

PRE-ACTUARIAL SCIENCE

Actuarial science is the study of the evaluation and measurement of risk. The pre-actuarial science option is a pre-professional program designed to provide the background needed to enter the field.

Career Opportunities

Actuaries, originally only found in insurance companies, have found expanded employment opportunities in investment planning, pension fund management, government and health care planning. A recent assessment by *Jobs Rated Almanac* found that actuaries have the best job in America.

Actuarial Examinations

Entrance into the profession is regulated by a system of examinations run by actuarial professional societies. In the United States, these are the Society of Actuaries (SOA) and the Casualty Actuarial Society (CAS). Satisfactory performance on these examinations leads to the qualifications of associate and eventually fellow of these societies, as well as the possibility of additional professional qualifications. The pre-actuarial science option is a pre-professional program in actuarial science designed to prepare students to pass several of these examinations. For details of the examinations, students are strongly encouraged to examine the *SOA Associateship and Fellowship Catalog* and the *CAS Syllabus of Examinations* for current information. The most up-to-date information may be found on the websites of the SOA (www.soa.org) and the CAS (www.casact.org).

Actuarial Information

The Department of Mathematics maintains a resource center with information on the actuarial profession. Copies of the current course and examination syllabi of the societies, sample examinations and the mathematical foundations of actuarial science are available. Also available are copies of *The Actuary*, the SOA newsletter, *Risks and Rewards*, the newsletter of the investment section of the SOA, as well as other official publications of professional actuarial societies.

The Program

The nature of the actuarial profession requires its practitioners to have a broad knowledge of finance, law, mathematics, management and statistics. The curriculum provides for the completion of a double major in mathematics and statistics with the potential for a minor in economics. The course work is closely tied to the examination structure of the societies. Nevertheless, students should regularly consult the syllabi of the societies to ascertain exactly the material covered on the examinations.

Students are encouraged to visit with both the actuarial advisor of the Department of Mathematics and the actuarial advisor of the Department of Statistics early and often to confirm their progress and to stay informed of changes in the examination curriculum.

Examination Preparation Courses

The course Actuarial Exam Study (MATH 376) is intended to provide both guidance and study opportunity to the student preparing to take actuarial examinations. This course is only offered on the pass/fail grading scheme and may be repeated for credit. Interested students should contact the actuarial advisor in the Department of Mathematics.

The Department of Statistics also offers the course Actuary Exam Study II (STAT 476). Passing the first exam before graduation will be helpful in finding an entry-level position as an actuary.

Option Requirements

Students are advised to verify that the University general education requirements and the College of Science and Mathematics requirements are met in addition to the major requirements. Refer to *The Bulletin* and consult with the actuarial advisor in the Department of Mathematics for further information.

Mathematics and Statistics Plan of Study for Pre-Actuarial Science

Please note this is a sample plan of study and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Students are encouraged to work with their academic advisor on a regular basis to review degree progress and customize an individual plan of study.

Freshman			
Fall	Credits	Spring	Credits
MATH 165 Calculus I	4	MATH 166 Calculus II	4
MATH 129 Basic Linear Algebra	3	MATH 329 Intermediate Linear Algebra	3
STAT 330 Introductory Statistics	3	COMM 110 Fundamentals of Public Speaking	3
ACCT 200 Elements of Accounting I	3	ACCT 201 Elements of Accounting II	3
ENGL 110 College Composition I or 120 College Composition II (based on placement)	3-4	CSCI 160 Computer Science I	4
	16-17		17
Sophomore			
Fall	Credits	Spring	Credits
MATH 265 Calculus III	4	MATH 266 Introduction to Differential Equations	3
MATH 270 Introduction to Abstract Mathematics	3	MATH 346 Metric Space Topology	3
STAT 461 Applied Regression Models	3	STAT 400 Elective	3
CSCI 161 Computer Science II	4	Gen Ed Social & Behavioral Sciences	3
	14	Actuarial Elective (One of the following: CSCI 453, 454; ECON 341, 343, 410, 440, 456, 465, 470, 472, 476, 480, 481, 482; FIN 320, 410, 420, 450, 460)	3
			15
Junior			
Fall	Credits	Spring	Credits
MATH 450 Real Analysis I	3	STAT 468 Probability and Mathematical Statistics II	3
STAT 467 Probability and Mathematical Statistics I	3	MATH 300-400 Elective	3
STAT 400 Elective	3	STAT 400 Elective	3
Gen Ed Upper-Level Writing	3	Gen Ed Humanities & Fine Arts	3
Actuarial Elective (One of the following: CSCI 453, 454; ECON 341, 343, 410, 440, 456, 465, 470, 472, 476, 480, 481, 482; FIN 320, 410, 420, 450, 460)	3	Actuarial Elective (One of the following: CSCI 453, 454; ECON 341, 343, 410, 440, 456, 465, 470, 472, 476, 480, 481, 482; FIN 320, 410, 420, 450, 460)	3
	15		15
Senior			
Fall	Credits	Spring	Credits
STAT 400 Elective	3	STAT 476 Actuary Exam Study II	1
Gen Ed Social & Behavioral Sciences	6	Gen Ed Science & Technology w/lab	4
Gen Ed Science & Technology	6	Gen Ed Humanities & Fine Arts/Gen Ed Cultural Diversity	6
	15	Gen Ed Wellness	2
		STAT 462 Introduction to Experimental Design (Capstone)	3
			16
Total Credits: 123-124			

View NDSU equivalencies of transfer courses at: www.ndsu.edu/transfer/equivalencies

For Further Information

MAILING ADDRESS: Mathematics | NDSU Dept 2750 | PO Box 6050 | Fargo, ND 58108-6050

DEPT LOCATION: Minard Hall 408

DEPT PHONE: (701) 231-8171

DEPT EMAIL: christina.fischer@ndsu.edu

DEPT WEBSITE: www.ndsu.edu/math/

~ OR ~

MAILING ADDRESS: Statistics | NDSU Dept 2770 | PO Box 6050 | Fargo, ND 58108-6050

DEPT LOCATION: Morrill Hall 221

DEPT PHONE: (701) 231-7532

DEPT EMAIL: ndsu.stats@ndsu.edu

DEPT WEBSITE: www.ndsu.edu/statistics/

This publication will be made available in alternative formats upon request. Contact the Office of Admission (701) 231-8643 or 800-488-NDSU or ND Telecommunications Relay Service 800-366-6888 (TTY) or 800-366-6889 (voice).

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