

Statistics in Insurance Certification

About the Certification

This certificate is to prepare students to enter the actuarial or financial profession, as well as to provide a background in strong probability and statistics analytics. Students will take courses which can effectively help them build up the analytic ability in statistics. Upon the completion of this certification, students will be strongly prepared to take the professional examinations such as EXAM P: Probability and EXAM S: Statistics, Probabilistic Models, which are given by Society of Actuaries (SOA) and Casualty Actuarial Society (CAS), and Models for Life Contingencies (SOA).

Actuarial science is multidisciplinary in statistics, mathematics and some social science such as economics, finance, sociology, public health and so on. As the main branch of actuarial science, actuarial statistics applies mathematical and statistical methods to do data analysis, in order to assess risks and uncertainty in insurance, finance and some other industries and government agencies.

Financial Assistance

For financial aid purposes, students are considered fifth-year undergraduates, eligible for undergraduate loans.

Admission Requirements

The certificate will require any incoming students to (1) have a 3.0 or above upon acceptance and (2) maintain at least a 3.0 GPA throughout obtaining the certificate.

Certification Requirements

Requirements may be fulfilled entirely with undergraduate courses. The outline of all curricular requirements for the proposed certificate, including prerequisite, core, specialization (track, concentration), capstone, and any other relevant component requirements:

Required Courses (12 credits)				
Course #	Course title	Credit hours	Foundation courses	Prerequisites
MAT 270	Discrete Mathematics	3	Core/Required	4 years of High School Math
MAT 381	Probability Theory	3	Core/Required	MAT 270 and either MAT 127 or MAT 162
MAT 382	Topics in Mathematical Statistics	3	Core/Required	MAT 263, MAT 381
MAT 486	Models and Methods of Actuarial Mathematics	3	Core/Required	MAT 381

Elective Courses (3 credits)				
Course #	Course title	Credit hours	Foundation courses	Prerequisites
MAT 202	Introduction to Linear Algebra	3	Elective	MAT 161 or MAT 126
MAT 383	Applied Statistics	3	Elective	MAT 382 or MAT 325 or MAT 311; MAT 381
Total Credits (15 credits)				

About actuarial science and jobs

Most students of actuarial science and statistics will find jobs as actuaries in the financial sectors and the government. An actuary collects statistical, economic and financial data to determine the risks of events occurring or contingent events. Providing the statistical analyses, actuaries will help clients determine how to minimize the risks. The insurance and finance industries require actuaries to help build business strategies, operational policies and set rates for policyholders. The most common industries actuarial jobs are in finance and insurance, professional services, management of companies, and government. Actuaries will also work for colleges, banks, and fraternal organizations. An actuary job responsibilities make them vital to the insurance industry. Thus, those with experience in calculating risk and giving proper estimates on potential payouts will be in demand.

The top paying industries for actuaries working in the United States are credit intermediation, Brokerages, business organization, insurance and employment funds, and for the federal government. The mean actuary salary for those working in credit intermediation is \$152,680, and for those in the federal government, it is \$119,920.

At the present, the growth outlook for actuaries is very positive. The need for actuaries is expected to increase by 21% between 2008 and now. This is a higher than average rate compared to other careers. Most actuaries will be employed by the insurance industry and consulting firms, with a small number taking government jobs.

The Society of Actuaries (SOA), <https://www.soa.org>, is a professional organization that helps to collect and share many industry happenings with actuaries in the United States. It is a full member organization of the International Actuarial Association.

The professional designations in the Society are earned by completing a rigorous system of examinations. It is common for actuarial students to work full-time in the profession while studying for the exams. The first five ("preliminary") exams consist mostly of core mathematics related to actuarial science including probability, statistics, life contingencies, and risk models.