ACTUARIAL SCIENCE

Director
Rommel Regis

Committee on Actuarial Science
Hongjun Ha (Math)
Patricia Bobo (Math)
Benjamin Liebman (Economics)
Ronald Klimberg (Decision and System Sciences)
Carolin Schelhorn (Finance)

Undergraduate Majors
- Actuarial Science (https://academiccatalog.sju.edu/arts-sciences/actuarial-science/actuarial-science-major)

Undergraduate Minors
- Actuarial Science (https://academiccatalog.sju.edu/arts-sciences/actuarial-science/actuarial-science-minor)

ASC 150 First Year Seminar (3 credits)
This first year seminar course provides an introduction to the techniques actuaries use to forecast the future and quantify risk. Selected topics include time series analysis and statistical correlation, credibility theory, pricing insurance products and risk load, portfolio theory and asset allocation management. Students are also required to make a presentation on a topic of current interest in actuarial science. The course is taught in a computer classroom and students make extensive use of Microsoft Excel in the development of mathematical models.
Attributes: First-Year Seminar, Undergraduate

ASC 301 Actuarial Probability (3 credits)
This course provides an introduction to the basic probabilistic principles of insurance and Risk Management. Selected topics are covered to enable the application of probability theory to solve problems found in insurance and risk management applications. A problem solving approach will be adopted to provide preparation to pass the first actuarial exam co-sponsored by the Casualty Actuarial Society (Part 1) and the Society of Actuaries (Part P).
Prerequisites: MAT 321
Attributes: Undergraduate

ASC 401 Financial Math - Actuarial Sci (3 credits)
This course provides an introduction to the basic probabilistic principles of insurance and Risk Management. Selected topics are covered to enable the application of probability theory to solve problems found in insurance and risk management applications. A problem solving approach will be adopted to provide preparation to pass the first actuarial exam co-sponsored by the Casualty Actuarial Society (Part 1) and the Society of Actuaries (Part P). Students may not receive credit for both this course and FIN 493, depending on the content of the course. Please consult the Program Director.
Prerequisites: MAT 162
Attributes: Undergraduate

ASC 402 Investment Mathematics (3 credits)
This course introduces the basics of investment and financial pricing based on rigorous mathematical reasoning. It consists of two parts. In the first part, students will learn how to construct a portfolio based on the mean-variance principle, the capital asset pricing model, multi-factor model and behavioral finance. The second part is on financial derivatives: a put-call parity, the binomial model for pricing European and American contingent claims, Black-Scholes framework, delta-hedging, and exotic options. This course will prepare students for the actuarial science exam in Investment and Financial Markets (IFM) of the Society of Actuaries or Exam 3F of the Casualty Actuarial Society. If time permits, the class will discuss the fundamental difference between Actuarial Pricing and Financial Pricing and how to combine them to price hybrid products such as Variable Annuities.
Prerequisites: MAT 322 and ASC 401
Attributes: Undergraduate

ASC 493 Honors Capstone: Actuarial Sci (3 credits)