

## Pre-Professional Programs – Pre-Engineering

the seminar's topic. Specific topics or themes of each seminar will vary. Seminars are offered in each of the sub-fields of the discipline.

### 475, 476, 477, 478 Experiential Learning

See the description of these courses at the beginning of the "Departments and Curricula" section of this catalog. Specific possibilities in political science include:

#### *Administrative internship*

Fifteen hours per week of supervised practical government experience in an administrative agency plus a term paper and regular conferences with the supervising instructor.

Prerequisites: 205 plus previous or concurrent enrollment in 307

#### *Legislative internship*

Fifteen hours per week of supervised work assisting a legislator or legislative committee plus a term paper and regular conferences with the supervising instructor.

Prerequisites: 205 plus previous or concurrent enrollment in 305

#### *Field work in practical politics*

Fifteen hours per week of supervised work in a political campaign or with a political party or interest group plus a term paper and regular conferences with the supervising instructor.

Prerequisites: 205 plus previous or concurrent enrollment in 301

#### *Legal Internship*

Fifteen hours per week of supervised work experience in an agency or office engaged in the legal process plus assigned readings, a term paper and regular conferences with the supervising instructor.

Prerequisites: 205 plus previous or concurrent enrollment in 312.

### 480 Research Seminar (formerly 484)

Empirical research in political science, building upon and furthering skills developed in 105 and 205. Students will undertake an independent research project. Recommended for students planning to enter a graduate program in political science.

Prerequisites: 105, 205, and permission of instructor

### 483, 484, 485, 486 Seminar

See the description of these courses at the beginning of the "Departments and Curricula" section of this catalog.

### 487, 488, 489, 490 Topics

The subject matter of these courses, announced in the annual *Class Schedule*, will vary from year to year, but will not duplicate existing courses. See the description of these courses at the beginning of the "Departments and Curricula" section of this catalog.

### 491, 492, 493, 494 Research

See the description of these courses at the beginning of the "Departments and Curricula" section of this catalog.

### 495, 496, 497, 498 Individual Study

See the description of these courses at the beginning of the "Departments and Curricula" section of this catalog.

## Pre-Professional Programs

A carefully-crafted baccalaureate degree can prepare a student for entrance to a professional school. The following programs of study will be helpful for students planning such a career.

### Pre-Engineering (PNGR)

Tommet (PHYS), Pre-engineering adviser

A student interested in areas other than mechanical engineering is offered a choice of pre-engineering programs designed to meet various needs. Some advantages of starting engineering studies at the University of St. Thomas are:

the student can benefit fully from the atmosphere of a liberal arts college and from the university's locale;

a clearer picture of her or his goals can be formed before starting on concentrated engineering studies; and

a smoother transition from high school to engineering school is possible.

Engineering and architectural fields include: aeronautical, aerospace, agricultural, architecture, biomedical, chemical, civil, electrical, engineering science, geological, industrial, materials science, mechanical, metallurgical, mineral and nuclear. The University of St. Thomas offers the Bachelor of Science in Mechanical Engineering (B.S.M.E.).

## Pre-Professional Programs – Pre-Engineering

The programs of study are arranged so that a student may transfer to an engineering school with a maximum number of acceptable credits and yet, if a change to a non-engineering major is made while at the university, a maximum number of credits will be applicable to the St. Thomas requirements for graduation. At St. Thomas, technical courses in mathematics, physics, chemistry, engineering and computer programming, as well as a number of technical and liberal arts electives, are offered. The University of St. Thomas offers a variety of pre-engineering programs with few significant differences in the programs during the first two years.

A two-year (2-2) program is offered. In this program the student normally spends two years at St. Thomas (although transfer may be initiated at any time) and two years in a selected engineering field at an engineering school, such as the Institute of Technology of the University of Minnesota. A degree from the engineering school will be received upon satisfying its graduation requirements.

Liberal Arts-Engineering (3-2) programs are offered formally in cooperation with the University of Notre Dame, Washington University in St. Louis, and the University of Minnesota and informally with virtually any other engineering school. The student normally spends three years at St. Thomas and, upon approval of St. Thomas and acceptance by the engineering school, two more years at the engineering school in an engineering field. Note that architecture is not included. Upon satisfying the requirements for graduation of both institutions, the student will receive a bachelor of arts (B.A.) degree from the University of St. Thomas and a bachelor of science degree in the selected field of engineering from the engineering school.

A third program (4-2) offered in cooperation with the Institute of Technology at the University of Minnesota leads to a bachelor of arts (B.A.) or a bachelor of science (B.S.) degree from the University of St. Thomas and a bachelor or master of engineering degree from the Institute of Technology. This program involves four years at St. Thomas and ordinarily two years at the Institute of Technology. The student must complete a major at St. Thomas, typically in physics, chemistry, mathematics, quantitative methods/computer science, or the B.S.M.E. in mechanical engineering. Application for admission into the (4-2) program is made during the second semester of the junior year at St. Thomas. Those admitted will receive special counseling from the pre-engineering advisers at St. Thomas and staff of the Institute of Technology regarding courses that should be taken during the senior year at St. Thomas.

Two more programs are 2-3 and 3-3 programs with the Kettering Institute, formerly General Motors Institute, located in Flint, Michigan. The Institute offers accredited undergraduate programs in electrical, mechanical, industrial and manufacturing engineering. The three years with Kettering involve an intern program of alternating quarters of work and school. The 2-3 program corresponds to the 2-2 program above and the student receives only the Kettering degree. The 3-3 program corresponds to the 3-2 programs above and the student receives two degrees: bachelor of arts or bachelor of science from the University of St. Thomas and bachelor of science from the Kettering Institute.

Some advantages of the 3-2, 3-3 and 4-2 programs are that two degrees are earned, a wider liberal arts background is attained, and broader professional and intellectual opportunities are possible than in the normal four-year engineering programs. Also, a possible deferment of commitment to an engineering program for at least a year longer is afforded. A particular advantage of the formal 3-2 cooperative programs is that upon entering the University of Notre Dame or Washington University, the student is treated not as a transfer student but as a regular student with all of the rights, privileges and responsibilities associated with that status.

### Pre-Engineering – General Concentration

CHEM 111 General Chemistry I  
CHEM 112 General Chemistry II  
ENGR 150 Introduction to Engineering I  
ENGR 151 Introduction to Engineering II  
ENGR 220 Engineering Mechanics I  
ENGR 221 Engineering Mechanics II  
MATH 113 Calculus I  
MATH 114 Calculus II  
MATH 200 Multi-Variable Calculus  
MATH 210 Linear Algebra and Differential Equations  
PHYS 111 Introduction to Classical Physics I  
PHYS 112 Introduction to Classical Physics II  
PHYS 225 Introduction to Modern Physics I  
QMCS 130 Problem Solving in the Natural Sciences

### Pre-Engineering – Electrical Concentration

CHEM 111 General Chemistry I  
CHEM 112 General Chemistry II  
ENGR 150 Introduction to Engineering I  
ENGR 151 Introduction to Engineering II  
MATH 113 Calculus I

## Pre-Professional Programs – Pre-Health Professions

MATH	114	Calculus II
MATH	200	Multi-variable Calculus
MATH	210	Linear Algebra and Differential Equations
PHYS	111	Introduction to Classical Physics I
PHYS	112	Introduction to Classical Physics II
PHYS	225	Introduction to Modern Physics I
PHYS	226	Introduction to Modern Physics II
QMCS	130	Problem Solving in the Natural Sciences

### Pre-Engineering – Chemical Concentration

CHEM	111	General Chemistry I
CHEM	112	General Chemistry II
CHEM	201	Organic Chemistry I
CHEM	202	Organic Chemistry II
ENGR	150	Introduction to Engineering I
ENGR	151	Introduction to Engineering II
MATH	113	Calculus I
MATH	114	Calculus II
MATH	200	Multi-Variable Calculus
MATH	210	Linear Algebra and Differential Equations
PHYS	111	Introduction to Classical Physics I
PHYS	112	Introduction to Classical Physics II
QMCS	130	Problem Solving in the Natural Sciences

The above courses constitute the St. Thomas component of the major; the other component is the successful completion of an engineering degree at an accredited school.

Successful completion of all general requirements of the College is required of students in 3-2, 3-3 or 4-2 engineering programs.

Other courses are required for specific fields of engineering and for particular engineering schools. Students should consult periodically with the engineering advisers and should become acquainted with the current requirements of the professional school at which they expect to continue their study.

### Pre-Health Professions

Ovechka, Pre-health professions adviser

The pre-health professions adviser will help students interested in any of the health professions to plan a specific program of coursework in preparation for a professional school.

To aid students in making an informed choice of a health professions career, there are four non-credit health professions internships:

- BIOL 215 Regions Hospital Volunteer Program
- BIOL 216 Nursing Assistant Training Program
- BIOL 217 Students and Physicians Program
- BIOL 218 Pre-Dental Internship Program

### Pre-dentistry

Schools of dentistry generally require a minimum of three years of college coursework prior to admission to their programs. While a baccalaureate degree generally is not required, 85 percent of accepted applicants in 1997 had four years of college work. The School of Dentistry at the University of Minnesota requires a minimum of three years of undergraduate work (87 semester hours).

Specifically required or highly recommended courses vary from one dental school to another. The School of Dentistry at the University of Minnesota requires the listed semesters of study in each of the following subjects:

- three semesters of biology
- two semesters of general chemistry
- two semesters of organic chemistry
- two semesters of physics
- two semesters of English
- one semester of psychology
- a course in public speaking is recommended
- college algebra or pre-calculus (by college credit or college validation) or computer science or statistics

### Pre-medicine

Most medical schools require a minimum of three years of undergraduate work before entrance to their program, and the three medical schools in Minnesota all require a baccalaureate degree. Specifically required or highly recommended courses vary from one medical school to another.

## **Pre-Professional Programs – Pre-Law**

Two semesters of study in each of the following subjects are required for admission to many medical schools. Particular medical schools may require more coursework in these subject areas or in other disciplines:

- biology
- general chemistry
- organic chemistry
- physics
- English

A number of medical schools also require one to two semesters of calculus or other college-level mathematics or statistics. The University of Minnesota (Twin Cities and Duluth) also require one semester of biochemistry. Medical schools generally do not require candidates for admission to present a specified undergraduate major.

The health professions adviser is available to help students choose the specific coursework necessary to meet admissions requirements, explain admissions procedures, provide information to students about career alternatives, etc. Students interested in a career in medicine should consult with the health professions adviser early in their freshman year to plan an appropriate four-year program.

### **Pre-pharmacy**

Required courses vary from one school to another, and students are encouraged to research various programs early in their undergraduate program. The Pharm.D. program at the University of Minnesota requires completion of the following courses:

- one semester of biology
- one semester of anatomy
- one semester of microbiology
- two semesters of general chemistry
- two semesters of organic chemistry
- two semesters of physics
- two semesters of calculus
- two semesters of behavioral science
- two semesters of English
- one semester of microeconomics
- one semester of public speaking

### **Pre-veterinary**

Required courses vary from one school to another, and students are encouraged to research various programs early in their undergraduate program. The veterinary school at the University of Minnesota requires the following coursework:

- biology
- general chemistry
- organic chemistry
- biochemistry
- mathematics
- physics
- genetics
- microbiology
- English

Four courses from history and social sciences, arts and humanities are also required.

### **Other Pre-Health Professions**

Many courses are offered at St. Thomas to prepare students for admission to the following health professional schools: chiropractic, optometry, osteopathy, physician assistant and podiatry.

Students are encouraged to research the programs at each professional school and to seek the guidance of the pre-health professions adviser.

### **Pre-Law**

Hatting (POL), adviser

The best preparation for the study of law is a rigorous undergraduate program that combines depth of study in a major field with breadth of study in the liberal arts. The only true criterion for choice of a major is that it challenge the student's intellectual capabilities.

Regardless of major, pre-law students should include as wide a selection of the following courses, listed alphabetically by departmental designation, as their degree program allows. Each is beneficial for:

#### **A. Increasing the student's knowledge of law**

- BLAW 365 Business Law
- BLAW 367 International Business Law
- ECON 321 Law and Economics

ECON	332	Industrial Organization
HIST	326	English Law and Government before the American Revolution
HIST	365	U.S. Constitutional History
JOUR	304	Media Law
PHIL	352	Freedom, Culpability and Punishment
POL	205	Introduction to American Public Policy Process
POL	312	Judicial Process
POL	313	Constitutional Law and Politics
POL	314	Constitutional Rights and Liberties
POL	326	International Law and Organization
POL	414	Seminar in Law and Judicial Politics

**B. Fostering critical thinking about society**

HIST	361	American Thought and Culture Since the Civil War
PHIL	221	Critical Thinking
PHIL	351	Political and Legal Philosophy
POL	373	Political Thought from Marx to the Present
POL	375	American Political Thought

**C. Providing useful skills and improving analytical ability**

ACCT	211	Financial Accounting
COMM	103	Public Speaking
ECON	251	Principles of Macroeconomics
ECON	252	Principles of Microeconomics
ENGL	200	Written English
	<i>or</i>	
ENGL	300	Advanced Writing: Theory and Practice
MATH	101	Finite Mathematics
	<i>or</i>	
MATH	113	Calculus I
PHIL	223	Formal Logic

**Psychology (PSY)**

Giebenhain (chair), Amel, Buri, Chalkley, Johnson, Mabry, Robinson-Riegler, Scott, WilliamsMorris, Winton

The courses and programs offered by the Department of Psychology are meant to be a part of a liberal arts education, teaching the basic principles and theory of the science of psychology, preparing students for graduate study in psychology and for careers in human services and other occupations for which a psychology background is valuable, introducing psychology to non-majors, serving other programs on campus and enabling students to make practical applications of psychology to their own lives.

**Psychology Honor Society**

Psi Chi, the National Honor Society in psychology, was founded in 1929 for the purpose of encouraging, stimulating, and maintaining excellence in scholarship and advancing the science of psychology. The St. Thomas chapter was established in 1997. Students who have a grade point average of at least 3.00 in psychology, rank in the highest 35 percent of their class, and who have completed at least three semesters of college coursework, including nine hours in psychology, are eligible to apply for membership.

The Department of Psychology also recognizes selected students each year for outstanding research, service, and academic achievements.

Transfer students majoring in psychology must successfully complete at least twenty-four credits in psychology at the University of St. Thomas.

**Major in Psychology**

111	General Psychology
212	Research Methods in Psychology
422	History and Systems (to be taken during the senior year)

*Plus two laboratory courses from:*

321	Current Research Issues in Social Psychology
322	Sensation and Perception
323	Learning and Memory