Actuarial Science, MS

Do you want to make the most of your talents in math and predictive analysis? Become an expert in finding ways to assess, calculate and manage risk and participate in high-level business decision-making.

Program Description

Degree Awarded: MS Actuarial Science
The MS program in actuarial science emphasizes broad awareness and appreciation of current issues faced by insurance industry practitioners as well as innovative resolutions provided by actuaries.

Students advance their knowledge base by applying mathematical and statistical concepts and data analytics to the disciplines of risk management, finance and insurance. It also includes a new focused set of professional learning outcomes aligned with the needs of the ever-evolving insurance industry, while keeping the core technical learning outcomes in place. These guide students' development of professional competencies through coursework, independent projects and opportunities outside of the classroom, while remaining firmly based on a strong foundation of scholarly technical work in actuarial science.

Actuaries must pass a series of intensive professional exams to become credentialed. Program graduates are prepared for the examinations required to become credentialed professionals by the Society of Actuaries or Casualty Actuarial Society and to be competitive employees in the insurance and finance industries.

At a Glance

- **College/School:** The College of Liberal Arts and Sciences
- **Location:** Tempe campus

Accelerated Program Options
This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's and master's degree with:

**Actuarial Science, BS**

Acceptance to the graduate program requires a separate application. During their junior year, eligible students are advised by their academic departments to apply.

### Degree Requirements

30 credit hours including an applied project (ACT 593)

**Required Core (6 credit hours)**

- ACT 560 Advanced Data Analytics in Insurance I (3)
- ACT 561 Advanced Data analytics in Insurance II (3)

**Electives or Research (21 credit hours)**

**Culminating Experience (3 credit hours)**

- ACT 593 Applied Project (3)

**Additional Curriculum Information**

For electives and research, students select seven courses from an approved list. Students should see the academic unit for the approved course list. Other courses may be used with approval of the academic unit.

Only six credit hours of 400-level coursework is allowed on the plan of study per Graduate College policy.

### Admission Requirements

Applicants must fulfill the requirements of both the Graduate College and The College of Liberal Arts and Sciences.

Applicants are eligible to apply to the program if they have earned a bachelor's degree (or equivalent) or master's degree from a regionally accredited college or university in a related field such as mathematics, statistics, business, economics and predictive analytics.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts  
3. letter of intent or written statement  
4. two letters of recommendation  
5. professional resume  
6. proof of English proficiency

**Additional Application Information**

An applicant whose native language is not English must provide proof of English proficiency regardless of current residency.

Applicants should have completed the following courses with a "B" or better (scale is 4.00 = "A"). ASU equivalents are given in parenthesis. Courses may be substituted with approval of the academic unit:

- Linear Algebra (MAT 342 or MAT 343)
- Calculus Sequence 1-3 (MAT 270, 271, and MAT 272)
- Applied Statistics (STP 420)
- Upper-division Probability (ACT 415 or STP 421)

**Application Deadlines**

**Fall**

**Spring**

**Career Opportunities**

Risk is a part of daily life, and wherever there is risk there are opportunities for actuarial intervention. Many actuaries work with insurance companies to calculate premiums, determine reserves needed to ensure an organization's financial health and to ensure organizations conform to stringent, complex legal mandates. Others help companies to establish retirement plans or are employed as consultants.

Graduates possess skills that are transferable to any industry and any organization that requires risk modeling and management, including:

- colleges and universities
- consulting firms
- energy, such as utilities, oil and gas
- environment (on issues such as climate change and the financial impact or risk of extreme events)
- financial services, such as banking and investment management
- government agencies such as Social Security, the Department of Labor and Medicare (to manage social programs and to develop regulations and legislation)
- insurance companies
- retirement and pensions
- transportation, such as shipping and air travel
Graduates can also apply the advanced problem-solving skills to a variety of other professional careers, including:

- analysts
- business operations specialists
- consultants
- teachers

**Professional Licensure**

ASU programs that may lead to professional licensure or certification are intended to prepare students for potential licensure or certification in Arizona. Completion of an ASU program may not meet educational requirements for licensure or certification in another state. For more information, students should visit the ASU professional licensure webpage: [https://admission.asu.edu/academics/licensure](https://admission.asu.edu/academics/licensure).

**Contact Information**

School of Mathematical and Statistical Sciences | WXLR A216

[grad.math@asu.edu](mailto:grad.math@asu.edu) | 480-965-3951