Actuarial Science

Actuarial science is the mathematical and statistical underpinning of the design, financing, and operation of all types of insurance plans, pension plans, and benefit plans. Practitioners of actuarial science, called actuaries, work in the professional areas of life and health insurance, property and casualty insurance, and public and private pension and benefit plans.

Pursuing Actuarial Science at Ohio State

High school preparation should include all available college preparatory mathematics courses and a full complement of English courses, including any courses that might be available that emphasize expository writing.

Upon admission to Ohio State, students will be admitted to the actuarial science pre-major. Pre-majors should complete a calculus sequence that is designed for students majoring in mathematics or science and follow calculus with a course in linear algebra designed for those same students. In addition, students should take courses in micro- and macro-economics, and an introductory course in accounting.

Upon successful completion of Probability (Math 4530, Stat 4201 or Math 5530H) with a grade of B- or better and at least a 3.0 cumulative GPA on Ohio State courses, students will be admitted to the major.

Actuarial Science Requirements

Students follow a liberal arts General Education curriculum. In addition, they take the following courses or their equivalents:
- Calculus (three courses)
- Linear Algebra (one course)
- Economics (two courses)
- Finance (one course)
- Accounting (one course)
- Probability and Statistics (two courses)
- Theory of Interest (one course)
- Actuarial Mathematics (three courses)
- Computer Science (one course)

These university courses in actuarial science are intended to cover the important ideas in the field and are not intended to serve as tutorials for the professional actuarial examinations.

Co-Curricular Opportunities

Ohio State offers many opportunities for students to learn and grow outside of the classroom. These range from cooperative education (co-op) and internships to study abroad programs to student organizations. Co-ops and internships place students in professional environments while they are Ohio State students. Ohio State offers more than 100 study abroad programs in 40 countries around the world.

In addition, there are hundreds of student organizations on campus to meet the interests of a diverse student population. An opportunity of special interest to actuarial students are the meetings of the Actuarial Club. Actuarial science students are strongly encouraged to attend.

These opportunities enable students to gain valuable work experience, learn about cultures and take on leadership roles before they enter the workforce. All of these enhance learning and may provide an advantage in the job market.

Honors & Scholars Programs

Ohio State offers the Honors and Scholars programs to create an environment of intellectual support and stimulation within a close-knit community of high-ability undergraduate students. Through these programs, students have access to smaller classes, undergraduate research opportunities, close working relationships with faculty, priority scheduling, and unique housing options. For more information about these opportunities, visit honors-scholars.osu.edu.

Career Prospects in Actuarial Science

An actuary is likely to work for an insurance company, an actuarial or employee benefit consulting firm, a very large accounting firm or corporation, or a government agency. Actuaries are initially employed in technical positions, but many progress into management. In the United States and Canada, success on professional actuarial examinations, offered by various professional actuarial organizations, is central to career advancement. A typical actuary takes two or three examinations while still a college student and continues with the examinations through the first five to ten years of actuarial employment, all the while progressing in his or her career.

For more information, check these websites:

Actuarial Sciences: math.osu.edu/actuarial
College of Arts and Sciences: artsandsciences.osu.edu
Ohio State: osu.edu
Admissions: undergrad.osu.edu
Multicultural Center: multiculturalcenter.osu.edu
First Year Experience Program: fye.osu.edu
Beginning salaries for actuaries with a bachelor’s degree range from $45,000 to $65,000 annually, depending on the candidate’s skill, academic record and progress on the professional actuarial examinations while in college. The trend in salaries has been steadily upwards over the past fifteen years, with starting salaries for the most qualified candidates advancing the most rapidly. In most recent years, availability of entry-level positions has fluctuated with general economic conditions.

**Career Counseling and Job Placement**
Ohio State’s professional counseling staff specializes in personal development and academic growth. In addition, Ohio State’s career and job placement offices around campus offer help in career planning and, as students move closer to graduation, resume writing, writing application letters and job placement. These offices can help students match interests and strengths with a promising career. Ohio State recognizes that students’ needs for career support services vary and offers special services for disabled students, veterans, minority students and international students.

The Department of Mathematics at Ohio State has close ties with the actuarial industry. Many companies come to the department on a regular basis to hold recruiting events. They meet with students as a group and conduct information sessions which are usually followed by on-campus, individual interviews the next day.

**Curriculum Sample**
This is a sample list of classes a student may take to pursue a degree in Actuarial Sciences. Since university students need more than specific education in a narrow field, they also will take classes to complete General Education (GE) requirements. Because GE courses come from a variety of academic areas of study, this course work helps students develop fundamental skills essential to collegiate success and allows them to tailor these courses toward their interests. Visit math.osu.edu for more details on the actuarial sciences program.

**Freshman Year:**
- Natural and Mathematical Sciences Survey 1
- Freshman Seminar 1
- Accounting 3
- Calculus I and II 10
- Economics (Micro and Macro) 6
- General Education courses 11
**Total hours** 32

**Sophomore Year:**
- Calculus III 4
- Computer Science 3
- Probability 3
- Theory of Interest 3
- General Education courses 18
**Total hours** 31

**Junior Year:**
- Linear Algebra 3
- Statistics 4
- Actuarial Practicum 3
- Elective courses 6
- General Education courses 10
**Total hours** 26

**Senior Year:**
- Actuarial Mathematics I and II 6
- Financial Economics 3
- Finance 3
- Elective courses 6
- General Education courses 14
**Total hours** 32

Revised October 2013. Information subject to change. For the most up-to-date information on the actuarial sciences program, visit math.osu.edu.

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