Opportunities in Mathematical Studies AT SIUE:

ACTUARIAL SCIENCE

Career Outlook

"The actuary's work combines the skills of a business executive, mathematician, financier, and investment manager. Using statistical and economic techniques to evaluate the financial, economic and business implications of future events, actuaries design financial programs that focus on life, health, property, casualty, retirement, demographic, economic and investment possibilities. In this capacity, actuaries are responsible for the financial solvency of their company's or client's projects, programs and investment portfolios. This broad involvement has taken actuaries well beyond the traditional mathematician's role and placed them in an environment where they must be aware of economic, legislative and social developments. Their comprehensive understanding of both financial and technical intricacies makes them the most influential of professionals, whose work affects virtually every industry in existence. Indeed, the actuarial profession today offers a career path leading to significant leadership positions in the business community."

This is how the Society of Actuaries (SOA) described the actuarial profession in a recent booklet.

The SOA, formed in 1949 by the merger of two actuarial societies, is the principal professional organization for actuaries in the United States and Canada. Membership in the Society is attained by passing a sequence of examinations that lead to the two membership classifications: Associate and Fellow. It usually takes three to four years to attain the "associate" classification, and another five to seven years to attain the "fellow" classification. The first several examinations cover material that is studied in the required courses, including: calculus, and linear algebra, probability and mathematical statistics, applied statistics, numerical analysis and operations research.

The job "actuary" is ranked the second best job among 250 jobs in the United States in the 2002 edition of Jobs Rated Almanac. The annual starting salary for graduate with a bachelor's degree in actuarial science averaged $45,753 in 2001.

Educational Preparation

To be admitted into SIUE's Mathematics and Statistics program, a student must satisfy the requirements for admission into a program in the College of Arts and Sciences and must satisfy one of the following:

* Complete seven high school semesters of college preparatory mathematics including a course in trigonometry, and have no semester grade lower than a C in those courses.
* Complete MATH 120 and 125 or mathematics courses having these courses as prerequisites (or equivalent courses at another accredited institution of higher education), have a GPA of 2.0 or higher in all college mathematics, and have a GPA of 2.0 or higher in all college courses taken.

High school deficiencies and Academic Development (AD) courses must be completed before admission to the program.

Typical Program of Study
Actuarial Science Option

Freshman Year — Semester Hours

MATH 150 – Calculus I	5
ECON 111 – Principles of Macroeconomics	3
General Education	6
	14
MATH 152 – Calculus II	5
CS 140 – Introduction to Computing I	3
ECON 112 – Principles of Microeconomics	3
General Education	6
	17

Sophomore Year

MATH 250 – Calculus III	4
MATH 223 – Logic & Math. Reasoning	3
PHYS 211a – University Physics	4
PHYS 212a – University Physics Lab I	1
ACCT 200 – Fundamentals of Financial Accounting	3
	15
MATH 305 – Differential Equations	3
MATH 321 – Linear Algebra I	3
MATH 350 – Introduction to Analysis	3
ACCT 210 – Managerial Accounting	3
General Education	5
	17

Junior Year

MATH 340 – Theory of Interest	3
STAT 480a – Int. to Mathematical Statistics	3
MATH 465 – Numerical Analysis	3
FIN 320 – Fin. Management & Decision Making	3
General Education	3
	15
STAT 480b – Int. to Mathematical Statistics	3
STAT 486 – Actuarial Mathematics	3
FIN 431 – Derivative Securities	3
OR 441 – OR: Stochastic Models	3
General Education	3
	15

Senior Year

MATH, STAT or OR elective	3
MATH 498 – Senior Seminar	2
FIN 420 – Problems in Corporate Finance	3
General Education	8
	16
STAT 482 – Regression Analysis	3
MATH, STAT or OR elective	3
MATH 499 – Senior Project	2
General Education	3
Electives	4
	15

Total hours for graduation …….**124**

Faculty

All 20 full-time faculty members in the Department of Mathematics and Statistics hold doctorates. Some have practical experience in industry and government. Our faculty members are scholarly active publishing their work in professional journals and presenting results at numerous international and national conferences. For their activities they received both external and internal research grants and scholarship awards. Several of the faculty members hold leadership positions in professional organizations and editorial boards. Four faculty members have received Teaching Excellence Awards or Teaching Recognition Awards.

Scholarships and Awards

The Office of Student Work and Financial Assistance administers several federal, state and institutional financial aid programs, including scholarships, grants and loans. Early application is advised.

Facilities

Modern computer facilities are extremely important to most mathematical scientists and probably will be more important in the future. In recognition of this fact, all mathematics majors must learn a computer programming language and are encouraged to use computers. Math students have access to more than 500 state-of-the art PCs in over a dozen computer labs on campus. SIUE has site licenses for several popular mathematical software packages, including Mathematica, MATLAB, SAS, and Minitab. The University's Lovejoy Library included extensive collections of periodicals and books about mathematics and statistics.

Graduate Study

Undergraduate majors in the Department of Mathematics and Statistics are encouraged to prepare for a graduate study at SIUE or elsewhere. Students may earn a master's degree in mathematics with a specialization in one of several areas of interest at SIUE.

To Learn More …

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