

# 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, which emphasize expository writing.

Students who wish to major in actuarial science should complete a calculus sequence that is designed for students majoring in mathematics, science, or engineering 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.

## Actuarial Science Requirements

Students follow a liberal arts General Education Curriculum. In addition, they take the following courses or their equivalents:

- Calculus (four courses)
- Linear Algebra (one course)
- Economics (two courses)
- Insurance and Risk (one course)
- Accounting/Finance (two or three courses)
- Probability and Statistics (four courses)
- Theory of Interest (one course)
- Actuarial Mathematics (three courses)

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.

For additional information please check the web site at [math.osu.edu](http://math.osu.edu). Click on the actuarial science home page listed under Undergraduate Programs.

## 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; for more information visit <http://actuary.org.ohio-state.edu>.

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 & 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, as well as enhanced undergraduate research opportunities, close working relationships with faculty, priority scheduling, and unique housing options.

Honors & Scholars programs represent great opportunities to be part of a smaller community within a large university. Good candidates for these programs will receive additional information after admission to the university. Learn more about the Honors & Scholars program at [honors-scholars.osu.edu](http://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,

**For more information, check these web sites:**

**Actuarial Sciences:** [math.osu.edu/actuarial](http://math.osu.edu/actuarial)  
**College of Mathematical & Physical Sciences:**  
[www.mps.ohio-state.edu](http://www.mps.ohio-state.edu)

**Ohio State:** [osu.edu](http://osu.edu)  
**Admissions:** [undergrad.osu.edu](http://undergrad.osu.edu)  
**Multicultural Center:** [multiculturalcenter.osu.edu](http://multiculturalcenter.osu.edu)

## 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 the General Education Curriculum (GEC). The GEC will allow students to develop the fundamental skills essential to collegiate success across major programs. Course work options satisfying the GEC often come from a variety of academic areas of study allowing students to tailor their GEC toward their interests. Note: Consult the departmental web site, [math.osu.edu/actuarial](http://math.osu.edu/actuarial), for more details on the actuarial sciences program.

### Freshman Year:

Accounting	5
Calculus	15
Economics	10
GEC (English composition)	5
GEC (foreign language)	5
MPS Survey	1
Electives	5
Freshman Seminar	1
<b>Total hours</b>	<b>47</b>

### Sophomore Year:

Calculus	5
Computer Science	5
Linear Algebra	3
GEC (foreign language)	15
GEC (natural sciences)	15
<b>Total hours</b>	<b>43</b>

### Junior Year:

Probability and Statistics	13
Theory of Interest	4
Actuarial Practicum	4
GEC (arts and humanities)	10
GEC (natural sciences)	5
GEC (second writing course)	5
Elective	5
<b>Total hours</b>	<b>46</b>

### Senior Year:

Actuarial Mathematics	12
Finance	4
GEC (history)	10
GEC (social sciences)	10
Elective	10
<b>Total hours</b>	<b>46</b>

offered by various professional actuarial organizations, is central to career advancement. A typical actuary takes one or two 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.

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.

## Apply to Ohio State

Students wishing to apply for admission have a number of options. Those with Internet access can download application materials or apply online by visiting [undergrad.osu.edu/apply.html](http://undergrad.osu.edu/apply.html). Students may also contact Undergraduate Admissions and First Year Experience at (614) 292-3980 or [askabuckeye@osu.edu](mailto:askabuckeye@osu.edu) to have an application mailed.

**Revised October 2008.** For the most up-to-date information on the actuarial sciences program, please visit [math.osu.edu/actuarial](http://math.osu.edu/actuarial).

## Contact information:

Dr. Ban, Associate Professor & Coordinating Advisor  
Actuarial Sciences | 250 Math Building | 231 West 18th Avenue  
Columbus, Ohio 43210-1174 | (614) 292-6994