and the appropriate types and kinds of physical activity that educate the child. This course is for elementary education majors only.</p>	<p>PE 318 Motor Learning and Secondary School Physical Education 3 cr. (2-0-2) Offered: Winter Prerequisite: PE 110.</p> <p>Study of motor learning and teaching methods applicable at the secondary level with emphasis on program selection and progression in the physical education curriculum.</p>
<p>PE 230 Fitness Leadership 2 cr. Offered: Fall, winter Prerequisite: HP 200 and PE 201 or equivalent.</p> <p>An introduction to the skills and abilities necessary to effectively lead fitness activities in group and individual settings.</p>	<p>PE 321 Athletic Officiating 2 cr. Offered: On demand</p> <p>The mechanics and techniques of officiating sports, along with knowledge of the rules, interpretation and ethical procedures in handling controversial decisions.</p>
<p>PE 241 Prevention and Care of Injuries 2 cr. (1-0-2) Offered: Fall, winter Prerequisite: BI 104.</p> <p>Study of symptoms, causes, prevention and immediate treatment of accidents and sudden illnesses that occur in the physical education and athletic settings.</p>	<p>PE 322 Theory of Basketball 2 cr. Offered: Fall, winter</p> <p>Coaching philosophy, organization, individual skills, team techniques, rules and strategy of basketball.</p>
<p>PE 295 Special Programs in Physical Education 1-4 cr. Offered: On demand Prerequisites: Instructor's permission.</p> <p>One or more special problems in physical education are explored and studied in detail.</p>	<p>PE 323 Theory of Football 2 cr. Offered: Winter</p> <p>Coaching philosophy, organization, individual skills, team techniques, rules and strategy of football.</p>
<p>PE 296 Special Programs in Physical Education 1-4 cr. Offered: On demand Graded S/U Prerequisites: Instructor's permission.</p> <p>One or more special problems in physical education are explored and studied in detail.</p>	<p>PE 325 Theory of Swimming 2 cr. Offered: On demand</p> <p>Analysis of fundamentals and techniques of coaching swimming, with emphasis on the development of a team, conditioning, selection of candidates, organization of practice sessions, diet, strategy and promotion.</p>
<p>PE 310 Measurement and Evaluation in Physical Education 3 cr. (2-0-2) Offered: Fall Prerequisite: PE 110.</p> <p>Analysis of the various kinds of tests and evaluative procedures used in physical education, with an emphasis on test selection, methods of administration and interpretation of results. Methods of improving grading practices in physical education are discussed.</p>	<p>PE 335 Theory of Volleyball 2 cr. Offered: On demand</p> <p>Coaching philosophy, organization, individual skills, techniques, rules and strategy of volleyball.</p>
<p>PE 315 Physiology of Exercise 4 cr. (3-0-2) Offered: Fall, winter Prerequisites: BI 104, or BI 201 and BI 202, and HP 200.</p> <p>A basic course in exercise physiology designed to provide an understanding of the effect of exercise and human motion on the body and the adaptation of the body to physiological stress.</p>	<p>PE 340 Principles of Coaching 2 cr. Offered: Fall, winter</p> <p>Students will learn concepts and principles of how to be an effective coach. Topics include organization, positive reinforcement, decision making, group cohesiveness and effective communication.</p>
<p>PE 317 Anatomical Kinesiology 2 cr. (1-0-2) Offered: Fall, winter Prerequisites: BI 104 or BI 201.</p> <p>Theories relating to anatomical principles of human movement will be reviewed with applications to physical education, fitness and sports science. The primary focus will be on how muscular attachments impact the actions of muscles resulting in human movement.</p>	<p>PE 346 Adapted Physical Education 2 cr. Offered: Fall Prerequisite: PE 110.</p> <p>Focuses on the preparation of physical education teachers to assist handicapped students who are participating in segregated classroom settings and mainstreamed or inclusive education. Included is an introduction to a variety of handicapping conditions and related medical terminology commonly found within the K-12 educational setting.</p>
	<p>PE 350 Methods and Materials in Teaching Physical Education 3 cr. Offered: Fall Prerequisites: Admission to the methods phase of teacher education and PE 110, PE 217 and PE 318.</p> <p>Focus on teaching methodology and synthesizing materials covered in PE 217 and PE 318. Lesson plans and units are developed and presented in an instructional setting.</p>

Note: May not be applied toward a non-teaching major or minor in physical education. May be applied to a secondary education physical education minor if required.

PE 381 History of Dance 2 cr.
Offered: On demand
Prerequisites: If taken as upper division liberal studies course, sophomore standing and completion of foundations of communication requirements.

- Satisfies part of the foundations of visual and performing arts requirement (minimum 3 credit hours needed to satisfy this requirement).
- Satisfies part of the upper division liberal studies requirement (minimum 3 credit hours needed to satisfy this requirement).

Survey of the world history and pictorial records of dance in its ritual, social, recreational and aesthetic contexts. This course provides a basis for the study of 20th-century dance theories and forms.

PE 383 Theory of Dance 2 cr.
Offered: Winter
Prerequisites: If taken as upper division liberal studies course, sophomore standing and completion of foundations of communication requirements.

- Satisfies part of the foundations of visual and performing arts requirement (minimum 3 credit hours needed to satisfy this requirement).
- Satisfies part of the upper division liberal studies requirement (minimum 3 credit hours needed to satisfy this requirement).

Dance works of 20th-century artists viewed from the audience's perspective. The dances will be analyzed in terms of historic, social and aesthetic context. It is recommended that PE 381 and PE 383 be taken during the same semester.

PE 407 Apprentice Teaching 1 cr.
Offered: Fall, winter
Prerequisite: Junior standing or instructor's permission.

A field experience that physical education majors take just prior to student teaching. It involves a teaching experience in one of the following settings: (1) NMU activity classes, (2) NMU outreach classes, (3) public school physical education enrichment classes.

PE 411 Organization and Administration of Physical Education and Athletics 2 cr.
Offered: Winter
Prerequisite: PE 110, junior standing or instructor's permission.

Discussion of budgets, facilities, equipment, supplies, scheduling, liability, coordinating areas and public relations.

PE 417 Biomechanics 2 cr.
Offered: Every other winter.
Prerequisites: PE 317 and PH 201 or PH 220, junior standing or instructor's permission.

Provides the student who has a background in physics and anatomical principles with the opportunity to further develop theories in movement analysis of exercise patterns, sports activity and everyday life.

PE 421 Physiology of Training for Sport 3 cr.
Offered: Winter
Prerequisite: PE 315, junior standing or instructor's permission.

An in-depth review of the physiological basis of training to optimize performance in sport and physical activity with practical guidelines for developing and modifying specific training programs for athletes and performers in a variety of sports and activities.

PE 422 Sport Biomechanics 2 cr.
Offered: Every other fall.
Prerequisites: PE 417, PH 201, junior standing or instructor's permission.

Provides students with technical knowledge of movement techniques in a variety of sports with a biomechanical perspective.

PE 444 Perceptual-Motor Learning 2 cr.
Offered: On demand
Prerequisites: Junior standing or instructor's permission.

Development of an understanding of perceptual-motor phenomena in learning. Intended for physical educators and persons responsible for conducting programs for children with learning disabilities. Emphasis is on the scientific foundations of program development and activities that enhance perceptual-motor development.

PE 470 Psychological Aspects of Athletic Performance 2 cr.
Offered: Winter
Prerequisites: PY 100S, L, H, or G, junior standing or instructor's permission. Cross listed as PY 470.

Study of the psychological applications in the field of sports and coaching. Topics include behavioral coaching of motor skills, competition anxiety analysis and management, mental rehearsal techniques and aggression control.

PE 471 Exercise Specialization in Adult Fitness and Cardiac Rehabilitation 2 cr.
Offered: Fall
Prerequisites: PE 315 and HP 200, junior standing or instructor's permission.

Introduction to the theory and basis of graded exercise stress testing, exercise prescription and program development. Contemporary issues in the fitness field as well as the enhancement of professional credentials will be discussed.

PE 472 Health and Exercise Leadership Skills 2 cr.
Offered: Winter
Prerequisite: PE 471, junior standing or instructor's permission.

This course emphasizes practical application of the theoretical basis of health and fitness in the design and conduct of safe, effective and relevant health and fitness programs for a variety of populations.

PE 476 Exercise and Fitness for Special Populations 2 cr.
Offered: Every other fall
Prerequisite: PE 315, senior standing or instructor's permission.

An opportunity to utilize theories and skills needed to analyze the exercise response of special populations and to design exercise programs for individuals who have physical conditions that may require modifications to exercise.

<p>PE 489 Related Arts: Dance, Music, Art 2 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission.</p> <p>Introduction to the elements of basic design in the three arts, with special emphasis on the relationship of music and art to dance. The course is intended for prospective and practicing teachers of school arts and humanities programs; for leaders of creative, therapeutic and recreational programs; and for upper-level students desiring interdisciplinary study in the fine and performing arts.</p>	<p>and quantum mechanics. A descriptive approach, although high school algebra is useful for some mathematical aspects.</p> <p><i>Note: This course may not be taken for credit toward the physics major or minor.</i></p>
<p>PE 491 Workshop in Physical Education 1-2 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission.</p> <p>Opportunities for concentrated study on selected professional content offered in a practical workshop format.</p>	<p>PH 102 Physics of Sound and Music 3 cr. (2-0-2) Offered: Winter Prerequisite: High school algebra (freshman year).</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>A diverse look at the analysis of sound and its production, wave properties, resonance, musical instruments, concert hall acoustics, electronics, recording, speech and hearing. Laboratory exercises will supplement many of the ideas. Faculty in music; speech, language and hearing sciences; and performance studies participate.</p> <p><i>Note: This course may not be taken for credit toward the physics major or minor.</i></p>
<p>PE 492 Internship in Physical Education 1-2 cr. Offered: Fall, winter. Prerequisites: instructor's permission.</p> <p>Supervised, practical experience in teaching physical education activities in an instructional setting or coaching.</p>	<p>PH 201 College Physics I 5 cr. (3-1-3) Offered: Fall, winter, summer Prerequisite: College algebra or math placement equivalency. Trigonometry highly recommended.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>A first semester, general introductory physics course. Topics include vectors, particle motion, Newton's laws of motion, conservation laws, gravitation, rotation, harmonic motion, sound, thermodynamics and fluids.</p> <p><i>Note: This course may not be taken for credit toward the physics major or minor.</i></p>
<p>PE 495 Special Programs in Physical Education 1-4 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission.</p> <p>One or more special problems in physical education, explored and studied in detail.</p>	<p>PH 202 College Physics II 5 cr. (3-1-3) Offered: Fall, winter Prerequisite: PH 201.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>Topics include electricity, magnetism, DC and AC circuits, light, optical instruments, atomic structure and spectra, nuclear physics and radiation.</p> <p><i>Note: This course may not be taken for credit toward the physics major or minor.</i></p>
<p>PE 496 Special Programs in Physical Education 1-4 cr. Offered: On demand Graded S/U Prerequisites: Junior standing or instructor's permission.</p> <p>One or more special problems in physical education, explored and studied in detail.</p>	<p>PH 220 Introductory Physics I 5 cr. (4-0-2) Offered: Winter Prerequisite: MA 161 or equivalent.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>The first semester of the introductory physics sequence designed for students majoring in physics, a physical science or engineering. Topics include vectors, kinematics, Newton's Law, dynamics, conservation laws, heat, thermodynamics, sound and fluids.</p>
<p>PE 497 Directed Study in Physical Education 1-4 cr. Offered: On demand Graded S/U Prerequisites: Junior standing or instructor's permission.</p> <p>Independent study in the subject area.</p>	
<p>PE 498 Directed Study in Physical Education 1-4 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission.</p> <p>Independent study in the subject area.</p>	

PH - PHYSICS

Physics Department

<p>PH 101 Eureka: Einstein, the Universe and Everything 3 cr. Offered: Fall</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. <p>Great ideas of physics emphasizing major concepts, their development and their affect on our understanding of the natural world. Concepts include cause and effect, conservation laws, fields, relativity, cosmology,</p>	
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<p>PH 221 Introductory Physics II 5 cr. (4-0-2) Offered: Fall Prerequisites: PH 220 and MA 163 or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>Continuation of PH 220. Topics include electrostatics, fields, potentials, current, magnetism, DC and AC circuits, electrical waves and geometrical and physical optics.</p>	<p>A classical (Newtonian) mechanics course covering particle motion in several dimensions, motions of systems of particles, rigid body motion, moving coordinate systems and mechanics of continuous media. Uses vector methods extensively.</p>
<p>PH 295 Special Topics in Physics 1-4 cr. Offered: On demand Prerequisites: instructor's permission.</p> <p>Topics reflecting the special interests and needs of students. Designed for freshmen, sophomores and non-physics majors.</p>	<p>PH 380 Intermediate Electricity and Magnetism 3 cr. Offered: Every other fall, odd years. Prerequisites: PH 221 and MA 265. MA 361 and PH 370 recommended.</p> <p>A course in classical electrodynamics. Topics include the development of Maxwell's equations and their solutions including boundary value problems and radiation.</p>
<p>PH 320 Physical Electronics 4 cr. (3-0-3) Offered: Every other winter, odd years. Prerequisite: PH 221.</p> <p>A course on electronic circuits with primary emphasis on basic building blocks of electronic instruments used in physical research. Topics include solid state devices, operational amplifiers, feedback, pulse-forming networks, digital circuits and practical construction.</p>	<p>PH 393 Experimental Instrumentation and Analysis 4 cr. (3-0-3) Offered: Every other fall, odd years. Prerequisite: A natural science laboratory class; CS120 or equivalent; MA 115 or MA 171 or equivalent.</p> <p>Experimental data measurement and analysis techniques are presented including data acquisition, calibration, validity and graphical and statistical analysis procedures. Particular emphasis will be given to computer interfacing for experiment control, data acquisition and analysis and display. For students planning careers in natural science beyond the technician level.</p>
<p>PH 322 Modern Physics 4 cr. (3-0-3) Offered: Winter Prerequisites: PH 221, MA 163 or instructor's permission.</p> <p>Topics include the special theory of relativity, atomic physics, atomic spectra, nuclear physics, introductory quantum ideas and particle physics.</p>	<p>PH 410 Introductory Quantum Mechanics 3 cr. Offered: Every other winter, odd years. Prerequisites: PH 322, PH 375 and MA 361. PH 375 may be taken concurrently; PH 370 is recommended, junior standing or instructor's permission.</p> <p>An introduction to quantum mechanics. Topics include physical quantity determination in quantum physics, photons, material particles, quantum statistics, Schrodinger's equation and applications to simple systems, the eigenvalue-eigenvector equation of quantum physics, and field quantization concepts.</p>
<p>PH 330 Optics 4 cr. (3-0-3) Offered: Every other winter, even years. Prerequisites: PH 221 and MA 163.</p> <p>An intermediate lecture, problem and laboratory course dealing with geometrical and physical optics, physical principles underlying modern optical instruments and introductory quantum optics.</p>	<p>PH 480 Senior Physics Seminar 1-2 cr. Offered: Fall, winter Prerequisites: Senior class standing or instructor's permission and declared physics major.</p> <p>Students will prepare and deliver a series of presentations on topics in physics or astronomy with faculty adviser approval. A student may enroll for one or two credits, which will determine the number of presentations to be done.</p>
<p>PH 360 Thermodynamics and Statistical Physics 3 cr. Offered: Every other winter, even years. Prerequisite: PH 221, MA 361 is recommended.</p> <p>A lecture and problem course on thermodynamics and statistical physics dealing with the laws of thermodynamics, kinetic theory, ensemble theory, and the partition functions including applications to chemical kinetics, phase transitions and low temperature processes.</p>	<p>PH 495 Special Topics in Physics 1-4 cr. Offered: On demand Prerequisites: Junior standing and department permission.</p> <p>A course devoted to a special topic selected either for its current interest value or as a major piece of physics not covered in the normal curriculum.</p>
<p>PH 370 Mathematical Methods of Physics 3 cr. Offered: Every other fall, even years. Prerequisites: MA 163 and PH 221.</p> <p>Advanced mathematical techniques used extensively in physics will be presented. Examples include vector operators, tensors, complex numbers and functions, special linear and partial differential equations and Fourier analysis.</p>	<p>PH 498 Directed Studies in Physics 1-4 cr. Offered: On demand Prerequisites: Junior standing and department permission.</p> <p>Students either assist a faculty member in research, design an advanced physics laboratory experiment, or prepare a written, scholarly exposition on a physics-related topic approved by the faculty adviser and evaluated by three department faculty members.</p> <p><i>Note: May be taken only once.</i></p>
<p>PH 375 Analytical Mechanics 3 cr. Offered: Every other fall, even years. Prerequisites: PH 220, concurrent or prior enrollment in MA 361 recommended. PH 370 recommended.</p>	

PL - PHILOSOPHY

Philosophy Department

<p>PL 100 Introduction to Philosophy 4 cr. Offered: Fall, winter, summer.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Examination of some of the philosophical problems involved in understanding the relationship of humans to the world and the nature of existence; the problems of knowledge, ethics, logic and language; mind and matter; and the nature of art, science and religion.</p>	<p>PL 185 Issues in Medical Ethics 2 cr. Offered: Every other semester.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>An examination of issues such as abortion, euthanasia, the use of humans in medical experiments, justice in the distribution of health care, informed consent, the role and responsibilities of doctors and nurses, genetic engineering, mental illness and involuntary commitment.</p>
<p>PL 160 Introduction to Logic 4 cr. Offered: Fall, winter.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. <p>An introduction to the basic principles of traditional and formal logic. Topics covered include the nature of validity and proof, theory of the syllogism, propositional logic and quantification theory.</p>	<p>PL 186 Topics in Theoretical Ethics 2 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>An examination of issues such as contemporary theories of justice, the search for objective moral standards in a multicultural world and the interconnection between science and ethics.</p>
<p>PL 180 Fundamentals of Ethical Theory 4 cr. Offered: Fall, winter, summer.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Covers major approaches to universal morality and codes of ethics. This course prepares students to bring a theoretical perspective to the moral dilemmas discussed in the applied ethics courses (PL 181 through PL 186).</p>	<p>PL 200 History of Ancient and Medieval Philosophy 4 cr. Offered: Every other winter, even years.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Introduction to the way people have understood themselves and the world. This course examines some of the main philosophic concepts, issues and problems and their earliest beginnings through a study of leading philosophers.</p>
<p>PL 181 Issues in Business Ethics 2 cr. Offered: Fall, winter.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>An examination of issues such as the moral justification of the free market system, the ethics of advertising, employee rights and responsibilities, sexual harassment in the workplace, the moral responsibilities of the corporation and ethical issues of international business.</p>	<p>PL 210 History of Modern Philosophy 4 cr. Offered: Every other fall, odd years.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>The development of philosophy in the modern period, particularly from the 17th to the end of the 19th century. The primary focus of the course will be metaphysics and theory of knowledge. The development of social and political thought will also be discussed.</p>
<p>PL 182 Issues in Computer Ethics 2 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>An examination of such issues as protecting the right to privacy in the computer age, property rights in computer software, hacker ethics, determining responsibility for computer unreliability and freedom of expression on the Internet.</p>	<p>PL 270 World Religions 4 cr. Offered: Fall, winter.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. <p>Study of the doctrines and the historical development of the major religions of the world. Included in this study are Christianity, Judaism, Islam, Hinduism, Buddhism, Confucianism and Taoism.</p>
<p>PL 183 Issues in the History of Ethics 2 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>A study of the great philosophers of the past and their exploration of moral judgments, moral virtues, moral knowledge, moral rationality, moral practice and strength of will.</p>	<p>PL 280 Philosophy of Religion 4 cr. Offered: Winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Pursuit of an understanding of the nature and meaning of religion and religious experience. The course deals with the problems of the nature and existence of God, the meaning of religious assertions and the nature of faith. Readings are drawn from traditional and contemporary sources.</p>
<p>PL 184 Issues in Legal Ethics 2 cr. Offered: Fall, winter</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>An examination of issues such as legislating morality, pornography, plea bargaining, capital punishment, the legalization of drugs, ethics of punishment and ethics of police work.</p>	<p>PL 295 Special Topics in Philosophy 2-4 cr. Offered: Contact department for information.</p> <p>A study of a particular topic in philosophy. Primarily designed as a service course for those with limited backgrounds in philosophy who have an interest in a particular topic. The precise topic will be announced in the <i>Schedule of Classes</i> document.</p> <p><i>Note: May be repeated for credit if topic varies.</i></p>

PL 310 Social and Political Philosophy 4 cr.

Offered: Fall

Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.

An evaluation of personal conduct in relation to political, social and economic systems. Classical and modern texts are used to examine concepts such as individual rights, social duty, authority of the state, social justice and anarchy, and to evaluate the ends of social organization.

PL 320 Philosophy of Science 4 cr.

Offered: Contact department for information.

Close examination of some of the basic concepts of the physical and social sciences and problems in the logic of scientific explanation, methodology, the character of scientific laws and theories, meaning and verifiability, inductions and probability, and causality.

PL 330 Existentialism 4 cr.

Offered: On demand

Prerequisites: Completion of the foundations of communication requirement and sophomore standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.

Study of European philosophies of human existence, tracing the developments up to the end of the 20th century.

PL 370 Theory of Knowledge: Classical and Contemporary 4 cr.

Offered: Contact department for information.

Pursuit of an understanding of the sources, nature, validity and significance of human knowledge. Epistemology examines the form of cognition, the problem of other minds, probability and induction, rationalism, British empiricism from Locke to Russell, logical empiricism and pragmatism.

PL 495 Special Topics in Philosophy 2-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing or instructor's permission.

A detailed study of an important philosopher, important text or philosophic problem. It is designed primarily for students majoring or minoring in philosophy.

Note: May be repeated for credit if topic varies.

PL 498 Directed Study in Philosophy 1-4 cr.

Offered: Contact department for information.

Prerequisites: Junior standing, at least one philosophy course and approval of the instructor.

Independent study by an individual or small group in an area, to be defined by student and instructor, not normally covered by the department's regular courses.

PMD-PRE MEDICAL/DENTAL
Physics Department

PMD 100 Premedical-Pre dental Seminar 1 cr.

Offered: Fall, odd numbered years

A series of presentations by health care professionals designed to introduce students to available career options, professional school experience, training, ethics and government in health care.

Note: This course may not be taken for credit toward a major or minor in biology, biochemistry, chemistry or physics.

PN-PRACTICAL NURSING
Practical Nursing Department

PN 100 Introduction to Practical Nursing 2 cr.

Introduces the student to the role and responsibilities of the practical nurse. The student studies the history and trends of nursing and health care, ethical/legal issues, cultural aspects and therapeutic communication. The content includes stress/time management, current health care issues and leadership roles in practical nursing. Must be taken prior to PN 114 and PN 116.

PN 103 Basic Pharmacology Skills 1 cr.

Introduction to a core of knowledge basic to the safe administration of medications to the patients. The course consists chiefly of theory, with several lecture sessions devoted to laboratory practice. Information gained about drug therapy builds a foundation of knowledge that is expanded upon in NE 212.

PN 114 Fundamentals of Nursing-Lecture 4 cr. (8-0-0)

Offered: Fall

Prerequisite: Completion of the six LPN prerequisite courses with a 2.0 or better.

Course represents the fundamental principles upon which nursing care is based and the nurse's role in carrying out the nursing process. Patient care is taught from the perspective of human needs and stages of development.

Note: Blocked course taken the first 7 1/2 weeks of the fall semester.

PN 116 Fundamentals of Nursing-Clinical 4 cr. (0-0-16)

Graded S/U

Co-requisite: Must be taken with PN 114.

Students will apply theoretical nursing knowledge to the mastering of basic nursing skills. The learning experience takes place in both the nursing arts lab and in health care facilities.

Note: Blocked course taken the first 7 1/2 weeks of the fall semester.

PN 122 Medical-Surgical Nursing I-Lecture 4 cr.

Offered: Fall

Prerequisite: Completion of PN 114 and PN 116 with a 2.0 or better

Co-requisite: PN 126

This course will introduce students to the simple medical/surgical experiences of the adult within a variety of settings.

Note: Blocked course taken the second 7 1/2 weeks of the fall semester.

PN 126 Medical-Surgical Nursing I-Clinical 4 cr.
 Offered: Fall
 Graded S/U
 Co-requisite: PN 122.

The student provides nursing care of the adult in medical, surgical, ambulatory and home care settings.

Note: Blocked course taken the second 7 1/2 weeks of the fall semester.

PN 132 Maternal/Child Nursing-Lecture 4 cr. (8-0-0)
 Prerequisite: Completion of PN 114 and PN 116 with a 2.0 or better.
 Co-requisite: PN 136.

The study of the nursing care needs of maternity patients. Topics include the prenatal experience, labor experience and the postpartum experience. The needs of the newborn child through adolescence will be discussed.

Note: Blocked course taken the first 7 1/2 weeks of the winter semester.

PN 136 Maternal/Child Nursing-Clinical 4 cr. (0-0-16)
 Offered: Winter
 Graded S/U
 Prerequisite: Completion of PN 114 and PN 116 with a 2.00 or better.
 Co-requisite: PN 132.

In this course the student cares for women who are pregnant, in labor and experiencing postpartum. The care of the normal newborn and special-needs newborn is experienced. The care of the pediatric patient is experienced in acute care, ambulatory care and in community settings.

Note: Blocked course taken either the first or second 7 1/2 weeks of the semester.

PN 142 Medical Surgical Nursing II-Lecture 4 cr.
 Offered: Winter
 Prerequisite: PN 114, PN 116, PN 122, PN 126 and PN 132 with a 2.0 or better.
 Co-requisite: PN 146.

This course will introduce students to the complex medical/surgical experiences of the adult within a variety of settings.

Note: Blocked course taken the second 7 1/2 weeks of the winter semester.

PN 146 Medical Surgical Nursing II-Clinical 4 cr.
 Offered: Winter
 Graded S/U
 Co-requisite: PN 142.

The student provides nursing care of the complex adult in medical, surgical, ambulatory and home-care settings.

Note: Blocked course taken either the first or 7 1/2 weeks of the semester.

POR-PORTUGUESE

Modern Languages and Literatures Department

POR 110 Elementary Portuguese 4 cr.
 Offered: Every other fall, odd years.
 Prerequisites: Completion of SN 102 or instructor's permission.

- Satisfies the formal communication studies requirement.

An introduction to Brazilian Portuguese. Students with an intermediate level of Spanish learn Portuguese at an accelerated pace because of the similarities between the two languages. Emphasis is on survival skills in everyday

life situations and covers present and past verb tenses and basic vocabulary. The course also includes substantial exposure to Brazilian culture.

Note: SN 102 has the prerequisite of SN 101 or high school language experience.

POR 210 Intermediate Portuguese 4 cr.
 Offered: Every other winter, even years.
 Prerequisites: POR 110 or instructor's permission.

- Satisfies the formal communication studies requirement.

An accelerated intermediate Portuguese course and a continuation of POR 110. It continues coverage of verb tenses, broadens students' Portuguese vocabulary and deepens student exposure to Brazilian culture.

PR-PUBLIC RELATIONS

Communication and Performance Studies Department

PR 231 Introduction to Public Relations 4 cr.
 Offered: Fall
 Co-requisite: PR 250.

The theory and practice of public relations, its function in organizations and its role in society. Topics include the history, communication theories and ethics of public relations, areas of practice in public relations and career opportunities.

PR 250 Research in Public Relations 4 cr.
 Offered: Fall
 Prerequisite: Completion of EN 111 with a grade of "C-" or better.
 Co-requisite: PR 231.

This course introduces students majoring or minoring in public relations to the research and writing requirements of the field. Writing proposals is emphasized, as is consideration of career options in the field of public relations.

PR 295 Special Topics in Public Relations 1-4 cr.
 Offered: On demand
 Prerequisite: Instructor's permission.

Study of a particular topic or problem in the area of public relations.

Note: May be repeated if topic differs.

PR 298 Directed Study in Public Relations 1-4 cr.
 Offered: On demand
 Prerequisites: Instructor and department head permission.

Independent study in an area of public relations defined by the student and instructor.

Note: May be repeated for up to eight credits.

PR 330 Public Relations Message Design 4 cr.
 Offered: Winter
 Prerequisites: EN 211 and a "C" or better in PR 231 and PR 250.
 Instructor's permission will be granted only after an interview.

Focus is on research, writing and planning skills unique to public relations. Topics include news releases and media kits, backgrounders and position papers, newsletters and brochures, advocacy advertising and special event design.

PR 430 Public Relations Case Studies 4 cr.

Offered: Fall

Prerequisites: A "C" or better in PR 330, junior standing or instructor's permission.

Examination of how public relations is done by agencies and organizations. Internal (employee-member) and external campaigns are studied as the discussion of public relations theories begun in PR 231 is extended.

PR 431 Campaigns 4 cr.

Offered: Winter

Prerequisites: PR 430 or ESPR 360 with a minimum grade of "C" and a speech theory course (SP 300, SP 310 or SP 401), junior standing or instructor's permission.

Cross listed as ESPR 431.

Focus on the technical and theoretical aspects of creating communication campaigns. Students are assigned "clients" at the beginning of the semester and develop a five-phase campaign assignment to present to their "client," including research designs, budgets, campaign concepts, post-campaign evaluation and an oral presentation.

PR 491 Practicum in Public Relations 1-8 cr.

Offered: On demand

Graded S/U

Prerequisite: Junior standing and instructor's permission.

Projects in the area of public relations under the supervision of a faculty member.

PR 492 Internship in Public Relations 1-8 cr.

Offered: On demand

Graded S/U

Prerequisites: Grade point average of 2.75 or better, junior standing and instructor's permission.

Practical, applied experience involving placement in a job situation.

PR 495 Special Topics in Public Relations 2-4 cr.

Offered: On demand

Prerequisite: Junior standing and instructor's permission.

Study of a particular topic or problem in the area of public relations.

Note: May be repeated if topic differs.

PR 498 Directed Study in Public Relations 1-4 cr.

Offered: On demand

Prerequisites: Junior standing and instructor and department head permission.

Independent study in an area of public relations to be defined by the student and instructor.

Note: May be repeated for up to eight credits.

PS-POLITICAL SCIENCE

Political Science and Public Administration Department

PS 101 Introduction to Political Science 4 cr.

Offered: Fall, winter

- Satisfies the foundations of social sciences requirement.

Study of theory, processes and institutions of politics and government in the modern world, with an emphasis on American institutions and politics.

PS 105 American Government 4 cr.

Offered: Fall, winter

- Satisfies the foundations of social sciences requirement.

Examination of the nature and workings of American government, with references to its federal character and practical applications.

PS 201 Methods of Public Policy Analysis 4 cr.

Offered: Fall

Introduction to fundamentals of analyzing public policy problems, including consideration of analytical models and training in research and reporting methods. Students analyze a public policy problem through the use of qualitative and quantitative methods of research and reporting.

PS 203 Comparative Government and Politics 4 cr.

Offered: Fall

Introduction to political institutions and processes as seen from a comparative perspective, consideration of the political development process in modern industrial society, and comparative study of public policy. European case materials are emphasized.

PS 206 International Relations 4 cr.

Offered: Winter

Study of the basic principles of international politics, international law, international organization and the theories of international relations. Influences shaping the foreign policy of states and patterns observable in state behavior are studied.

PS 207 History of Political Theory 4 cr.

Offered: Winter

- Satisfies the foundations of humanities requirement.

Political philosophers and their philosophies, from Plato to the present. Studying their assumptions and their reasoning should help students to clarify their thinking. Class discussion is emphasized.

PS 215 Introduction to Law 4 cr.

Offered: Fall, winter

Primary emphasis is on the structure of the legal system, judicial recruitment and specialized areas of law such as civil and criminal procedure, torts and contracts. Students use such legal resources as court cases, legal digests and compiled laws. Writing legal briefs and a mock trial are featured.

<p>PS 294 Campaign Practicum 2-4 cr. Offered: Every other fall.</p> <p>Students gain practical experience working on a local, state or national campaign, read from books and articles on political parties and elections, attend lectures, participate in discussions and write a reflective paper on their campaign experience.</p>	<p>PS 307 Principles of Public Administration 4 cr. Offered: Winter</p> <p>Introduction to theory and practice in the management of public affairs, including the politics of administration, bureaucratic efficiency, personnel, budget and finance, and administrative responsibility. Selected case studies used where appropriate.</p>
<p>PS 295 Special Topics in Political Science 1-4 cr. Offered: On demand</p> <p>Individual or group study of a significant topic or problem in political science. The requirements of this course may be met by completing a course not ordinarily offered or through participation in seminars, colloquia, workshops, study abroad or directed reading.</p>	<p>PS 309 State and Local Government 4 cr. Offered: Fall</p> <p>Study of state and local governments, including political systems and politics. Major emphasis is placed on the structure and operation of Michigan government and politics.</p>
<p>PS 297 Mock Trial 2 cr. Offered: Fall Prerequisite: Instructor's permission.</p> <p>Students gain experience in civil and criminal litigation. All aspects of case preparation and trial advocacy, including legal research, witness examination, opening statements and closing arguments, are experienced. Students are required to role play as both attorneys and witnesses.</p>	<p>PS 312 War and Peace in the 21st Century 4 cr. Offered: Every other fall. Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>Survey of factors shaping the development of strategic and tactical nuclear forces, combined with the study of theories of nuclear deterrence, arms control and disarmament.</p>
<p>PS 298 Directed Study in Political Science 1-4 cr. Offered: Contact department for information. Prerequisites: Instructor and department head permission.</p> <p>Individual directed study. Topic to be selected by the student and the instructor.</p>	<p>PS 319 Women and U.S. Politics 4 cr. Offered: Winter Prerequisites: Sophomore standing or instructor's permission.</p> <p>This course will cover a breadth of issues related to women and politics, including level and forms of political participation, public policies related to women, and the role of women in American politics and society.</p>
<p>PS 299 Model U.N. 2 cr. Offered: Winter Prerequisite: PS 101 or PS 203 or PS 206 or instructor's permission.</p> <p>A simulation involving a comparative analysis of the governments and policies of various nations in the world and how they interact with one another on important issues in the setting of the United Nations. Students accepted for this course will represent NMU at either a regional or national Model U.N. conference.</p> <p><i>Note: May be repeated for credit if topic differs. On transcripts, the course will appear as: Model U.N.-(country's name).</i></p>	<p>PS 321 Politics in Islamic Nations 4 cr. Offered: Every other fall Prerequisites: junior standing or instructor's permission.</p> <p>Study of the political ideologies, forces, processes, and culture in Islamic countries. Considerable attention is given to the causes and expression of the current Islamist movements, protest, and the politics of violence. Major conflicts involving Islamic communities are discussed. Additionally, history and the current state of Western countries' relationships with Islamic countries is explored.</p>
<p>PS 301 Seminar in Public Policy Analysis 4 cr. Offered: Every other fall.</p> <p>Basic theories and methods of public policy analysis. Student understanding is accomplished through a series of readings, projects, discussions and lectures on topics of current political importance, such as health, environment, transportation, education and welfare.</p>	<p>PS 331 Judicial Process 4 cr. Offered: Fall</p> <p>Introduction to the judiciaries' participation in the resolution of social conflict. Topics include study of the organization and staffing of courts, examination of judicial power, analysis of the distinctive methods that characterize judicial decision making and appraisal of the proper functions of judges in a constitutional democracy.</p>
<p>PS 303 Public Opinion and Voting Behavior 4 cr. Offered: Fall</p> <p>Survey of the determinants of voting behavior. The topics of public opinion and voting behavior are approached through a combination of reading and research. Students are provided a basic understanding of appropriate research techniques.</p>	<p>PS 332 Administrative Law 4 cr. Offered: Every other winter.</p> <p>Review of the legal and political influences on administrative decision-making. General topics include administrative rule-making, due process of law, judicial and congressional checks on administrative agencies and examination of specific areas of administrative law.</p>

<p>PS 340 International Organizations 4 cr. Offered: Winter</p> <p>A study of the structures, roles and function of international governmental and non-governmental organizations. Organizations studies will include the United Nations, the World Trade Organization, the International Monetary Fund and global environmental regimes.</p>	<p>PS 411 American Political Thought 4 cr. Offered: Fall</p> <p>Prerequisites: Completion of the foundations of communication requirement, junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>An overview of American political thought. The focus of the course will be on critical formative periods such as the American Revolution, the Civil War and the Industrial Revolution. Readings will include selected writings and speeches of key American statesmen. Class discussion is emphasized.</p>
<p>PS 341 Social Welfare Policy 4 cr. Offered: Fall, winter</p> <p>Prerequisites: SW 240 or instructor's permission. Primarily for social work majors and social welfare minors.</p> <p>Cross listed as SW 341.</p> <p>Study of issues in current social welfare policy and of the significance of social, economic and political factors that influence policy-making and implementation. In addition, students also learn various techniques of policy evaluation and review.</p>	<p>PS 415 Politics of American Foreign Policy 4 cr. Offered: Every other fall.</p> <p>Prerequisites: Completion of the foundations of communication requirement, junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>Development of an analytical capability for understanding and evaluating American foreign policy today and in the immediate future. Study is focused on contemporary institutions and regional problem areas.</p>
<p>PS 350 Methods and Materials in Teaching Social Studies Education 4 cr. Offered: Fall</p> <p>Prerequisites: Admission to the methods phase of teacher education.</p> <p>Co-requisite: Concurrent enrollment in ED 349.</p> <p>Study of the objectives of social studies at the secondary level. The organization of subject matter, the use and evaluation of materials and the development of classroom procedures and techniques.</p> <p><i>Note: May not be applied toward a non-teaching major or minor in political science. May be applied to a secondary education political science minor if required.</i></p>	<p>PS 430 American Constitutional Law and Politics 4 cr. Offered: Winter</p> <p>Prerequisites: Junior standing or instructor's permission.</p> <p>Study of the basis of constitutional government and the judicial exposition of its principles, with emphasis on the freedom of expression, defendants' rights, religious liberty, due process of law and the application of equal protection of the laws and minority rights.</p>
<p>PS 402 Political Economy 4 cr. Offered: Summer</p> <p>Prerequisites: Junior standing or instructor's permission.</p> <p>Study of the interplay between politics and economic life, the distributional impact of government and the application of the "economics model" to social and political phenomena—explored within the American and other national contexts.</p>	<p>PS 490 Senior Seminar 2 cr. Offered: Winter</p> <p>Prerequisites: Senior standing, Political Science Department major or minor.</p> <p>Students will demonstrate their understanding of political administration, legal concepts and theories.</p>
<p>PS 404 Politics of East and Southeast Asia 4 cr. Offered: Every other fall.</p> <p>Prerequisite: PS 101 or PS 203 or PS 206 , junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the world cultures requirement. • Does not satisfy the upper division liberal studies requirement. <p>A comparative analysis of the governments and politics in the nations of East and Southeast Asia (China, Japan, Korea, Taiwan, Vietnam, Thailand, Malaysia, Indonesia, the Philippines, etc.).</p>	<p>PS 491 Internship in Public Policy or Law 2-12 cr. Offered: On demand</p> <p>Graded S/U</p> <p>Prerequisites: Junior standing or instructor's permission.</p> <p>Practical experience working in a national, state or local government office, public interest group, corporate office, or a public or private law office. Credit hours vary depending on the weekly time commitment.</p> <p><i>Note: Only eight credit hours may be applied toward a political science or public administration major, and only four credit hours may be applied toward those minors. Credit earned above these limits can count toward general elective credits.</i></p>
<p>PS 406 Legislative Politics 4 cr. Offered: Winter</p> <p>Prerequisites: Junior standing or instructor's permission.</p> <p>Study of the legislative bodies in the American political system, including the role of political parties and interest groups in that process. Through emphasis on contemporary problems, the course clarifies the struggle between Congress and the Presidency for control over decision-making, and the pressure politics played by parties and interest groups on those decisions.</p>	<p>PS 495 Special Problems in Political Science 1-4 cr. Offered: On demand</p> <p>Prerequisites: Junior standing or instructor's permission.</p> <p>Individual or group study of a significant topic or problem in political science. The requirement of this course may be met by completing a course not ordinarily offered or through participation in seminars, colloquia, workshops, study abroad or directed reading.</p>

PS 498 Directed Study in Political Science 1-4 cr.
 Offered: On demand
 Prerequisites: Junior standing and instructor and department head permission.
 Individual directed study on a topic to be selected by the student and the instructor.

PSCR-PUBLIC SAFETY/LOCAL CORRECTIONS

Technology and Occupational Sciences Department

PSCR 010 Corrections Academy 10 cr.
 Offered: On demand
 A 160-hour program designed to prepare individuals for employment as local corrections officers through their fulfillment of all the basic training objectives set forth by the Michigan Correctional Officers Training Council (MCOTC).

PSCR 011 Legal Update Training 0.5 cr.
 Offered: On demand
 An eight-hour program designed to make local corrections officers aware of the latest changes in the laws that govern their actions.

PSCR 012 Special Topics in Local Correction 0.5-4 cr.
 Offered: On demand
 A variable-credit course designed to accommodate the treatment of, among others, current issues, trends and technological developments in law enforcement.

PSLE-PUBLIC SAFETY/LAW ENFORCEMENT

Technology and Occupational Sciences Department

PSLE 010 Legal Update Training 0.5 cr.
 Offered: On demand
 An eight-hour program designed to make the officers aware of the latest changes in the laws that they enforce and which govern their actions.

PSLE 011 Precision Driving 1.5 cr.
 Offered: On demand
 A 24-hour program designed to teach participants safe and competent emergency vehicle operation within the parameters of the motor vehicle code.

PSLE 012 Precision Driving Update 0.5 cr.
 Offered: On demand
 An eight-hour refresher program designed to refresh participant's understanding of safe and competent emergency vehicle operation within the parameters of the motor vehicle code.

PSLE 013 Evidence Technician Update/Crime Scene Processing 1.5 cr.
 Offered: On demand
 A 24-hour program designed to teach participants new or improved methods of evidence collection, preservation, packaging and health-related concerns. The program will also evaluate the participant's ability to process a crime scene correctly.

PSLE 014 Advanced Law Enforcement Training 2 cr.
 Offered: On demand
 A 32-hour multifaceted program designed to expand upon participant's basic police training in a condensed highly effective time sensitive manner. Modules included in the training are first aid and CPR techniques, blood and airborne pathogens, AED training, domestic violence update, hazardous materials update, building searches/alarm calls, defensive tactics, drug identification, ethics, vehicle searches for contraband, crime scene for the patrol officer, precision driving update, and felony stops.

PSLE 015 Evidence Technician Training 5 cr.
 Offered: On demand
 An 80-hour program designed to prepare participants for their role in locating, identifying, photographing, collecting, preserving and packaging evidence found at a crime scene. The program will also evaluate the participant's ability to process a crime scene correctly.

PSLE 016 Internal Affairs and Handling Discipline 1.5 cr.
 Offered: On demand
 A 24-hour course containing a 16-hour program designed to teach participants new or improved methods of conducting internal affairs investigations and an eight-hour program designed to help administrators design internal discipline plans. The program will also evaluate the participant's ability to properly document the information gathered.

PSLE 017 Computer Fraud/Computer Related Crimes 1.5 cr.
 Offered: On demand
 A 24-hour course containing an eight-hour program designed to teach participants methods of conducting computer crimes investigations for the novice and a 16-hour program designed to demonstrate advanced investigative techniques in computer-related crimes. The program will also evaluate the participant's ability to properly conduct and document the information gathered.

PSLE 018 Basic Mountain Bike Patrol Course 2 cr.
 Offered: On demand
 A 32-hour program designed to teach participants new or improved methods of providing bicycle patrol and safe, effective operation. The program will also evaluate the participant's ability to operate a mountain bike during varying conditions and the types of patrol that will reduce liability to municipalities.

PSLE 019 Prism Weapons Simulator 0.5 cr.
 Offered: On demand
 An eight-hour program made from 400 available one-hour sessions designed to assist the officer with firearm skills, departmental policies and shoot/don't shoot decision making.

PSLE 020 Standard Field Sobriety Tests 1.5 cr.
Offered: On demand

A 24-hour course designed to give the officer a better understanding of the effects that alcohol and other drugs have on an individual's ability to operate a vehicle in a safe and legal manner. Every department in the State of Michigan will be required to use the MSP Alcohol reporting form. This form utilizes the SFST form of field sobriety checks. The Upper Peninsula will have the need to train most of their officers in this technique.

PSLE 021 At Scene Crash Investigation 5 cr.
Offered: On demand

An 80-hour course designed to familiarize the trainee with the necessary techniques and methods used in processing a crash scene.

PSLE 022 Firearms Instructor School 2.5 cr.
Offered: On demand

A 40-hour program designed to prepare participants to effectively conduct in-service training programs.

PSLE 023 Terrorism Awareness for the First Responder 0.5 cr.
Offered: On demand

A four-hour program designed to inform first responders (law enforcement officers) of proper procedures in handling a terrorist incident.

PSLE 024 Clandestine Drug Lab Awareness 0.5 cr.
Offered: On demand

A four-hour program designed to inform law enforcement officers about the signs, precautions and handling of illegal drug labs.

PSLE 025 Advanced Tactical Pistol Course 2.5 cr.
Offered: On demand

A 40-hour program designed to enhance the officer's ability to use his or her handgun in varying situations.

PSLE 026 Patrol Rifle/Shotgun Course 2.5 cr.
Offered: On demand

A 40-hour program designed to prepare participants in the use of those rifles and shotguns suitable for law enforcement.

PSLE 027 First Line Supervisors Training 1 cr.
Offered: On demand

A 16-hour program to introduce the new law enforcement supervisor to the most important aspects of supervision. The new supervisor will learn the importance of communication and interpersonal relationship skills in dealing with subordinates and management. After the seminar, the new supervisor will be empowered to confidently and competently perform his or her duties within the agency.

PSLE 028 Ethics: Principles of Policing 0.5 cr.
Offered: On demand

A six-hour program designed to familiarize the participants with the ethical issues of police work and their related effects on the officer.

PSLE 029 Basic Radar Operator 2.5 cr.
Offered: On demand

A 40-hour program designed to teach the participants the proper set-up and operation of a traffic radar instrument.

PSLE 030 Basic Photography 1.5 cr.
Offered: On demand

A 28-hour course designed to instruct the trainee on the proper use of his or her camera to consistently take the best possible pictures by taking advantage of all the camera controls, lens and films available to them.

PSLE 031 Reid Technique of Interviewing and Interrogation 1.5 cr.
Offered: On demand

A 24-hour course designed to give the participant the tools necessary to conduct thorough interviews and interrogations.

PSLE 032 Advanced Reid Technique of Interviewing and Interrogation 0.5 cr.
Offered: On demand

An eight-hour course designed to give the participant the tools necessary to conduct thorough advanced interviews and interrogations. Demonstrate the skills necessary to bring the REID Techniques to the next level through advanced techniques.

PSLE 033 Special Topics in Law Enforcement 0.5-4 cr.
Offered: On demand

A variable-credit course designed to accommodate the treatment of, among others, current issues, trends and technological developments in law enforcement.

PSLE 034 Firearms Instructor Update 1.5 cr.

A 24-hour program designed to update and refresh current firearms instructors.

PSLE 035 The Reid Technique for Child Abuse Investigations 1.5 cr.

A 24-hour program designed to enhance the investigator's ability to read and evaluate the verbal and nonverbal behavior symptoms displayed by a subject (victim, witness or suspect) during an investigative interview for indications of truth or deception in child abuse cases.

PSLE 036 Reid and Associates Street Crimes Seminar 1.5 cr.

A 24-hour program designed to enhance the officer's ability to remain safe and efficient in the performance of their duties.

PSLE 037 Advanced Evidence Photography 1.5 cr.

A 24-hour program designed to give an evidence technician the ability to further their photography techniques.

PT-POWER AND TRANSPORTATION

Technology and Occupational Sciences Department

PT 160 Basic Automotive Repair for Consumers 4 cr. (2-0-4)
Offered: Fall, winter

A course to provide an opportunity for the consumer of automotive goods and services to be aware of the operation, service and maintenance of basic automotive systems. It also provides students with the basic skills necessary to maintain and service automobiles and light trucks.

PT 162 Steering, Suspension and Alignment 4 cr. (2-0-6)
Offered: Winter

Introduction to the theories and service techniques of the many different steering, suspension and alignment systems used on today's cars and light trucks. Conventional and power-assisted steering systems are covered.

PT 163 Vehicle Brake Systems 4 cr. (2-0-6)
Offered: Fall

Introduction to the theories and repair techniques of vehicle braking control systems. Units of instruction in theory and service to drum, disk, anti-lock and support systems found on domestic and import automobiles and light trucks.

PT 164 Major Engine Repair-Gas and Light Diesel 4 cr. (2-0-6)
Offered: Fall

A course in the service, repair and design principles of gasoline and light diesel engines. Units include operating principles, systems and design of major engine components.

PT 166 Automotive Power Trains 4 cr. (2-0-6)
Offered: Fall

A course in the theory, service and repair of power train components used in passenger cars and light trucks. Units of instruction include standard transmissions, drive lines, axles, transaxles, differentials and four wheel drive systems.

PT 170 Basic Automotive Electricity 4 cr. (2-0-4)
Offered: Fall

This course is a prerequisite for PT 264 and PT 272. Areas of instruction will cover basic electricity, magnetism, basic electronic components, fundamentals of batteries and automotive wiring systems.

PT 260 Automatic Transmission Repair 4 cr. (2-0-6)
Offered: Winter

A study into automatic transmissions, their components and systems. Instruction is provided in the repair, service and diagnostic procedures used in servicing vehicle automatic transmissions.

PT 262 Automotive Fuel and Emission Control Systems 4 cr. (2-0-6)
Offered: Fall

This course is designed to provide instruction in fundamentals, operation, troubleshooting, testing and servicing of the fuel and emission control systems.

PT 264 Engine Performance and Diagnostics 4 cr. (2-0-6)
Offered: Winter

Prerequisite: PT 170 or instructor's permission.

This course is designed to provide students with skills in troubleshooting and repairing drive ability problems with automobile computerized engine management systems. The use of scan tools and computer self-diagnosis will be stressed.

PT 268A Automotive Service Repair 4 cr. (2-0-6)
Offered: Winter

This course is designed to explore the various areas of automotive service. Students will practice making repairs and participate in some aspects of an auto service facility. This course is the capstone for the automotive service students, giving them the opportunity to practice and apply information learned in all previous automotive courses.

PT 268B Automotive Service Repair Internship 4 cr. (2-0-6)
Offered: Winter

Students participating in the internship are responsible for finding a position working under a master technician for a minimum of eight hours per week for 15 weeks. The student is required to attend the lecture segment of the class and meet all other requirements of the course syllabus.

PT 272 Advanced Automotive Electrical and Electronics 4 cr. (2-0-4)
Offered: Winter
Prerequisite: PT 170.

This course gives students the opportunity to develop the technical knowledge and skills necessary to diagnose and service modern automotive electrical systems. Emphasis will be placed on electrical testing techniques and the use of test equipment.

PY-PSYCHOLOGY

Psychology Department

PY 100S Psychology as a Natural Science 4 cr.
Offered: Fall, winter
Repeats PY 100L, H or G.

- Satisfies the foundations of natural sciences/mathematics requirement.

Introduction to the natural science of behavior and to the scientific principles and content areas of psychology. This course includes a focus on the philosophy and methodology of science, using selected problems from psychology as examples for application and demonstration.

Note: Does not meet the laboratory course graduation requirement.

PY 100L Psychology as a Natural Science with Laboratory 4 cr. (3-0-2)
Offered: Fall, winter, summer
Repeats PY 100S, H or G.

- Satisfies the foundations of natural sciences/mathematics requirement.
- Satisfies the laboratory course graduation requirement.

Content similar to PY 100S with added laboratory experience.

PY 100H Honors Psychology as a Natural Science 4 cr. (3-0-2)
Offered: Fall
Repeats PY 100S, L or G.

Prerequisite: ACT composite of 26 or above, or GPA of 3.50 or above, or permission of instructor.

- Satisfies the foundations of natural sciences/mathematics requirement.
- Satisfies the laboratory course graduation requirement.

Content similar to PY 100S with added laboratory experience and individual research opportunities.

<p>PY 100G Psychology as a Social Science 4 cr. Offered: Contact department for information. Repeats PY 100S, L or H.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. <p>Content similar to PY 100S. This course is more general in approach than PY 100S, L or H and does not provide laboratory experiences or demonstrations.</p> <p><i>Note: Usually offered only as an off-campus course.</i></p>	<p>PY 211 Learning 4 cr. (3-0-2) Offered: Fall, winter, summer Prerequisite: PY 100S, L, H or G.</p> <p>The study of basic learning processes from simple conditioning to thinking and understanding, with laboratory replication of important animal and human learning phenomena.</p>
<p>PY 102 Individual and Family Relationships 3 cr. Offered: Fall</p> <p>Use of personal and family resources, human and material, to achieve more satisfying individual and family living. Consideration of relationships within the family. Needs, responsibilities, human sexuality and changing roles of members throughout the family life cycle.</p>	<p>PY 235 Psychology of Gender 4 cr. Offered: Fall Prerequisite: PY 100S, L, H or G or instructor's permission.</p> <p>Review of research on gender and an examination of its impact on personal lives. Topics include biological aspects of sex differences and similarities, social development and sex role stereotypes.</p>
<p>PY 156 Developmental Child-Related Services 2 cr. Offered: Winter</p> <p>This course acquaints students with services available for young children and their families. The major emphasis will be on the special needs child and the legislation that has impacted services provided by the early childhood caregiver.</p>	<p>PY 241 Child Psychology 4 cr. (4-0-Arr) Offered: Fall, summer Prerequisite: PY 100S, L, H or G.</p> <p>Prenatal development through adolescence with emphasis on current empirical data and practical applications for parenting, education and nursing.</p>
<p>PY 170 Educating the Young Child 2 cr. Offered: Fall, winter</p> <p>An overview of the early childhood education field, its historical roots, current theories/practices, program models and trends in the field. It gives students a comprehensive view of critical elements pertinent to working with young children.</p>	<p>PY 245 Infant/Toddler Development 4 cr. (3-0-2) Offered: Winter Prerequisite: PY 241.</p> <p>Examines the theoretical/empirical research and practical experience relating to the first three years of life. Parent-child relationships, peer relationships, early socialization patterns of young children, individualized learning, language and personality.</p>
<p>PY 203 Applied Behavior Analysis 4 cr. Offered: Fall, summer Prerequisite: PY 100S, L, H or G.</p> <p>The study and application of learning and conditioning procedures to human behavior. An emphasis on management and modification of behavior in various situations as influenced by the needs of the class.</p>	<p>PY 247 Infant/Toddler Programming 2 cr. (1-0-2) Offered: Fall Prerequisite: PY 241.</p> <p>Provides students with an in-depth view of programming requirements, administration, planning and curriculum for infants and toddlers, ages zero to three, in a child-care setting.</p>
<p>PY 204 Physiological Psychology 4 cr. (3-0-2) Offered: Fall, winter Prerequisite: PY 100S, L, H or G or BI 111.</p> <ul style="list-style-type: none"> • Satisfies the foundations of natural sciences/mathematics requirement. • Satisfies the laboratory course graduation requirement. <p>Study of the biological bases of behavior with emphasis on central nervous system anatomy and physiology and its relation to various psychological functions, drug effects and neuropsychological disorders, with structured laboratory experience.</p>	<p>PY 255 Sexual Behavior: Psychological Perspectives 4 cr. Offered: Winter Prerequisite: PY 100S, L, H or G.</p> <p>Sexual behavior from historical, cross-cultural and contemporary viewpoints. The focus is on psychological perspectives and implications of this material for the student in order to lead to knowledgeable personal decision making.</p>
<p>PY 205 Introduction to Research Methods in Psychology 4 cr. Offered: Winter Prerequisite: PY 100S, L, G or H or BI 111.</p> <p>An introduction to the methods and designs used to acquire knowledge within the psychological sciences, both causal (i.e., controlled experimental) and non-causal (e.g., survey, correlation, and naturalistic observation).</p>	<p>PY 270 Activity Planning I: The Creative Arts 2 cr. Offered: Winter Prerequisite: PY 170; PY 241 or instructor's permission.</p> <p>The purpose of the course is to develop active learning experiences that reflect the interests, impulses and capacities of the young child. The course will emphasize the creative arts—drama, movement, fine arts and language arts—of the early childhood curriculum.</p>

<p>PY 272 Activity Planning II: The Sciences 2 cr. Offered: Winter Prerequisite: Taken concurrently with PY 270; PY 241.</p> <p>This course is the application of teaching concepts used in the teaching the sciences to young children. Emphasis will focus on incorporating a foundational knowledge of the sciences—physical, social and natural into the early childhood curriculum.</p>	<p>PY 298 Directed Research/Directed Study 1-4 cr. Offered: On demand Prerequisite: Written department permission.</p> <p>Directed individual laboratory research of current problems in psychology.</p>
<p>PY 285 Developmentally Appropriate Program/Practice (DAPP) 4 cr. Offered: Winter Prerequisite: PY 241; can be taken concurrently with PY 270 and PY 272.</p> <p>The purpose of this course is to prepare the student for the role of classroom teacher in an early childhood setting. Emphasis will be placed on the generation of developmentally appropriate teaching strategies and materials used in effective early childhood programs.</p>	<p>PY 299 Apprenticeship 1-2 cr. Offered: Fall, winter, summer and on demand. Prerequisite: Written department permission.</p> <p>Directed apprentice activities in laboratory sections of courses, in research and in service.</p> <p><i>Note: May be taken twice.</i></p>
<p>PY 290 DAPP Field Experience 4 cr. (1-0-12) Offered: Fall, winter Graded S/U Prerequisite: PY 270; PY 272; PY 285.</p> <p>Provides the opportunity for students to practice and integrate the skills taught in the previously taken courses through a mentor providing quality child care programming. The field experience provides a minimum of 180 clock hours of supervised time with young children at an identified child-care site.</p>	<p>PY 302 Causes and Control of Aggression 4 cr. Offered: Fall Prerequisites: PY 100L, S, H or G and one of the following: PY 203, PY 204, PY 211 or PY 241 or instructor's permission.</p> <p>Study of the factors that influence aggression including possible biological, environmental and social influences. The aggression and violence that occurs in various settings will be considered in light of these influences, and methods for preventing and controlling aggression will be discussed.</p>
<p>PY 291 Topics in Applied Psychology 1-4 cr. Offered: On demand Prerequisites: PY 100S, L, H or G and instructor's permission.</p> <p>A series of courses and workshops varying in type of applied topic.</p> <p><i>Note: May be repeated. When taught as Junior Seminar, enrollment is limited to majors in psychology.</i></p>	<p>PY 303 Human Neuropsychology 4 cr. Prerequisites: PY 100G, S, L, or H and junior standing; one or more 200-level psychology courses are recommended; or instructor's permission.</p> <p>Introduces the student to the brain mechanisms of human psychological functions such as movement, sensation, perception, memory, language, cognition and emotion through a study of how these functions become impaired as a consequence of brain damage.</p>
<p>PY 295 Special Topics in Psychology 1-4 cr. Offered: On demand Prerequisite: PY 100S, L, H or G.</p> <p>The formal study of content areas of psychology that have a research or theoretical base but that are not regularly offered as part of the curriculum.</p> <p><i>Note: May be repeated if topic differs.</i></p>	<p>PY 304 Animal Behavior 4 cr. (4-0-2) Offered: Fall Prerequisite: PY 204 or PY 211 or instructor's permission.</p> <p>An ethological survey of behavioral forms and mechanisms displayed by various animal species, taken from a psycho-biological and evolutionary point of view. Laboratory and field investigations included.</p>
<p>PY 296 Special Topics 1-4 cr. Offered: On demand Graded S/U Prerequisite: Freshmen or sophomore standing only.</p> <p>Basic course in area of study.</p>	<p>PY 305 Psychological Statistics 4 cr. (4-0-Arr) Offered: Fall, winter, summer Prerequisite: Junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. • Satisfies the upper division liberal studies requirement.
<p>PY 297 Directed Research/Directed Study 1-4 cr. Offered: On demand Graded S/U Prerequisite: Written department permission.</p> <p>Directed individual laboratory research of current problems in psychology.</p>	<p>The interpretation and application of basic descriptive statistics and an introduction to statistical inference, including chi square and analysis of variance. Computer laboratory experience included when appropriate.</p> <p>PY 311 Thinking and Cognition 4 cr. (4-0-Arr) Offered: Fall Prerequisite: PY 100S, L, H or G. PY 204 or PY 211 recommended.</p> <p>Survey of methods, findings and theories regarding cognitive functions, including such topics as perception, attention, memory, language, thought, judgment and choice. Laboratory investigations included.</p>

- PY 313 Introduction to Linguistic Theory** 4 cr.
 Offered: Every other winter
 Prerequisite: EN 211, junior standing or instructor's permission.
 Cross listed with EN 313.
 An introduction to modern (Chomskyan) linguistics as the foundation of empirical psycholinguistics. This course emphasizes morphological, syntactic and semantic analyses of language and language behavior.
- PY 320 Psychological Measurement** 4 cr. (4-0-Arr)
 Offered: Contact department for information.
 Prerequisites: PY 100S, L, H or G and junior standing.
 The basic theory of measurement techniques, including test selection and construction, interpretation and use of test results, and types of testing programs. Lab experience is included when appropriate.
- PY 335 Social Psychology** 4 cr. (3-0-2)
 Offered: Fall, winter, summer
 Prerequisite: PY 100S, L, H or G.
 A focus on social facilitation, interpersonal attraction, group processes, leader behavior, attitude measurement and attitude change, inter-group conflict, helping behavior and environmental psychology with both field and laboratory research.
- PY 344 Lifespan Developmental Psychology** 4 cr.
 Offered: Fall
 Prerequisite: PY 100S, L, H or G.
 Lifespan development brings together and applies knowledge from psychology to better understand the needs and critical issues facing humans from conception through old age and death.
- PY 345 Psychology of Exceptional Children** 4 cr.
 Offered: Every other winter.
 Prerequisites: PY 100S, L, H or G and junior standing.
 Examination of selected principles, procedures and issues pertaining to the etiology, diagnosis and treatment of children who have intellectual, physical or social-emotional impairments.
- PY 350 Observation/Assessment of Children** 2 cr. (1-0-2)
 Offered: Fall
 Prerequisite: PY 241.
 Course acquaints the early childhood professional with a variety of methods and procedures used to observe, record and assess the behavior of young children.
- PY 351 Psychology of Personality** 4 cr.
 Offered: Winter
 Prerequisites: PY 100S, L, H or G and junior standing or instructor's permission.
 The basic principles of psychology involved in the development, assessment and modification of personality and a description and analysis of major personality theories.
- PY 352 Child Guidance Techniques** 4 cr.
 Offered: Fall
 Prerequisite: PY 241.
 Techniques for organizing and sustaining a positive atmosphere for children and adults in the preschool learning environment.
- PY 353 Psychology of Aging in the Family** 4 cr.
 Offered: Every other winter.
 The aging process with focus upon individual, family and community planning for the middle and later years of life.
- PY 355 Abnormal Psychology** 4 cr.
 Offered: Fall
 Prerequisites: PY 100S, L, H or G and junior standing, or instructor's permission.
 Examination of the variety of patterns of disordered or dysfunctional behavior and the perspectives through which they may be understood and a consideration of relevant theory, research and treatment techniques.
- PY 358 Meaning and Development of Play** 4 cr. (3-0-2)
 Offered: Fall
 Prerequisite: PY 241.
 This course will explore the meaning and development of play from infancy through adulthood. It will also examine the various manifestations of play, (solitary activity, socio-dramatic play and games with rules) in light of developmental and education concerns.
- PY 360 Introduction to Clinical Psychology** 4 cr.
 Offered: Fall
 Prerequisites: PY 351 or PY 355 and junior standing, or instructor's permission.
 An introduction to the field of clinical psychology including the history, current trends, educational requirements, training, assessment procedures and therapeutic interventions.
- PY 390 Western Childhood** 4 cr.
 Offered: Fall
 Prerequisites: Completion of the foundations of communication requirement and junior standing.
 Study of childhood from a historical perspective, which explores how images of children and childhood reflect the prejudices and aspirations of human culture. Includes readings and viewings in history, literature, anthropology, art and film.
- PY 399 Advanced Apprenticeship** 1-2 cr.
 Offered: On demand
 Prerequisite: Written department permission.
 Directed apprentice activities in laboratory sections of courses, in research and in service.
Note: May be repeated for a total of four credits. However, the total combined credit for PY 299 and PY 399 may not exceed six credits.
- PY 400 History and Systems** 4 cr.
 Offered: Fall, winter
 Prerequisites: PY 204 or PY 211 and junior standing or instructor's permission. Majors should take this course in their senior year.
 Examination of the philosophical and historical roots of psychology culminating in an analysis of major theoretical perspectives leading to modern scientific psychology.

<p>PY 401 Behavior-Genetic Analysis 4 cr. Offered: Contact department for information. Prerequisites: PY 100S, L, H or G and junior standing or instructor's permission. PY 305 and biology courses in genetics and evolutionary theory recommended.</p> <p>The study of the interactions of genotypes and environments in the production of phenotypes and behavior.</p>	<p>PY 403 Behavior Assessment and Evaluation 4 cr. (4-0-2) Offered: Winter Prerequisites: PY 203, one 300-level psychology course and junior standing, or instructor's permission.</p> <p>Analysis of the behavior of individuals with emphasis on intervention procedures that are effective in bringing about behavior change.</p>	<p>PY 404 Advanced Physiological Psychology 4 cr. (3-0-2) Offered: Fall Prerequisites: PY 204 and junior standing or instructor's permission.</p> <p>Seminars on relevant topics, selected by students, including independent laboratory experience involving bio-behavioral or sensory processes of humans or other animals.</p>	<p>PY 410 Sensation and Perception 4 cr. Offered: Contact department for information. Prerequisites: PY 204 and junior standing, or instructor's permission.</p> <p>Scientific exploration of sensory and perceptual phenomena with emphasis on relevant psychological laws, neurological mechanisms, the relationship between brain function and mental experience, and the practical implications of each. Laboratory investigation of methods and phenomena.</p>	<p>PY 411 Learning Processes 4 cr. (3-0-2) Offered: Winter Prerequisites: PY 211 and junior standing or instructor's permission.</p> <p>Advanced principles of learning processes, related theories and research, with laboratory and independent research activity.</p>	<p>PY 435 Advanced Social Psychology 4 cr. (3-1-2) Offered: Winter Prerequisites: PY 335 and junior standing, or instructor's permission.</p> <p>Focus on researched topics in social psychology, with attention to research design, development of a research proposal and independent laboratory and field research activity.</p>	<p>PY 436 The Psychology of Organizational Behavior 4 cr. (3-1-0) Offered: Winter Prerequisite: PY 335 recommended, junior standing or instructor's permission.</p> <p>A focus on empirically researched areas of organizational behavior including performance management, leader behavior, organizational environments, feedback, etc., and on implementing programmatic changes through the use of researched psychological techniques. Field and laboratory investigations included when appropriate.</p>	<p>PY 441 Individual Differences In Development 4 cr. Offered: Contact department for information. Prerequisites: PY 205, PY 241, PY 305, PY 320 or equivalents and junior standing or instructor's permission.</p>	<p>The application of the idiosyncratic methodological approach as applied to the understanding of individual differences in development, incorporating multi-disciplinary study of physical, cognitive and psychosocial domains of development.</p> <p>PY 455 Psychopathology 4 cr. Offered: Winter Prerequisites: PY 355 and junior standing or instructor's permission.</p> <p>Selected topics in psychopathology central to an advanced examination of the variety of patterns of disordered or dysfunctional behavior and the perspectives through which they may be understood, as well as a consideration of relevant theory, research and treatment techniques.</p> <p>PY 458 Introduction to Small Group Processes 4 cr. Offered: Contact department for information. Prerequisite: Two 300-level psychology courses, junior standing or instructor's permission.</p> <p>Consideration of scientific theory and research on small group processes from both an applied and research perspective.</p> <p>PY 460 Administration of Preschool Programs 2 cr. Offered: Winter Prerequisites: PY 156, PY 270, PY 272 and PY 352, junior standing or instructor's permission.</p> <p>Study of program development, implementation and control. Operational topics include staffing, licensing, certification requirements, equipment and facilities for operating a preschool education facility.</p> <p>PY 470 Psychological Aspects of Athletic Performance 2 cr. Offered: Winter Prerequisites: PY 100S, L, H or G, junior standing or instructor's permission. Cross listed as PE 470.</p> <p>Study of psychological applications in the field of sports and coaching. Topics include behavioral coaching of motor skills, competition anxiety analysis and management, mental rehearsal techniques and aggression control.</p> <p>PY 490 Seminar 1-4 cr. Offered: Fall Prerequisites: Junior standing and instructor's permission. When taught as Senior Seminar, enrollment is limited to psychology majors who have previously taken Junior Seminar.</p> <p>Study of topics currently being researched by members of the department with special attention to the background, research findings, theoretical implications and heuristic value of the problem under study. <i>Note: May be repeated.</i></p> <p>PY 491 Practicum/Seminar in Psychology 4 cr. (1-0-12) Offered: Contact department for information. Prerequisite: Senior standing; PY 241; 270 and 272; 290.</p> <p>Course reinforces and integrates the skills and knowledge that must be maintained to build on the traditions and practices used by most community agencies and child-care facilities.</p>
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PY 492A Practicum 1-4 cr.

Offered: Contact department for information.
 Prerequisites: PY 203 or PY 211, PY 403 junior standing and written department permission.
 Experience for advanced students in applying behavioral techniques. Students are typically required to perform daily work in local settings.
Note: May be repeated for a total of four credits.

PY 492B Advanced Practicum 1-4 cr.

Offered: Contact department for information.
 Prerequisites: PY 492A, junior and written department permission.
 Continuing and more advanced experience in applying behavioral techniques for students who have successfully completed PY 492A.
Note: May be repeated for a total of four credits.

PY 495 Special Topics in Psychology 1-4 cr.

Offered: Contact department for information.
 Prerequisites: Junior standing and instructor's permission.
 Formal study of content areas of psychology that have a research or theoretical base but that are not regularly offered as part of the curriculum.
Note: May be repeated if topic differs.

PY 496 Special Topics in Psychology 1-4 cr.

Offered: Contact department for information.
 Graded S/U
 Prerequisites: Junior standing and instructor's permission.
 Formal study of content areas of psychology that have a research or theoretical base but are not regularly offered as part of the curriculum.
Note: May be repeated.

PY 497 Directed Research/Directed Study 1-4 cr.

Offered: Contact department for information.
 Graded S/U
 Prerequisites: Junior standing and department permission.
 Directed individual laboratory research of current problems in psychology. This course requires regular meetings with the instructor throughout the semester.
Note: May be repeated.

PY 498 Directed Research/Directed Study 1-4 cr.

Offered: Contact department for information.
 Prerequisites: Junior standing and department permission.
 Directed individual laboratory research of current problems in psychology. This course requires regular meetings with the instructor throughout the semester.
Note: May be repeated.

RE - RECREATION

Health, Physical Education and Recreation Department

RE 110 Introduction to Leisure and Recreation 2 cr.
 Offered: Fall, winter

Introduction to leisure and recreation and the leisure service profession. Includes historical and current concepts, theories and philosophies of leisure, recreation and play. as well as historical development of public and private resources for leisure and recreation and exploration of career opportunities.

RE 155 Outdoor Living Skills 2 cr. (1-0-2)
 Offered: Fall, winter

Introduction to basic outdoor living and camping skills. Major topic areas include tool craft, rope craft, cooking and fires, health and safety, map and compass, gear and shelters and environmental awareness. The course will require a minimum of one extended camping trip.

RE 191 Professional Development Seminar I 0.5 cr.
 Offered: Winter

Prerequisites: RE 110 and declared ORLM major or minor.
 An introduction to ORLM major or minor that provides for the initial development of professional and academic portfolios. Provides the infrastructure to conduct all course work, procedures and requirements associated with field work, internship and plans of study.

RE 250 Education in Outdoor Settings 3 cr.
 Offered: Fall, winter

Prerequisite: RE 110 or instructor's permission.
 The history, theory, philosophy and educational programs in outdoor settings. Introduction to primary programs including outdoor education, adventure/challenge education, experiential education, environmental education and organized camping.

RE 251 Adventure Activities, Facilitation and Group Behavior 3 cr. (2-0-2)
 Offered: Fall, winter

Prerequisites: RE 110 and RE 250.
 Study of group process, development and facilitation skills, practice listening skills, use of metaphor and debriefing. Discuss transfer of learning and the direct experience and skill development of facilitating adventure type activities, such as our high ropes course and climbing wall.

RE 261 Leadership and Pedagogy in Leisure Services 3 cr. (2-0-2)
 Offered: Fall, winter

Prerequisites: RE 110 and RE 250.
 Fundamentals and techniques of recreation and educational leadership in leisure services. Focus is on leadership theory, development of basic leadership and programming skills, teaching approaches and strategies and related legal issues. Provides hands-on leadership and teaching experiences.

<p>RE 270 Outdoor Recreation Resources, Behavior and Values 3 cr. Offered: Fall, winter Prerequisite: RE 110.</p> <p>Studies resources, policies and history of governmental and non-governmental organizations with involvement in outdoor recreation. Examines human behavior in the natural environment and the benefits from this interaction. Course content set in context of Outdoor Recreation Systems Model.</p>	<p>RE 356 Wilderness Education Association Wilderness Stewardship 2 cr. (1-0-2) Offered: Summer Prerequisites: RE 155 strongly recommended. Department permission required.</p> <p>An extended trip to a local area based upon the Wilderness Education Association's 18-point curriculum. Course focuses on outdoor leadership, group dynamics, expedition behavior, low-impact camping and environmental ethics. Extra fees required for food, equipment use and WEA fees.</p>
<p>RE 277 Introduction to Wild Land Firefighting 2 cr. Offered: Winter</p> <p>An introduction to wild land fire designed to train firefighters in basic fire behavior and tactics that will aid them in the safe and effective control of wild land fires.</p>	<p>RE 357 Teaching of Canoeing 2 cr. (1-0-2) Offered: Fall Prerequisites: instructor's permission, RE 155, current certification from HL 242 or in WFR, EMT or WEMT. Successful completion of a swimming test administered in conjunction with the class.</p>
<p>RE 291 Professional Development Seminar II 0.5 cr. Offered: Winter Prerequisites: RE 191.</p> <p>A continuation of RE 191.</p>	<p>Covers tandem and solo flat water canoeing and the basics of freestyle canoeing and Omering. Development of skills and judgment needed to teach safe canoeing and lead canoe day trips. Counts as an American Canoe Association (ACA) Instructor Development Workshop for students who meet ACA requirements. The course is conducted in the field at various canoeing sites.</p>
<p>RE 294 Field Work (A, B, C and/or D) 1-2 cr. Offered: Fall, winter, summer Prerequisites: RE 110, RE 191, RE 250 and/or RE 270 strongly recommended or concurrent enrollment. ORLM majors only. Grade point average of 2.50 required in major core courses.</p> <p>This course is designed to give students supervised practical experience in a professional setting. Emphasis is placed on leadership responsibilities of planning, conducting and evaluating activities.</p> <p><i>Note: May be repeated for a total of three credit hours.</i></p>	<p>RE 358 Teaching of Rock Climbing 2 cr. (1-0-2) Offered: Contact department for information. Prerequisites: RE 155 and instructor's permission.</p> <p>Starting with basic techniques of technical free rock climbing and progressing to more difficult routes requiring intermediate climbing techniques. Development of skills and judgments necessary to teach the activity to others. Conducted over an eight day period during the spring/summer.</p>
<p>RE 295 Special Topics in Leisure 1-4 cr. Offered: On demand</p> <p>Detailed study of one or more special problems in leisure.</p>	<p>RE 362 Program Design in Leisure Services 3 cr. Offered: Winter Prerequisites: RE 110, RE 250, RE 251, RE 261 and RE 270.</p>
<p>RE 296 Special Topics in Leisure 1-4 cr. Offered: On demand Graded S/U</p> <p>Detailed study of one or more special problems in leisure.</p>	<p>Study of the principles, practices and organization of leisure programs including program classification systems, activity selection, program formats, needs assessments, program operation strategies and evaluation of programs.</p>
<p>RE 297 Directed Study in Leisure 1-4 cr. Offered: Contact department for information. Graded S/U</p> <p>Independent study with research.</p>	<p>RE 371 Protected Area Management 3 cr. Offered: Winter Prerequisites: RE 270 or instructor's permission and eight credits of natural science (non-human biology, earth science, chemistry, physics or astronomy).</p>
<p>RE 298 Directed Study in Leisure 1-4 cr. Offered: Contact department for information.</p> <p>Independent study with research.</p>	<p>Studies the techniques and strategies used to manage the physical resources, visitors and services in protected areas. Course content set in the context of the Outdoor Recreation Systems Model.</p>
<p>RE 352 Wilderness First Responder 3 cr. (2-0-2) Offered: Fall Graded S/U</p> <p>Covers CPR, body systems, trauma management for extended periods, environmental emergencies, equipment improvisation, patient assessment, toxins, wilderness rescue and backcountry medicine. CPR and WFR certifications offered. Includes lectures, practical sessions and rescue simulations.</p>	<p>RE 381 Interpretation I: Foundations and Guided Services 4 cr. (3-0-2) Offered: Fall Prerequisites: AIS 101, RE 261 and RE 270. Four to eight credits from history or anthropology and four to eight credits from natural science (non-human biology, earth science, chemistry, physics or astronomy) for a total of 12 credits.</p> <p>Develops skills and knowledge in environmental and historical interpretive services through planning, implementing and evaluating all types of performance interpretation including interpretive talks, guided walks and tours, interpretive events and living history.</p>

<p>RE 382 Interpretation II: Self-guided Media 3 cr. (2-0-2) Offered: Winter Prerequisites: RE 381; competency in computer presentation and publication software; EN 211 and completion of the writing proficiency exam; 16 credits in a mix of natural science and history and/or anthropology courses. A continuation of RE 381 with the addition of planning, implementing and evaluating all types of self-guided interpretive services including publications, exhibits, signs, self-guided tours and trails, multimedia presentations and trunks.</p>	<p>A continuation of RE 456. The third and final course in the series to meet WEA National Standard Program for outdoor education certification requirements. Extra fees required for food, equipment use, WEA membership fees and program/camping fees.</p>
<p>RE 391 Professional Development Seminar III 0.5 cr. Offered: Winter Prerequisites: RE 291. A continuation of RE 291. Provides an infrastructure for students to prepare for RE 491. <i>Note: May be repeated.</i></p>	<p>RE 461 Management and Supervision of Leisure Services 4 cr. Offered: Winter Prerequisites: MKT 230; RE 362 or RE 381; RE 371 and senior standing. Examines the principles and practices of supervision and management of leisure services and resources. Requires writing a funding proposal.</p>
<p>RE 410 Leisure Through the Ages 2 cr. Offered: Fall Prerequisite: Senior standing or instructor's permission. Survey course of the literature, art, music and media that impacts the leisure and outdoor recreation profession.</p>	<p>RE 466 Area and Facility Planning and Management 3 cr. Offered: Contact department for information. Prerequisites: RE 371; RE 461 strongly recommended, junior standing or instructor's permission. Principles, terminology, standards of planning, construction, use and maintenance of areas and facilities for varied leisure programs.</p>
<p>RE 450 Adventure Program Planning and Management 3 cr. Offered: On demand Prerequisites: RE 110, RE 250, RE 251, RE 261, RE 270, RE 362, and concurrent or after RE 461, junior standing or instructor's permission. Theoretical, philosophical and historical perspectives of outdoor adventure programs. Provides experience in planning and developing adventure program components. Examines selected aspects of administration and management of adventure programs including legal concerns.</p>	<p>RE 467 Evaluation/Research in Leisure Services 3 cr. Offered: Fall Prerequisites: RE 362 or RE 371 or RE 381; PY 305 or equivalent and junior standing. Principles and procedures for conducting evaluation and evaluation research in leisure services and resources.</p>
<p>RE 455 WEA National Standard Program I 2 cr. (1-0-2) Offered: Summer Prerequisites: Junior standing and instructor's permission; RE 155, RE 250, RE 356, HL 242 or RE 352, or WFR, or WEMT; RE 251 or RE 261 strongly recommended. An introduction to expedition planning. Major topics include route selection, menu planning and rations, transportation and logistics, equipment, emergency procedures and forms, liability and risk management, expedition behavior, leadership and judgment. This is the first in a three-course series to meet WEA requirements for outdoor leadership certification.</p>	<p>RE 480 Interpretive Services Planning and Management 4 cr. Offered: Contact department for information. Prerequisites: RE 371, RE 381, RE 382, GC 225; concurrent with or after RE 461. Computer mapping competencies recommended (GC 230 recommended), junior standing or instructor's permission. Examines and practices the process of interpretive master planning for new and existing protected areas. Applies management practices and procedures to issues that arise at interpretive centers.</p>
<p>RE 456 WEA National Standard Program II 2 cr. (1-0-2) Offered: Summer Prerequisites: RE 455, junior standing or instructor's permission. A continuation of RE 455. An extended expedition designed to learn, practice and teach specific land and/or water-based outdoor skills. Extra fees required for food and equipment use.</p>	<p>RE 491 Professional Assessment Seminar 0.5 cr. Offered: Contact department for information. Prerequisites: Declared ORLM major, senior standing and instructor's permission required. The Outdoor Recreation Division Comprehensive Exam and other assessment instruments will be administered.</p>
<p>RE 457 WEA National Standard Program III 2 cr. (1-0-2) Offered: Summer Prerequisites: RE 455, junior standing or instructor's permission.</p>	<p>RE 494 Internship 12 cr. Offered: Fall, winter, summer Prerequisites: RE 491; approval of intern site, all required core and other required courses completed, and overall grade point average of 2.50 in the major, junior standing or instructor's permission. This course involves supervised field work in a professional setting with emphasis on administration, supervision, programming and leadership.</p>
	<p>RE 495 Special Problems in Leisure 1-4 cr. Offered: On demand Prerequisites: Junior standing or instructor's permission. Detailed study of one or more special problems in leisure.</p>

RE 496 Special Problems in Leisure 1-4 cr. **SL 253 American Sign Language II** 4 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Junior standing or instructor's permission.
 Detailed study of one or more special problems in leisure.

RE 497 Directed Study in Leisure 1-4 cr. **SL 254 American Sign Language III** 2 cr.
 Offered: On demand
 Graded S/U
 Prerequisites: Junior standing or instructor's permission.
 Independent study with research.

RE 498 Directed Study in Leisure 1-4 cr. **SL 351 Introduction to Audiology** 4 cr. (3-0-2)
 Offered: On demand
 Prerequisites: Junior standing or instructor's permission.
 Independent study with research.

SL - SPEECH, LANGUAGE AND HEARING SCIENCES

Speech, Language and Hearing Sciences Department

SL 150 Introduction to Speech, Language and Hearing Sciences 4 cr.
 Offered: Fall, winter
 Introduction to modern linguistic theory and the biological, cognitive, and cultural bases of human communication. Emphasis is placed on the role of language in society including language variation and the social valuation of dialects.

SL 160 Anatomy of the Speech and Hearing Mechanism 4 cr. (3-0-2)
 Offered: Fall
 Study of the anatomical structures and the physiological function of the head, neck and thorax and their relationship to speech and voice production. Laboratory.

SL 200 Phonetics 4 cr.
 Offered: Fall
 Study of the acoustic and physiological bases for phonetic transcription of normal and disordered speech. Instruction in phonology and articulation of sounds of general American dialect, their disorders, assessment and treatment.

SL 220: Speech and Voice Science 4 cr. (3-0-2)
 Offered: Winter
 Prerequisites: SL 160 and SL 200.
 Study of the anatomy, physiology and acoustics in the production of perception of speech. Discussion of the normal parameters of voice. Introduction to the nature of voice disorders. Laboratory.

SL 252 American Sign Language I 4 cr.
 Offered: Fall, winter, summer
 Vocabulary building and basic conversational skill in ASL. Introduces basic information about deaf culture and community.

SL 253 American Sign Language II 4 cr.
 Offered: Fall, winter, summer
 Prerequisites: SL 252 with a grade of "C" or higher.
 Further development of the use and understanding of ASL. Includes structured ASL communication.

SL 254 American Sign Language III 2 cr.
 Offered: On demand
 Prerequisites: SL 253 with a grade of "C" or higher, junior standing or instructor's permission.
 Expansion of grammar and vocabulary development in ASL. Emphasis is placed on using ASL in short stories, narratives and conversations.

SL 351 Introduction to Audiology 4 cr. (3-0-2)
 Offered: Winter
 Prerequisites: SL 160 or instructor's permission.
 The basic physics of sound, anatomy and physiology of the ear, pure tone testing and pathologies of the hearing mechanism. Laboratory.

SL 355 Language Development 4 cr.
 Offered: Fall
 Prerequisites: SL 150 or instructor's permission.
 Theories and conceptual models of language development in the young child. The roles of syntax, semantics and phonology are discussed in relationship to linguistic and developmental theories. Clinical observation is included.

SL 356 Language Disorders 4 cr.
 Offered: Winter
 Prerequisites: SL 355 or instructor's permission.
 The theoretical language disorders in children with a focus on the practical aspects of assessment and treatment. Academic service learning opportunity is included.

SL 357 Fluency Disorders 4 cr.
 Offered: Fall
 Prerequisites: SL 150 or instructor's permission.
 Study of normal dysfluency, stuttering and cluttering. The development, measurement and treatment of stuttering are emphasized. Clinical observation is included.

SL 359 Introduction to Neurogenics 4 cr.
 Offered: Winter
 Prerequisites: SL 160, SL 200 and SL 355 or instructor's permission.
 Study of neurological disorders across the lifespan that affect cognition and communication. Emphasis is placed on the basic principles of brain-behavior relationships. Current theories and controversies in aphasia, motor speech disorders, dyslexia, dysgraphia, right-hemisphere disorder, traumatic brain injury, Alzheimer's disease and related disorders. Academic service learning is included.

SL 400 Phonological Disorders 4 cr.
 Offered: Winter
 Prerequisites: SL 200 and SL 220, junior standing or instructor's permission.
 The nature, etiology, assessment and remediation of phonological disorders. Also includes principles of phonological awareness in children.

SL 456 Language and Learning Disabilities in Children 4 cr.

Offered: Winter
Prerequisites: SL 150, SL 355 and SL 356, senior standing or instructor's permission.

A review of the literature regarding language and learning disabilities in children. Biological and linguistic aspects of these disturbances are stressed.

SL 459 Cognitive Neuroscience 4 cr. (3-0-2)

Offered: Fall
Prerequisite: SL 160 and SL 359, junior standing or instructor's permission.

The structure and organization of the human central and peripheral nervous systems with emphasis on their functional relationship to human cognition and communication. Laboratory.

SL 460 Cognition and Aging 4 cr.

Offered: Winter
Prerequisite: CD 150, CD 355, junior standing or instructor's permission.

Examination of basic cognitive processes such as attention, perception and memory within the context of adulthood and aging. Pathological conditions that affect cognition such as traumatic brain injury and dementia will also be discussed. Academic service learning opportunity is included.

SL 464 Methods of Diagnosis 4 cr.

Offered: Fall
Prerequisite: SL 200, SL 365, junior standing or instructor's permission.

Instruction and practice in the clinical procedures relative to the evaluation, measurement and treatment of communication disorders in children and adults.

SL 465: Methods of Treatment 4 cr.

Offered: Fall, winter
Prerequisites: Senior status, minimum GPA in the major of 3.0 and permission of clinic director.

Instruction and pre-professional practice in clinical procedures related to the treatment of communication disorders. A clinical experience is included.

SL 492 Workshop in Speech, Language and Hearing Sciences 1-6 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.
Short, intensive workshop regarding new developments.

SL 495 Special Topics in Speech, Language and Hearing Sciences 1-4 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.
Topics of special interest to students and faculty.

SL 496 Special Topics in Speech, Language and Hearing Sciences 1-4 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.
Graded S/U
Topics of special interest to students and faculty.

SL 497 Directed Pre-professional Experience 4 cr.

Offered: Fall, winter, summer
Prerequisites: SL 465, senior status, minimum cumulative GPA of 3.00 and permission of clinic director.

An optional clinical experience. Students apply to the clinic director for consideration.

SL 498 Directed Study in Speech, Language and Hearing Sciences 2-4 cr.

Offered: On demand
Prerequisites: Junior standing or instructor's permission.

An intensive study of special problems under the guidance of a faculty member in speech, language and hearing sciences.

SN - SPANISH

Modern Languages and Literatures Department

SN 101 Elementary Spanish I 4 cr.

Offered: Fall, winter, summer
• Satisfies the formal communication studies requirement.

SN 101 is an introduction to the Spanish language and cultures of the people who speak it. Students learn rudimentary "survival" skills such as social pleasantries, shopping, exchanging money, eating in restaurants, talking about family and school, and weather.

SN 102 Elementary Spanish II 4 cr.

Offered: Fall, winter
Prerequisite: SN 101 or one year of high school Spanish.
• Satisfies the formal communication studies requirement.

SN 102 is a continuation of SN 101. Students add to their proficiency in matters such as those related to health, free time, employment, travel and talking about the past cultures of the Hispanic world.

SN 201 Intermediate Spanish I 4 cr.

Offered: Fall, winter
Prerequisite: SN 102 or two years of high school Spanish.
• Satisfies the formal communication studies requirement.

SN 201 reviews all grammar and major topics from SN 101 and 102. This course incorporates more reading, writing and conversation than first-year courses and explores more matters dealing with Hispanic cultures. Students expand their proficiency into areas such as expressing opinions and persuading.

SN 202 Intermediate Spanish II 4 cr.

Offered: Fall, winter
Prerequisite: SN 201 or three years of high school Spanish.
• Satisfies the formal communication studies requirement.

SN 202 is a continuation of SN 201. Students do considerably more reading and writing than in prior courses. The course expands their cultural and linguistic proficiency.

<p>SN 299 Apprenticeship 1-2 cr. Offered: Fall, winter Graded S/U Prerequisite: Written department permission.</p> <p>Apprentice work and activities that require students to use their knowledge of Spanish and develop their competency in the language. This includes such things as oral expression, appreciation of grammatical structure, proofreading and editing skills, research skills in Spanish and skills in teaching Spanish to others.</p> <p><i>Note: May be taken for a maximum of two credits.</i></p>	<ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the world cultures requirement. • Satisfies the upper division liberal studies requirement. <p>Presentation of Latin American intellectual, social and political issues as reflected in contemporary literature, music, art, film and other cultural forms from the various regions of Latin America.</p> <p><i>Note: SN 314 is taught in English. This course cannot be applied toward a Spanish major or minor.</i></p>
<p>SN 300 Reading and Writing 4 cr. Offered: Fall Prerequisite: SN 202 or instructor's permission.</p> <p>This course teaches essential reading and writing skills in Spanish. Materials consist of Spanish newspapers, magazines, short stories and will prepare students for subsequent upper-level courses.</p>	<p>SN 400 Advanced Spanish Composition and Grammar 4 cr. Offered: Winter Prerequisite: SN 300, junior standing or instructor's permission.</p> <p>A review of all major points of the Spanish grammar system, with an especially intense focus on the rich verb system. In an interrelated way, it also provides the opportunity for students to improve their writing skills through composition of essays, letters and resumes.</p>
<p>SN 305 Conversational Spanish 4 cr. Offered: Winter Prerequisite: SN 202, completion of the foundations of communication requirement, sophomore standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the formal communication studies requirement. • Satisfies the upper division liberal studies requirement. <p>SN 305 focuses on improving the conversational abilities of students through practice within various discourse strategies. Role-playing, films, multimedia materials, soap operas and radio and television transmissions supplement daily conversational practice. This course also includes an advanced grammar review.</p>	<p>SN 425 Masterpieces of the Golden Age of Spanish Literature 4 cr. Offered: A 400-level course is offered every fall Prerequisite: SN 300 or instructor's permission.</p> <p>Students examine some of the masterpieces of Spain's Golden Age literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>SN 310 Introduction to Spanish Civilization and Culture 4 cr. Offered: Winter Prerequisite: SN 300 or instructor's permission.</p> <p>This course is a multidisciplinary introduction to the culture and civilization of Spain. It offers a comprehensive view of the historical, geographical, political and economic factors that have helped shape today's Spanish society.</p> <p><i>Note: SN 310 is taught in Spanish.</i></p>	<p>SN 428 20th Century Literature of Spain 4 cr. Offered: A 400-level course is offered every fall Prerequisite: SN 300 or instructor's permission.</p> <p>An examination of some of the masterpieces of Spain's 20th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>SN 312 Introduction to Spanish America 4 cr. Offered: Fall Prerequisites: SN 300 or equivalent, completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. • Satisfies the upper division liberal studies requirement. <p>This course is a multidisciplinary introduction to the culture and civilization of Spanish America. It offers a comprehensive view of the historical, geographical, political and economic factors that have helped shape today's Spanish American societies and the cultural expressions which have resulted.</p> <p><i>Note: SN 312 is taught in Spanish.</i></p>	<p>SN 429 20th Century Literature of Spanish-America 4 cr. Offered: A 400-level course is offered every fall Prerequisite: SN 300 or instructor's permission.</p> <p>Students examine some of the masterpieces of Spanish-America's 20th-century literature. The texts studied serve as springboards to consideration of art, culture, language, history and humanity.</p>
<p>SN 314 Contemporary Latin American Culture 4 cr. Offered: Winter, summer Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p>	<p>SN 495 Special Topics in Spanish 1-4 cr. Offered: A 400-level course is offered every fall Prerequisite: SN 300 or instructor's permission.</p> <p>This is an experimental course based on linguistics, cultures, authors, genres or literary periods not covered in other regularly approved Spanish courses.</p> <p><i>Note: May be repeated for credit if topic varies.</i></p>
	<p>SN 498 Directed Study in Spanish 1-4 cr. Offered: On demand Prerequisite: Instructor and department head permission.</p> <p>A directed study course designed to meet a specific academic requirement of the student who is unable to earn the credit during regularly scheduled course offerings. The student and professor agree to the specific topic and requirements needed to earn the credit.</p>

SO-SOCIOLOGY

Sociology and Social Work Department

SO 101 Introductory Sociology 4 cr.

Offered: Fall, winter, summer

- Satisfies the foundations of social sciences requirement.

A study of social organization, culture and social interaction with particular emphasis on American society. The sociological approach is developed through such concepts as status and role, social stratification, socialization and social change. This approach is used to study crime, population, family, religion, education and other areas.

SO 101H Introductory Sociology Honors 4 cr.

Offered: Fall

Prerequisite: Instructor's permission.

- Satisfies the foundations of social sciences requirement.

A survey, with individual topics covered by members of the sociology faculty specializing in those areas. Emphasis is placed on classroom discussion and writing covering both examinations and a term project. In completing the project, students are introduced to the computer as a research tool.

SO 111 Civil Life in Democratic Society 2 cr.

Offered: Winter

- Satisfies the foundations of social sciences requirement.

This course focuses on civil society and civil engagement—the involvement of ordinary citizens in organizations and associations that shape and govern democratic societies. It addresses such topics as leadership, volunteerism and community and grassroots organizing, and encourages students to explore these issues in their own communities.

SO 113 Social Problems 4 cr.

Offered: Fall, winter, summer

- Satisfies the foundations of social sciences requirement.

Survey of the major social problems in contemporary American society including urban problems, population, environment, power, family, health care, work and leisure, aging, poverty, race and ethnic relations, sex roles, war, deviant behavior, drugs and alcohol, social movements, crime and delinquency, and others.

SO 201 Sociology of Aging 4 cr.

Offered: Contact department for information.

Prerequisite: SO 101.

Theoretical and multicultural approach to the social aspects of aging including theoretical perspectives and methods, demographic trends, inter-generational relations, family life, living environments, retirement and leisure, the legal system, political behavior, income distribution, social service models, prospects for the future, and death and dying in a social context.

SO 208 Methods of Social Research I 4 cr.

Offered: Fall, winter

Prerequisite: SO 101 or instructor's permission.

- Satisfies the formal communication studies requirement.

Introduction to techniques of data analysis for social research. Applied uses of descriptive and inferential statistics are emphasized. Computers and statistical software are used as part of the instruction process.

SO 232 Marriage and the Family 4 cr.

Offered: Fall, winter, summer

Prerequisite: SO 101.

- Satisfies the foundations of social sciences requirement.

Examination of social changes that have affected family relations in western culture and the multifaceted effects of these changes and the social significance of these changes in a complex social order. Also explores many of the issues and problems confronting contemporary families.

SO 251 Sport in American Society 2 cr.

Offered: Every other winter, even years.

- Satisfies the foundations of social sciences requirement.

Develops an understanding of the structure, processes and problems of sport as an institutionalized social system. Theory and methodology of sociology helps to understand, explain and predict social behavior in a sport milieu. Develops a greater awareness and appreciation of the social significance of sport in contemporary society.

SO 263 Criminology 4 cr.

Offered: Fall

Prerequisites: SO 101 or SO 113 and CJ 110; or instructor's permission.

Cross listed with CJ 263.

This course explores the nature, extent, causes and methods of treatment and prevention of crime. Emphasis is on the theories and methods of studying crime and criminal behavior as a social phenomena.

SO 295 Special Topics in Sociology 1-4 cr.

Offered: Contact department for information.

Prerequisite: SO 101 or instructor's permission.

Topic varies with the area of specialization of the faculty member teaching the course.

Note: May be repeated if topic differs.

SO 301 Urban Sociology 4 cr.

Offered: Winter

Prerequisite: SO 101.

The development of cities, their ecological characteristics and the impact of urbanization on a society and the way of life of its people. The social aspects of urban planning and urban renewal are considered.

SO 302 Life Cycle and Social Structure 4 cr.

Offered: Contact department for information.

Prerequisites: Social work major and SO 101 or instructor's permission.

A review of alternative definitions of the life cycle. The life cycle is described with respect to its different periods: adolescence, middle age and old age. The social psychology of these stages is examined with consideration given to the effects of differential age or sex and the impact of different historical periods.

<p>SO 308 Methods of Social Research II 4 cr. Offered: Fall, winter Prerequisite: SO 208 or equivalent or instructor's permission. Cross listed as SW 308.</p> <p>Introduction to methods, concepts and techniques of social research, including sampling, questionnaire and interview design, experiments, observation, evaluation research, and ethics. Involves research projects on social science issues. Computers and statistical software may be used as part of the instruction process.</p>	<p>SO 351 Social Change 4 cr. Offered: Fall Prerequisite: SO 101. Completion of foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>The latest theoretical and factual knowledge applied to the understanding of contemporary social change and the master trends shaping our lives, including robotization of work, computerization of live space, visual media and the social consciousness, environmental impacts, coping with the stress of change, and the prospects for planning change.</p>
<p>SO 311 The Community and Human Service Organizations 4 cr. Offered: Contact department for information. Prerequisites: SO 101 and admission to the social work program or instructor's permission.</p> <p>Examination of the community and its human service organizations. Various approaches are used in developing an understanding of the dynamic relationship between the community and the organizational field. The social systems approach is emphasized at the level of the community and the individual organizations operating within its boundaries.</p>	<p>SO 355 Introduction to Social Psychology 4 cr. Offered: Fall Prerequisite: SO 101. Completion of foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>Social basis of human behavior, with emphasis on symbolic interaction theory. People are shown to possess a "mind" and "self" not possessed by other organisms. Further, human behavior is shown to depend upon the use of language and learning through social interaction that language makes possible.</p>
<p>SO 312 Religion and Society 4 cr. Offered: Fall Prerequisites: SO 101 or instructor's permission.</p> <p>This course is designed to provide an understanding of the place, function and impact of religion as a social institution and a moral force within society. It will also examine the interplay between religion and politics, technology, social movements, minorities and the other institutions of American society.</p>	<p>SO 362 Women, Men and Social Inequality 4 cr. Offered: Contact department for information. Prerequisite: SO 101 or instructor's permission.</p> <p>Addresses the significance of gender/sex roles in American society. This course focuses on cultural and social ingredients in people's perception of themselves as men and women. The implications of gender for social inequality are examined in depth.</p>
<p>SO 322 Social Class, Power and Mobility 4 cr. Offered: Every other fall. Prerequisite: SO 101. If taken as upper division liberal studies course, completion of foundations of communication requirement and sophomore standing also are required.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Satisfies the upper division liberal studies requirement. <p>The development and organization of systems of social stratification. Relationship of social mobility to social stratification. A survey of theories, methods, class characteristics and the channels, types and forms of social mobility.</p>	<p>SO 372 Minority Groups 4 cr. Offered: Fall, winter Prerequisite: SO 101.</p> <ul style="list-style-type: none"> • Satisfies the foundations of social sciences requirement. • Does not satisfy the upper division liberal studies requirement. <p>Survey of selected ethnic minorities in the United States. Special attention is given to the structural sources of prejudice, discrimination and social conflict in America.</p>
<p>SO 332 The Study of Population 4 cr. Offered: Contact department for information. Prerequisite: SO 101.</p> <p>Description of the work of population scholars and demographers, followed by consideration of basic population theory, analytical techniques and the dynamics of population change. Some emphasis on the problem of population growth as it relates to the food supply and other resources at the world, regional and national levels.</p>	<p>SO 382 Health, Society and Culture 4 cr. Offered: Every other fall. Prerequisite: SO 101 or AN 100 or instructor's permission. Cross listed as AN 382.</p> <p>Analysis of behavioral science dimensions of health systems and institutions at a national level, with emphasis on the United States. Discussion includes health and disease and social and cultural factors relating to the occurrence and distribution of disease. American medical systems and institutions are analyzed in comparison with medical systems in other societies.</p>
<p>SO 343 Sociology of Deviant Behavior 4 cr. Offered: Fall, winter, summer Prerequisite: SO 101</p> <p>A survey of individuals and groups that are considered "deviant" in our society. Various theories and research methods will be used to study the nature and extent of social deviance in American society. Additionally, processes of social reaction and social control will be analyzed.</p>	<p>SO 407 Sociological Theory 4 cr. Offered: Fall Prerequisites: SO 101 and eight credit hours in other sociology courses, junior standing or instructor's permission.</p> <p>Emphasis on the development of theory in the discipline and its application in solving problems. The modern schools of theory are also examined.</p>

SO 408 Survey Research, Design and Analysis 4 cr.

Offered: Winter
Prerequisites: SO 208 and SO 308 or equivalent courses, junior standing or instructor's permission.

Course builds on the competencies established in SO 208 and SO 308. Students design and carry out a large-scale survey research project, culminating in the presentation of the results. Stresses skills in advanced computer usage for data collection and analysis, interviewing, techniques for data manipulation and transformation and report preparation and presentation.

SO 412 Sociology of Education 4 cr.

Offered: Contact department for information.
Prerequisites: SO 101, junior standing or instructor's permission.

An application of sociological principles to the education process including the relationship between social stratification and education, the importance of interaction patterns on the educational process, the effect of other institutions on education and the role of education as a dynamic institution in a changing society.

SO 432 Seminar on Changing American Family 4 cr.

Offered: Winter
Prerequisites: SO 232 and senior standing; or instructor's permission.

Seminar provides an in-depth analysis of family change, focusing on both macro- and micro-level perspectives and including multiple theoretical foundations. Particular attention is given to the impact of rapid family change on both relationship instability and structural strain. Characteristics of family strength, stability and continuity are also addressed.

SO 472 Occupational Stress 4 cr.

Offered: Contact department for information.
Prerequisites: SO 101 or SO 113, junior standing or instructor's permission.

Focuses on theories of occupational stress, methods of measuring work stress, stressors in the work environment, the effects of occupational stress and individual and organizational strategies for managing and preventing work stress.

SO 473 Juvenile Delinquency 4 cr.

Offered: Every other winter.
Prerequisite: SO 263, junior standing or instructor's permission.

Taught as a seminar. The nature, extent, causes and societal reaction to juvenile delinquency. Emphasis is placed on selected theories and methods for the systematic analysis of juvenile offenders and the juvenile justice system. This is an advanced course for students who have a special interest in delinquency.

SO 491 Internship in Sociology 4-12 cr.

Offered: Contact department for information
Graded S/U
Prerequisites: SO 308, senior standing and department permission.

Students interested in doing a sociology internship should contact the department's internship coordinator during the second semester of their junior year. Internships usually involve working with a client agency or a research need. The nature of the project, as well as the credit hours earned is negotiated with the internship coordinator.

Note: Can be taken for two consecutive semesters, but not for more than a total of 12 credits.

SO 495 Special Topics in Sociology 1-4 cr.

Offered: On demand
Prerequisite: SO 101, junior standing or instructor's permission.

The study of a significant topic or problem in sociology that is not regularly offered as part of the curriculum or not otherwise emphasized in undergraduate courses.

Note: May be taken more than once if topic varies.

SO 498 Directed Study in Sociology 1-4 cr.

Offered: On demand
Prerequisites: Two sociology courses, a "B" average in sociology courses, junior standing and instructor's permission.

Study of content not available in the regular course offerings.

SP-SPEECH COMMUNICATION

Communication and Performance Studies Department

SP 100 Public Address 4 cr.

Offered: Fall, winter, summer
Theory and practice of public address as found in formal and informal speaking situations that confront people in business and other professions. Course requirements include presenting original speeches.

SP 110 Interpersonal Communication 4 cr.

Offered: Fall, winter, summer
Study of theories of interpersonal communication and human resources to make students aware of major problems in communicating with others and to enable them to improve their understanding of themselves and others.

SP 120 Small Group Process 4 cr.

Offered: Winter
Development of participation and decision-making skills in small groups. Classes combine lectures on group theory with laboratory application and practical experience.

SP 200 Argumentation 4 cr.

Offered: Fall, winter
Study of argumentation stressing research, reasoning, organization, composition and presentation.

SP 203 Advanced Public Address 4 cr.

Offered: Every third winter.
Prerequisite: SP 100.
Enhancing the student's applied knowledge of the practice of public address with the intent of building a high degree of language skill. Emphasis is placed upon clarity, interest, concreteness, as well as other style variables. Students write, polish and deliver informative and persuasive messages.

<p>SP 220 Interviewing 4 cr. Offered: Every third fall.</p> <p>Dyadic communication principles with major emphasis on learning how to function as interviewees and interviewers. Preparation of questions, role playing, case studies and participation in various types of interviews (informational, employment, persuasive and appraisal) are considered.</p>	<p>SP 404 Communication and the Arts 4 cr. Offered: Winter 2006; every third semester thereafter. Prerequisites: Junior standing or instructor's permission.</p> <p>Exploration into the study of communication aesthetics. The course examines a range of communication processes, concepts and techniques using the arts as its primary data base. Course includes some discussion of interpretive methods and consideration of various aesthetic mediums.</p>
<p>SP 240 Oral Interpretation of Literature 4 cr. Offered: On demand Prerequisite: At least one course in literature or completion of the foundations of communication requirement.</p> <ul style="list-style-type: none"> • Satisfies the foundations of humanities requirement. <p>Interpretive approach to literature including analysis, adaptation and presentation. Course includes reading a variety of literature in the classroom, with cutting, arranging and presenting of formal programs.</p>	<p>SP 405 Negotiating 4 cr. Offered: Every third semester (last offered winter 2006) Prerequisites: Junior standing or instructor's permission.</p> <p>The ways and means of negotiating for goods, services and resources from the perspective of both buyers and sellers. Students learn business negotiation strategies and tactics that can be applied in personal, social, political and international contexts.</p>
<p>SP 250 Research in Speech Communication 4 cr. Offered: Fall Prerequisites: Completion of EN 111 with a grade of "C-" or better. Speech communication majors must have completed two of the three core courses (SP 100, 110 and 120).</p> <p>An introduction to the research and writing requirements of the field of speech communication. Career options in the field are also considered.</p>	<p>SP 410 Advanced Interpersonal Communication 4 cr. Offered: On demand Prerequisite: SP 110, junior standing or instructor's permission.</p> <p>Exploration and development of one's awareness of, and conscious ability to use, various aspects of the speech communication discipline. Both intrapersonal and interpersonal communication are stressed.</p>
<p>SP 295 Special Topics in Speech Communication 1-4 cr. Offered: On demand</p> <p>Investigation of a significant topic or theme. Intended for underclassmen. <i>Note: May be repeated if the topic differs.</i></p>	<p>SP 412 Nonverbal Communication 4 cr. Offered: On demand Prerequisite: SP 110, junior standing or instructor's permission.</p> <p>Development of an understanding of the range of phenomena included in the study of nonverbal communication. A study of the relationship of proxemics, kinesics, chronemics and haptics to the total human communication process.</p>
<p>SP 300 Rhetorical Theory 4 cr. Offered: Fall</p> <p>Study of the rhetorical tradition from classical to contemporary theories of rhetoric.</p>	<p>SP 421 Organizational Communication 4 cr. Offered: Fall Prerequisites: SP 110, SP 120, junior standing or instructor's permission.</p> <p>Designed to acquaint students with theories and principles of effective communication within organizational settings, with specific application of behavioral theories to contexts of communication relevant to organizations such as labor unions, hospitals, government agencies, business, military and educational institutions.</p>
<p>SP 310 Communication Theory 4 cr. Offered: Winter</p> <p>A survey of contemporary theories and paradigms relating to human communication. Principles of theory construction are also discussed.</p>	<p>SP 425 Communication Ethics 4 cr. Offered: Infrequently Prerequisite: SP 110 or SP 300 or PL 180 or equivalent, junior standing or instructor's permission.</p> <p>Principles and perspectives of ethical communication will be studied and applied to a variety communication contexts. The impact of honest versus deceptive communication on the individual and society is evaluated.</p>
<p>SP 401 Persuasion 4 cr. Offered: Winter Prerequisites: Junior standing or instructor's permission.</p> <p>The study of persuasion through communication. Topics include audience analysis, experimental design of studies in persuasion, and the application of persuasive theory to various examples of communication.</p>	<p>SP 432 Environmental Communication 4 cr. Offered: Every third semester (last offered fall 2006) Prerequisites: Junior standing or instructor's permission.</p> <p>Understanding the social and cultural foundations for and strategic and tactical dimensions of the effective promotion of environmental policy, including the psychology of environmental communication; historical and cultural analyses of environmental rhetoric; environmental communication in government, business and communities; and the role of the media.</p>
<p>SP 402 Communication Criticism 4 cr. Offered: Every other winter. Prerequisites: Completion of the foundations of communication requirement and junior standing or instructor's permission.</p> <ul style="list-style-type: none"> • Satisfies the upper division liberal studies requirement. • Satisfies the foundations of humanities requirement. <p>The process of formally evaluating rhetorical activity, including songs, humor, films and television. As they learn the process of criticism, students survey a variety of communication events that have had a lasting impact on American culture.</p>	

SP 485 Outcomes Assessment 0 cr.
 Offered: Fall, winter
 Graded S/U
 Prerequisites: Senior standing or instructor's permission.
 A senior qualifying exam and graduation presentation. Students register during their final semester before graduation.

SP 491 Practicum in Speech Communication 1-8 cr.
 Offered: On demand
 Graded S/U
 Prerequisite: Junior standing and instructor's permission.
 Projects in the areas of speech carried on under the supervision of a faculty member.

SP 492 Internship in Speech Communication 1-8 cr.
 Offered: On demand
 Graded S/U
 Prerequisite: Junior standing and instructor's permission.
 Practical, applied experience involving placement in a job situation.

SP 495 Special Topics in Speech Communication 2-4 cr.
 Offered: On demand
 Prerequisite: Junior standing and instructor's permission.
 Study of a particular topic or problem in an area of speech.
Note: May be repeated if topic differs.

SP 498 Directed Study in Speech Communication 1-4 cr.
 Offered: On demand
 Prerequisite: Junior standing, instructor and department head permission.
 Independent study by qualified undergraduates in an area to be defined by the student and instructor.
Note: May be repeated for up to eight credits.

ST 112 Surgical Technology I 2 cr.
 Offered: Winter
 Prerequisites: Admission into surgical technology program and completion of the following courses with a "C" or better: EN 111, BI 104, OIS 171 and ST 104.

This four-week class prepares students for clinical rotations through lab simulations and practice in the operative setting. Students will gain practical experience setting up and maintaining the sterile field. They will also learn basic instrument terminology and how to care for and handle instruments and supplies during the operative procedure.

ST 113 Surgical Technology I Practicum 6 cr. (0-0-24)
 Offered: Winter
 Graded S/U
 Prerequisites: Admission into surgical technology program and completion of the following courses with a "C" or better: EN 111, BI 104, OIS 171 and ST 104.
 Co-requisite: ST 111 and ST 112.

The practicum will be in the operating room during which time students will gain experience with selected surgical procedures under the supervision of a clinical preceptor.

ST 114 Surgical Technology II 2 cr.
 Offered: Summer
 Prerequisites: Completion of ST 111 and ST 112 with a "C" or better and a grade of "S" in ST 113.

This lecture course will cover the theoretical basis for advanced specialty surgical procedures. It is a continuation of Surgical Technology I.

ST 115 Surgical Technology II Practicum 10 cr. (0-0-30)
 Offered: Summer
 Graded S/U
 Prerequisites: Completion of ST 111 and 112 with a "C" or better and a grade of "S" in ST 113.

The practicum will be in the operating room during which time students will gain experience in advanced and complex surgical procedures under the supervision of a clinical preceptor.

ST-SURGICAL TECHNOLOGY

Clinical Laboratory Sciences Department

ST 104 Introduction to Surgical Technology 1 cr.
 Offered: Fall
 Introduction to the role of the surgical technologist and to the surgical team members. A study of health care facilities, communication between members of the health care team and the development of modern surgery. Discussion of the ethical, moral and legal responsibilities of the surgical technologist.

ST 111 Basic Surgical Concepts and Techniques 5 cr.
 Offered: Winter
 Prerequisites: Admission into surgical technology program and completion of the following courses with a "C" or better: EN 111, BI 104, OIS 171 and ST 104.

This course will cover the theoretical basis for surgical procedures and operating room standards. Topics include microbiology and pharmacological agents and their relation to the surgical patient as well as to sterilization procedures; a review of anatomy and physiology and its relation to surgical procedures as well as common disease processes requiring surgical intervention; and an in-depth study of surgical techniques.

SW-SOCIAL WORK

Sociology and Social Work Department

SW 100 Exploring Social Work 4 cr.
 Offered: Fall, winter

Introduces students to the social work profession. A broad survey course covering the educational requirements of the profession and fields of practice. The course assists students in making career choices about social work. Students are required to do 20 hours of volunteer work in addition to scheduled class sessions.

<p>SW 230 Human Behavior in the Social Environment I 4 cr. Offered: Fall, winter Prerequisite: SO 101, PY 100 or instructor's permission. Examination of social and behavioral science applications to practice. Presents social systems model for analyzing human functioning in the social environment. <i>Note: Formerly SW 330.</i></p>	<p>Directed apprenticeship activities in the human skills laboratory. Apprentices work with lab groups supervising lab sessions and assist in the feedback process. <i>Note: May be taken twice.</i></p>
<p>SW 240 Social Welfare: Historical Perspectives 2 cr. Offered: Fall, winter Prerequisites: SO 101, EC 101 or instructor's permission. Historical overview of the development of social welfare as society's reluctant response to human need and as a mechanism for social control. Events that promote societal attitudes and in turn hinder or promote the quest for a humane welfare system are examined.</p>	<p>SW 372 Generalist Practice Methods II 4 cr. Offered: Winter Prerequisite: BSW program admission and SW 370. A continuation SW 370. This course covers practice methods content from mezzo- to macro-level perspectives. Systems of families, groups, organizations and communities will be highlighted. The use of video labs provides students with relevant practice situations.</p>
<p>SW 308 Methods of Social Research II 4 cr. Offered: Fall, winter Prerequisites: SO 208 or equivalent or instructor's permission. Cross listed as SO 308. Introduction to methods, concepts and techniques of social research, including sampling, questionnaire and interview design, experiments, observation, evaluation research and ethics. Involves research projects on social science issues. Computers and statistical software may be used as part of the instruction process.</p>	<p>SW 401 Child Welfare 4 cr. Offered: Fall Prerequisite: BSW program admission, junior standing or instructor's permission. Study of program and social work procedures related to child welfare, particularly in reference to dependent and neglected children, children of unwed parents and children with behavior problems and special needs.</p>
<p>SW 331 Human Behavior in the Social Environment II 4 cr. Offered: Fall, winter Prerequisite: SW 230. Theories and research literature on life stages are explored in a variety of historical, cultural, class, gender, racial and community contexts. Emphasis on how the self interacts with legacies of biological variables, cultural history, social system, life history and personal social environment.</p>	<p>SW 405 Aging Public Policies and Programs 4 cr. Offered: Every other fall. Prerequisite: BSW program admission or gerontology minor, junior standing or instructor's permission. An overview of aging public policies and programs. The course examines the origin, current program structure and delivery system of various policies such as Social Security, Medicare and the Older Americans Act that provide income security, health care and social services to older adults in the United States.</p>
<p>SW 341 Social Welfare Policy 4 cr. Offered: Fall, winter Prerequisites: SW 240 or instructor's permission. Primarily for social work majors and social welfare minors. Cross listed as PS 341. Study of issues in current social welfare policy and of the significance of social, economic and political factors that influence policy-making and implementation. In addition, students learn various techniques of policy evaluation and review.</p>	<p>SW 411 Social Work in the Health Fields 4 cr. Offered: Contact department for information. Prerequisite: BSW program admission, junior standing or instructor's permission. Examination of the role of social work in relation to health care services. Considers social policy issues associated with health services and the application of social work practice principles to a variety of case situations such as adolescent pregnancy and terminal illness.</p>
<p>SW 370 Generalist Practice Methods I 4 cr. Offered: Winter Prerequisite: BSW program admission. Introduction to a generalist practice perspective including a common set of values, skills and tasks essential to helping people in their social environment. Emphasizes assessment skills and intervention strategies. Requires participation in skill practice including 14 lab hours of videotaping for classroom criteria.</p>	<p>SW 412 Domestic Violence 4 cr. Offered: Fall, winter Prerequisite: BSW program admission, junior standing or instructor's permission. Study of spouse abuse, child abuse, sexual abuse of children and other forms of violence within the family. Emphasis is on understanding the dynamics of violence, the victim and perpetrator, and service delivery issues including legal sanctions, protective services, crisis intervention and long-term treatment of both victims and perpetrators.</p>
<p>SW 371 Apprenticeship 1-2 cr. Offered: Contact department for information. Prerequisite: SW 370 and written department permission.</p>	<p>SW 415 Addictions: Diagnosis, Treatment and Prevention 4 cr. Offered: Fall Prerequisite: BSW program admission, junior standing or instructor's permission.</p>

Alternative conceptualizations of addictions such as alcoholism, the impact of alcohol abuse on the individual, and the family and social relationships. Skill is developed in recognizing situations in which alcoholism is a factor and in selecting appropriate intervention strategies.

SW 416 Substance Abuse Counseling 4 cr.
Offered: Winter
Prerequisites: SW 370, SW 415, junior standing or instructor's permission.

A specialized social work course for students who anticipate working with chemically dependent and affected populations. Functional conceptualizations of substance abuse are integrated with methods for assessment and intervention. Attention is directed to building skills involved in individual, group and family service delivery. Professional role, ethics, accountability and agency function are also explored.

SW 417 Social Work in Mental Health 4 cr.
Offered: Contact department for information.
Prerequisite: BSW program admission, junior standing or instructor's permission.

An elective course that deals with social work functions within psychiatric settings. This course will include theoretical concepts, yet is designed for practical social work applications. Three distinct social work involvement stages will be addressed: preadmission/admission screening procedures, interdisciplinary treatment team planning and discharge planning. Both community-based and institutional care will be emphasized.

SW 421 Family Intervention in Social Work Practice 4 cr.
Offered: Winter
Prerequisite: BSW program admission, junior standing or instructor's permission.

A course designed to address the needs of helping professionals understand and deal with family problems. Focus is on societal influences on the family, defining what constitutes a healthy family system, learning how to intervene with families to enhance their problem-solving skills, and learning how to understand and intervene with families with specific problems.

SW 440 Social Work Policy Analysis 2 cr.
Offered: Winter
Prerequisites: SW 341, SW major or social welfare minor.

The study of the impact of social policy at the local, state and national levels on the development, implementation and delivery of social/health services in fields of practice where social workers are employed. Emphasis will be placed on current policy changes directly impacting clients, practitioners, agencies and their communities.

SW 461 Social Work Practice Evaluation I 2 cr.
Offered: Fall
Prerequisites: Concurrent enrollment in SW 480 or SW 481, junior standing or instructor's permission.

Application of research methods to planning and evaluating of human service programs and assessing and intervening with clients. Single-subject techniques, needs assessment and strategies for program outcome assessment are reviewed.

Note: Formerly SW 360.

SW 462 Social Work Practice Evaluation II 2 cr.
Offered: Winter
Prerequisites: SW 461, junior standing or instructor's permission.

Application of research methods to planning and evaluating human service programs and assessing and intervening with clients. Single-subject techniques, needs assessment and strategies for program outcome assessment are reviewed.

SW 472 Social Work Practice with Diverse Populations 2 cr.
Offered: Fall
Prerequisites: Junior standing or instructor's permission.
Co-requisite: SW 480 or SW 481.

The study of the impact of race, class and gender on the delivery of social services. The course emphasizes learning to work cross-culturally from a solution-focused, strengths perspective. Students will develop a multicultural perspective and multicultural competencies.

SW 473 Integrative Seminar 2 cr.
Offered: Fall
Prerequisite: BSW program admission, SW 330 and SW 370, taken concurrent with SW 480, junior standing or instructor's permission.

Integration of field education experiences with an emphasis on the values and ethics of generalist social work practice. Specific topics will include role conflicts, values clarification and ethical practice concerns of beginning generalist social work practitioners with an emphasis on self evaluation. Individual field experiences will be shared and regularly discussed.

SW 474 Integrative Seminar II 2 cr.
Offered: Winter
Prerequisite: BSW program admission, SW 330, SW 370, SW 473 and SW 480. Taken concurrent with SW 481, junior standing or instructor's permission.

Capstone seminar focusing on personal strengths in a professional role as a social worker. Individual field experiences are shared and discussed with an emphasis on differing roles and responsibilities in professional practice. Students assemble a professional portfolio integrating learning experiences in areas designated by the Council on Social Work Education.

SW 480 Senior Field Placement I 4 cr.
Offered: Fall
Graded S/U
Prerequisites: BSW program admission, 2.50 grade point average and concurrent enrollment in SW 470, junior standing or instructor's permission. Application deadline for following fall: February 1.

Practice skill instruction provided through university-arranged placements in social work agencies. Emphasizes demonstration of skill mastery through agency-supervised practice experience of 15-20 hours per week.

SW 481 Senior Field Placement II 4 cr.
Offered: Winter
Graded S/U
Prerequisite: SW 480 and concurrent enrollment in SW 471, junior standing or instructor's permission.
Continuation of SW 480.

SW 495 Special Topics in Social Work 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: Junior standing and instructor's permission.
 Review of a topic of relevance to social work. The content varies according to expertise of the faculty member.
Note: May be repeated if topic differs.

SW 498 Directed Study in Social Work 1-4 cr.
 Offered: Contact department for information.
 Prerequisites: Junior standing and instructor's permission.
 Independent study in an area of social work to be defined by the student and supervising instructor.

TE - TECHNOLOGY EDUCATION

Engineering Technology Department

TE 100 Graphic Arts Printing 2 cr. (1-0-2)
 Offered: Winter
 An introductory graphic arts course that focuses on the knowledge and skills appropriate for teaching a graphic arts course at the secondary school level. Course content includes an overview of the printing industry, offset printing fundamentals along with basic copy preparation, gravure printing and finishing operations.

TE 295 Special Topics in Industry and Technology 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Adviser permission; for qualified industrial education majors.
 Specialized work not covered by other courses.

TE 298 Directed Study and Research 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Department permission.
 Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

TE 350 Methods and Materials in Industrial Technology Education 3 cr.
 Offered: Fall
 Prerequisite: Admission to the methods phase of Teacher Education.
 Co-requisite: Concurrent enrollment in ED 349.
 Techniques of teaching applied to individual, group and class instruction in industrial education. Includes organization of the school shop with special application to its function in the total school program.
Note: May not be applied toward any non-teaching major or minor.

TE 351 Humanity and Technology 4 cr.
 Offered: Summer, winter
 Prerequisites: Completion of the foundations of communication requirement and junior standing.

- Satisfies the foundations of humanities requirement.
- Satisfies the upper division liberal studies requirement.

Designed to trace the evolution of mankind as a user of tools, with attention directed to the impact of these tools on intellectual and ethical development. Course work addresses the history, literature and philosophy related to technology and its impact on man.

TE 483 Studies in Business and Industry 4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and instructor's permission.
 Cross listed as IT 483.

Cooperative work experience to provide up-to-date technical skills in the area of specialization; includes work experience with business and industrial operations, services and materials, processes and techniques.

TE 490 Workshops and Seminars in Education 2-4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and instructor's permission.
 Opportunities for the concentrated study of selected professional education problems.

TE 495 Special Topics in Industry and Technology 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and adviser permission. For qualified industrial education majors.
 Specialized work not covered by other courses.

TE 498 Directed Study and Research 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and department permission.
 Independent research of a special technical topic. Written reports of work are required.

TH - THEATRE

Communication and Performance Studies Department

TH 130 Introduction to Theatre 4 cr.
 Offered: Fall, winter, summer

- Satisfies the foundations of visual and performing arts requirement.

 Study of theatre as an art form, including history, aesthetics, production and dramatic literature.

TH 131 Stagecraft 4 cr. (2-0-4)
 Offered: Contact department for information.
 Theoretical and applied aspects of set construction, painting, lighting, properties and special effects for the stage. Weekly laboratory assignments.

TH 132 Acting I 4 cr.
 Offered: Fall, winter
 Introduction to theoretical and applied aspects of acting. Applied on-stage exercises include solo and ensemble acting assignments.

TH 141 Methods of Design Presentation 4 cr.
 Offered: Infrequently
 Prerequisite: TH 131 or instructor's permission.
 Introduction to methods used in the visual presentation of designs for the stage including analysis, drafting, rendering and model making.

<p>TH 232 Stage Costume 3 cr. (2-0-4) Offered: Infrequently A study of costume materials, design and construction. Laboratory assignments supplement lectures.</p>	<p>TH 360 History of Theatre 4 cr. Offered: Fall Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. • Satisfies the upper division liberal studies requirement. <p>Study of all major historic periods to indicate the physical development of the stage, the playwrights, their plays, dramatic criticism and aesthetics.</p>
<p>TH 234 Stage Makeup 3 cr. Offered: Contact department for information. Theory and application of theatrical makeup. An investigation of makeup design, materials and supplies with laboratory assignments.</p>	<p>TH 361 Modern Drama 4 cr. Offered: Winter Prerequisites: Completion of the foundations of communication requirement and sophomore standing.</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. • Satisfies the upper division liberal studies requirement. <p>Modern playwrights and their plays, the physical stage, dramatic criticism and aesthetics from 1850 to the present.</p>
<p>TH 241 Scenic Design 3 cr. Offered: Contact department for information. Prerequisite: TH 141 or instructor's permission. Theory, methods and practical aspects of designing scenery.</p>	<p>TH 385 Theatre in Perspective: The Stratford Festival Stage 3 cr. Offered: Summer Prerequisites: Completion of the foundations of communication requirement or instructor's permission. Cross listed with EN 385.</p> <ul style="list-style-type: none"> • Satisfies the foundations of visual and performing arts requirement. • Satisfies the upper division liberal studies requirement. <p>An interdisciplinary, interactive approach to four or five plays that will be performed at the Stratford, Ontario, Theatre Festival. Students simultaneously enroll in TH 493 Field Studies, will also be able to view these same plays in performance at Stratford.</p>
<p>TH 245 Voice and Diction 4 cr. Offered: Every other winter. Development of communication skills for all performance areas. Practical exercises cover vocal production, articulation, International Phonetic Alphabet and selected stage dialects. Recommended for all Communication and Performance Studies Department majors.</p>	<p>TH 404 American Musical Theatre 4 cr. (3-3-0) Offered: Infrequently Prerequisite: TH 130, junior standing or instructor's permission. A survey of the genre, covering history, theory and technique including the libretto, song purposes and types and musical programming.</p>
<p>TH 295 Special Topics in Theatre 1-4 cr. Offered: On demand. Investigation of a significant topic or theme. <i>Note: May be repeated if topic differs.</i></p>	<p>TH 432 Audition 1 cr. Offered: Every other winter. Prerequisite: TH 131 or TH 132, junior standing and instructor's permission. Preparation of both performance and non-performance students for nationwide theatre auditions and how to get a job in the theatre profession.</p>
<p>TH 330 Intermediate Acting 4 cr. Offered: Fall Prerequisite: TH 132. A performance-centered course with emphasis on the analysis, development and portrayal of character in production.</p>	<p>TH 435 Advanced Acting 4 cr. (3-3-0) Offered: Every other winter Prerequisite: TH 132, junior standing and instructor's permission. An advanced performance-centered course emphasizing period and experimental acting styles.</p>
<p>TH 340 Stage Lighting 3 cr. Offered: Every other winter. Prerequisite: TH 131 or instructor's permission. History and function of lighting and control equipment. Color theory, modern lighting practice, methods of design, and design presentation. Experience in set lighting.</p>	<p>TH 445 Advanced Directing Practicum 2 cr. Offered: On demand Prerequisites: TH 358, junior standing and theatre faculty permission. Studio production experience.</p>
<p>TH 341 Stage Properties 4 cr. Offered: Every other winter. Prerequisite: TH 131 or instructor's permission. Design and construction of properties for theatrical productions. Construction, painting and finishing techniques. Experience in creating properties.</p>	<p>TH 352 Directing Theory 4 cr. (3-3-0) Offered: Fall Prerequisite: TH 132 or instructor's permission. Introduction to the theoretical and practical aspects of stage direction.</p>
<p>TH 358 Directing Practicum 1 cr. Offered: Fall, winter Prerequisites: TH 352 and theatre faculty permission. Production directing experience under faculty supervision.</p>	

TH 454 Acting: Shakespeare 4 cr.
 Offered: Contact department for information.
 Prerequisite: TH 132, junior standing and instructor's permission.
 Scene work in Elizabethan drama. Covers analysis and performance techniques.

TH 456 Theatre Management 4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and instructor's permission.
 Aims and objectives of theatre management including selection of a theatrical season, advertising and publicity, box office procedures and development.

TH 457 Theatre Workshop 1-4 cr.
 Offered: On demand
 Prerequisite: Junior standing and instructor's permission.
 Integrated course in theatre production for advanced undergraduates, graduates and teachers.
Note: May be repeated if topic differs.

TH 458 Theory of Drama 4 cr.
 Offered: Infrequently
 Prerequisite: Junior standing and instructor's permission.
 Special problems in theatre such as contemporary and experimental drama, the absurdist movement, tragedy, comedy and play writing.

TH 490 Senior Seminar in Drama 4 cr.
 Offered: Infrequently
 Prerequisite: Junior standing and instructor's permission.
 Designed to stimulate students to unify all areas of their discipline. Emphasis on student creativity and originality.

TH 491 Practicum in Theatre 1-2 cr.
 Offered: Fall, winter
 Prerequisite: Junior standing and instructor's permission.
 Projects in production under the supervision of a faculty member.
Note: May be repeated for a maximum of eight credits.

TH 492 Internship in Theatre 1-8 cr.
 Offered: On demand
 Prerequisite: Junior standing and theatre faculty permission.
 Practical, applied experience involving placement in a job situation.

TH 493 Field Studies 1 cr.
 Offered: Winter, summer
 Prerequisite: Junior standing and instructor's permission.
 A theatre study trip to a major theatrical center.
Note: May be repeated if topic differs.

TH 495 Special Topics in Theatre 2-4 cr.
 Offered: On demand
 Prerequisite: Instructor's permission.
 A study of a particular topic or problem in theatre.
Note: May be repeated for a maximum of eight credits if topic differs.

TH 498 Independent Study in Theatre 1-8 cr.
 Offered: On demand
 Prerequisite: Theatre faculty permission.
 Independent study in an area of drama to be specified by the student and the instructor.

TS-TRAFFIC SAFETY

Engineering Technology Department

TS 415 Driver Education and Traffic Safety 4 cr.
 Offered: On demand
 Prerequisite: Junior standing and instructor's permission.
 Basic course for secondary driver education teachers.

TS 416 Advanced Driver Education and Traffic Safety 4 cr.
 Offered: On demand
 Prerequisite: TS 415, junior standing or instructor's permission.
 Personality factors related to driver behavior. Traffic planning and control. Includes behind-the-wheel instruction.

TS 495 Special Topics in Driver Education and Traffic Safety 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and instructor's permission.
 Specialized work not covered in other courses.

TS 498 Directed Study 1-4 cr.
 Offered: Contact department for information.
 Prerequisite: Junior standing and department permission.
 Specialized instruction in traffic and safety education.
Note: The satisfactory completion of TS 415 and TS 416 is needed to meet the requirements for school teachers to teach driver education in Michigan.

UN-GENERAL UNIVERSITY

University courses are not specifically attached to a department but serve the entire academic community.

UN 050 Undergraduate Professional Development Studies .5-4 cr.
 Offered: On demand
 Graded: S/U
 This course focuses on areas of study not available in the current curricula. Course content will explore topical and timely areas of interest (e.g., global warming). University and community professionals will serve as instructors in the course. Class participation will be strongly encouraged.

UN 100 Freshman Seminar 2 cr.
 Offered: Fall, winter
 Focusing on the academic strategies, resource knowledge and social networking necessary for freshmen to make the transition to college, this course is designed to empower students with the life skills necessary for success in college. Taken in conjunction with the First Year Experience (FYE) program.

UN 101 Personal Career Development 1 cr.
Offered: Fall, winter

Development of career planning skills and an introduction to career history. Students will learn how to choose careers that match their personal characteristics and interests. Attendance and careful work are stressed to prepare students for the world of work. This course is designed for students with little or no experience with career planning. However, students should have a semester of college credits or at least two years of career experience past high school.

UN 200 Introduction to Gender Studies 4 cr.
Offered: Fall, winter

- Satisfies the foundations of humanities requirement.

An interdisciplinary examination of the importance of gender in human experience, with an emphasis on the historical development of feminist and gender theory, as well as the application of such theories in the humanities and social sciences.

UN 250 Leadership Theory and Practice 2 cr.
Offered: Fall

Prerequisite: Application and selection into the Student Leader Fellowship Program. (Applications are available at the beginning of the winter semester in the Center for Student Enrichment.)

Leadership and motivation theories, group dynamics, ethics, leadership applications in communities, and cultural and gender differences as they apply to leadership are discussed in class and related to the student's experience with leadership on campus. Course format includes small group discussions, role-plays, stimulation exercises and case studies.

UN 391 FYE Teaching Internship Seminar 1 cr.
Offered: Fall, winter

Prerequisites: Students taking the course must apply and be selected to serve as a teaching intern for the FYE Program. Qualified students must have junior status or have completed at least 56 credits toward graduation. They must also carry a minimum grade point average of 2.50 and be free of any academic or disciplinary probation.

This internship will provide participating upperclassmen with direct experience leading and facilitating groups of students enrolled in the UN 100 Freshman Seminar. Students will work directly with faculty members to plan and "co-teach" their respective UN 100 sections.

WD - WELDING

Technology and Occupational Sciences Department

WD 140 Introduction to Welding 4 cr. (2-0-6)
Offered: Fall, winter

This course covers the basic joining process used in metal fabrication industries. Students will gain knowledge of basic welding processes along with setting up welding equipment to make basic welds.

WD 147 Construction Rigging and Equipment Installation 2 cr. (1-0-3)
Offered: Winter

Students will be introduced to the tools, equipment and techniques used in hoisting and relocating loads. Students will develop skills in load balance and control, hand signals, scaffolding and ladder set up.

WD 243 Advanced Arc Welding 3 cr. (1-0-4)
Offered: Winter
Prerequisite: WD 140.

An advanced course in shielded metal arc (Stick) welding, gas tungsten arc welding (GTAW), gas shielded flux core arc welding (GS-FCAW), and gas metal arc welding (GMAW). Emphasis is placed on preparing for AWS plate certification.

WD 244 Welding Inspection and Assessment 1 cr.
Offered: Winter
Prerequisite: WD 140 or equivalent experience.

Students are introduced to the responsibilities and duties of the welding inspector and learn to interpret welding codes and specifications and evaluate weld discontinuities. They also learn the weldment testing methods applicable to the majority of construction and manufacturing fields.

WD 295 Special Topics in Welding 1-4 cr.
Offered: Contact department for information.
Prerequisite: Adviser permission.
Specialized work not covered by other courses.

WD 298 Directed Study and Research 1-4 cr.
Prerequisite: Department permission.

Selection of problem in area of emphasis, specialized instruction and experiences to reinforce technical skill and knowledge. Written reports of work are required.

WT - WOOD TECHNOLOGY

Technology and Occupational Sciences Department

WT 161 Wood Processes I 2 cr. (1-0-2)
Offered: Fall

An introductory course intended to acquaint students with some of the carpentry tools, terminology and standard practices used in today's industry.

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Education, School of

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