

cies, practices and ideologies of socio-economic development in rural and urban Bangladesh.

### **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), adviser

Besides offering a degree program in mechanical engineering (B.S.M.E.), the University of St. Thomas offers a choice of pre-engineering programs under the auspices of the Department of Physics. Some advantages of starting engineering studies at the University of St. Thomas are: the student can benefit from the atmosphere of a liberal arts college and from the university's locale; the student can form a clearer picture of her or his goals before starting on concentrated engineering studies; and a smoother transition from high school to engineering school is possible. The program prepares for all engineering fields which include: aeronautical, aerospace, agricultural, architecture, biomedical, chemical, civil, electrical, engineering science, geological, industrial, materials science, mechanical, metallurgical, mineral and nuclear.

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. In addition to the liberal arts, courses pre-requisite to an engineering school program are available in areas of mathematics, physics, chemistry, computer programming, and engineering. There are few significant differences in courses taken in the first two years of undergraduate study toward any type of engineering field. All pre-engineering students take mathematics, physics, and chemistry courses, along with a non-credit seminar introducing them to the various fields of engineering and to the work of engineers.

A Liberal Arts-Engineering (3-2) program is 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 will normally spend three years at St. Thomas and, upon approval of St. Thomas and acceptance by the engineering school, two additional years at the engineering school in an engineering field. 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 four-year (4-2) program is offered formally in cooperation with the University of Minnesota, and informally with virtually any other engineering school. The student normally spends four years at St. Thomas and graduates with a major in Physics, Mathematics, Chemistry, or Quantitative Methods and Computer Science. The student then enters a masters or bachelors program at an engineering school.

A two-year (2-2) program is offered in which 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. No St. Thomas degree is awarded.

For all these programs, students are strongly encouraged to discuss with a pre-engineering adviser their own individual program. Each student, field, and school has different needs and requirements.

#### **Liberal Arts – Engineering Program**

CHEM 111	General Chemistry I
CHEM 112	General Chemistry II
ENGR 150	Introduction to Engineering I (0 credit)
ENGR 151	Introduction to Engineering II (1 credit)
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 230	Software Design Using the JAVA Language

At least two additional courses are required. Which technical courses are needed will depend upon the field of engineering. Students must discuss their program with a pre-engineering adviser.

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

Ovechka, adviser

The pre-health professions adviser will help students interested in any of the health professions to plan a specific

## Affiliated Programs

ic 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 (0 credit)
- BIOL 216 Nursing Skills Training Program (0 credit)
- BIOL 217 Students and Physicians Program (0 credit)
- BIOL 218 Pre-Dental Internship Program (0 credit)

### Pre-dentistry

Schools of dentistry (including the University of Minnesota) generally require a minimum of three years of college coursework prior to admission to their programs. Most accepted applicants (85%) have completed four years of college. While a baccalaureate degree generally is not required, 75% of students in dental schools have received a baccalaureate degree or higher.

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

- three semesters of biology
- two semesters of general chemistry
- two semesters of organic chemistry
- one semester of biochemistry
- two semesters of physics
- two semesters of English
- one semester of psychology
- a course in public speaking (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 programs, 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.

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 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, osteopathic medicine, physical therapy, physician assistant and podiatric medicine.

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 301 Legal Environment of Business
- BLAW 303 International Business Law
- BLAW 401 Legal Research, Advocacy, and Dispute Resolution
- 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
- IDSC 340 Criminal Law and the Social Order
- JOUR 304 Media Law
- 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 Organizations
- 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 357 Political Philosophy
- PHIL 359 Philosophy of Law
- POL 373 Political Thought from Marx to the Present
- POL 375 American Political Thought

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

- ACCT 205 Introduction to Accounting
- COMM 100 Public Speaking
- COMM 250 Argumentation and Advocacy
- ECON 251 Principles of Macroeconomics
- ECON 252 Principles of Microeconomics
- JOUR 311 Persuasion in Writing
- MATH 101 or 113 Finite Mathematics or Calculus I
- PHIL 220 Logic