

# Actuarial Science, Certificate

LAACTCERT

Do you want to use your math and analytical skills to make a positive impact? You can help people and organizations plan for the future and protect themselves from loss. Actuaries participate in high-level business decision-making and solve problems in every industry.

## Description

Actuarial science is an area of mathematical and statistical science that requires expertise in specializations of probability and interest theory, coupled with a strong foundation in accounting, finance and economics.

This certificate provides students with preparation for professional actuarial credentialing exams offered by the Society of Actuaries and the Casualty Actuarial Society.

## At a glance

- **College/School:** [The College of Liberal Arts and Sciences](#)
- **Location:** [Tempe](#)

## Program requirements

[2024 - 2025 Certificate Map](#)  
[Certificate Map \(Archives\)](#)

The certificate requires a minimum of 18 credit hours, of which at least 12 credit hours must be upper division. Specific minimum course grades are required for each course, see notes below.

### Required Courses -- 12 credit hours

[ACT 201: Introduction to Elements and Techniques of Actuarial Science](#) (3)

ACT 410: Mathematics of Finance (3)

ACT 415: Probability for Risk Management (3)

ACT 440: Single Life Mortality or ACT 450: Actuarial Models (3)

A grade of "B" (3.00 on a 4.00 scale) or better is required for ACT 201, ACT 410 and ACT 415. A grade of "C" (2.00 on a 4.00 scale) or better is required for ACT 440 or ACT 450.

### **Electives (choose two courses) -- 6 credit hours**

ACT 420: Ratemaking and Reserving (3)

ACT 430: Mathematics of Financial Derivatives (3)

ACT 435: Statistics for Risk Modeling (3)

ACT 440: Single Life Mortality (3)

ACT 441: Long-Term Actuarial Mathematics (3)

ACT 450: Actuarial Models (3)

ACT 451: Short-Term Actuarial Mathematics (3)

A grade of "B" (3.00 on a 4.00 scale) or better is required in the following courses: ACT 420, ACT 430, ACT 435.

A grade of "C" (2.00 on a 4.00 scale) or better is required in the following courses: ACT 440, ACT 441, ACT 450, ACT 451.

Prerequisite courses may be needed in order to complete the requirements of this certificate.

## **Enrollment requirements**

Although no specific degree is required for admission to the actuarial science certificate program, a strong mathematical background is essential (found in majors such as mathematics, statistics, engineering and natural sciences). Students with a major or degree other than those listed require additional preparation beyond the certificate. Students are required to have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") and grades of "B" or better in courses of multivariate calculus, linear algebra and introductory statistics at ASU or an equivalent institution.

A student pursuing an undergraduate certificate must be enrolled as a degree-seeking student at ASU. Undergraduate certificates are not awarded prior to the award of an undergraduate degree. A student already holding an undergraduate degree may pursue an undergraduate certificate as a nondegree-seeking graduate student.

## **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:

- Identify the proper mathematical and statistical theories that may be applied to analyze actuarial data and draw analytical conclusions in a professional environment

- Use mathematical and statistical theories to demonstrate mastery of analytical decision making based on both qualitative and quantitative data.

## Career opportunities

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

Graduates with a certificate in actuarial science possess skills that are transferable to any industry and any organization that requires risk modeling and management, including:

- colleges and universities
- consulting firms
- energy and environmental companies
- financial services
- government agencies
- insurance companies
- retirement and pension companies
- transportation companies

Graduates also can apply the advanced problem-solving skills learned in the actuarial science certificate program to a variety of other professional positions, including:

- analyst
- business operations specialist
- teacher

## Contact information

[Schedule an advisor appointment](#)

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