

# 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 129 Environmental Design: Image Basis	
AD 229 Environmental Design: Physical Basis	
<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](http://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>	4-5
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 Programming 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.

### 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	