Bryant University

GRADUATE AND PROFESSIONAL EDUCATION

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.

Scientific and Technical Communication
Explores how complex information from scientific and technical disciplines can be packaged and presented to audiences who do not possess experience or background knowledge in those areas.

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.