

Actuarial Science, MS

LAACTMS

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. The program 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 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](#)

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 plus master's degree** with:

Actuarial Science, BS

Acceptance to the graduate program requires a separate application. Students typically receive approval to pursue the accelerated master's during the junior year of their bachelor's degree program. Interested students can learn about eligibility requirements and [how to apply](#).

Degree requirements

30 credit hours including the required applied project course (ACT 593)

Required Core (6 credit hours)

ACT 560 Regression Modeling In Insurance (3)

ACT 561 Machine Learning and Risk Management Applications (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 are 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 or 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 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 their current residency.

Applicants should have completed the following courses with a "B" or better (scale is 4.00 = "A"). ASU equivalents are given in parentheses. 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)

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about [ASU tuition and financial aid](#) options to find out which will work best for them.

Application deadlines

Fall

Spring [expand](#)

[expand](#)

Program learning outcomes

Program learning outcomes identify what a student will learn or be able to do upon completion of their program. This program has the following program outcomes:

- Apply appropriate techniques to analyze insurance datasets in coursework.
- Conduct all analyses in the field of actuarial science that appear on the preliminary actuarial exams.
- Use traditional and nontraditional predictive analytics to analyze large insurance data sets from real world problems.

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, to determine reserves needed to ensure an organization's financial health, and to ensure that 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:

- consulting
- 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 the Social Security Administration, the Department of Labor, and the Centers for Medicare & Medicaid Services (to manage social programs and to develop regulations and legislation)
- higher education
- insurance
- 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 positions, such as:

- analyst
- business operations specialist
- consultant
- teacher

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.

Contact information

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