Bryant University
GRADUATE PROGRAMS OFFICE

Master of Science in Actuarial Science (Online)

Courses are offered in a 10-week format. The program can be completed in one calendar year if taken on a full-time basis but is flexible enough to be completed in more than one year if taken on a part-time basis.

Curriculum Summary (A 1-credit online orientation module is required to begin the program)

- *Short-Term Actuarial Modeling*
  - Examines the modeling of short-term (i.e., property-casualty) risk and insurance, with topics including frequency, severity, aggregate models of risk and loss, and parameter estimation and insurance.
- *Long-Term Actuarial Modeling*
  - Covers the modeling of long-term (i.e., life and mortality) risk and insurance, with topics including mortality and survival models, profit analysis, universal life insurance, and retirement planning.
- *Advanced Actuarial Statistics*
  - Analyzes advanced statistical modeling techniques and concepts useful for insurance purposes with a variety of statistical topics that appear on CAS Exam MAS-I and SOA Exam SRM.
- *Statistics for Risk Modeling*
  - Investigates the statistics and data science topics essential for advanced actuarial work. Topics include statistical learning, Principal Components Analysis, decision trees and cluster analysis.
- *Crisis and Risk Communication*
  - Studies all aspects of the risk communication process, crisis planning and public implementation to meet the needs for effective communication strategy.
- *Introduction to Insurance Economics and Regulation (Elective)*
  - Defines the types of insurance and insurance programs, accounting and financial reporting conventions, and professional actuary responsibilities from a regulatory and economic perspective.
- *Advanced Financial Mathematics (Elective)*
  - Discusses fundamental actuarial theory as it pertains to interest and investments. Topics include mathematical valuation of securities and dividends, option pricing theory, duration, and convexity.
- *Short-Term Actuarial Pricing and Reserving (Elective)*
  - Explores the basic techniques of property and casualty ratemaking and loss reserving, which are the two traditional and fundamental functions or property-casualty actuaries.
- *Linear Models (Elective)*
  - Teaches the basis for many actuarial techniques, with topics including linear mixed models and extended linear models, which appear on CAS Exams MAS-I and MAS-II.
- *Time Series (Elective)*
  - Explains the modeling of future economic conditions through the form of time series, where values emerge and evolve over time.
- *Actuarial Application Capstone*
  - Students apply the knowledge and skills they've learned to a realistic problem in their actuarial area of interest through a relevant research project or internship experience in an appropriate organization.