Actuarial Science

**ACTS 4301** Principles of Actuarial Models: Life Contingencies I (3 semester credit hours) The purpose of this class is to develop the student's knowledge of the theoretical basis of life contingent actuarial models and the application of those models to insurance and other financial risks. Life contingencies, survival models, life insurances, annuities, and premiums will be studied. This class covers parts of CAS Exam LC and SOA Exam MLC. Prerequisites: (STAT 4351 and ACTS 4308) or instructor consent required. (3-0) T

**ACTS 4302** Principles of Actuarial Models: Financial Economics (3 semester credit hours) This 3 semester credit hour course develops the student's knowledge of the theoretical basis of certain actuarial models and the application of those models to insurance and other financial risks. The topics discussed include interest rate models, rational valuation of derivative securities, mathematical and probabilistic foundation of risk management. This class covers parts of CAS exam 3F and SOA exam MFE. Prerequisites: STAT 4351 or instructor consent required. (3-0) T

**ACTS 4304** Construction and Evaluation of Actuarial Models (3 semester credit hours) Introduction to useful frequency and severity models beyond those covered in Principles of Actuarial Models. Discussion of the steps involved in the modeling process and how to carry out these steps in solving business problems. At the end of the course the students should be able to: 1) analyze data from an application in a business context; 2) determine a suitable model including parameter values; and 3) provide measures of confidence for decisions based upon the model. This class also provides an introduction to a variety of tools for the calibration and evaluation of the models. This class covers parts of CAS Exam 4/SOA Exam C. Prerequisite: STAT 4352 or instructor consent required. (3-0) T

**ACTS 4306** Actuarial Probability as Problem Solving (3 semester credit hours) Topics in actuarial probability via solving problems. This class covers topics of Exam 1/P. Prerequisite: STAT 4351 or instructor consent required. (3-0) R

**ACTS 4308** Actuarial Financial Mathematics (3 semester credit hours) The purpose of this 3 semester credit hour course is to provide an understanding of the fundamental concepts of financial mathematics, and how those concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, asset/liability management, investment income, capital budgeting, and valuing contingent cash flows. The students will also be given an introduction to financial instruments, including derivatives, and the concept of no-arbitrage as it relates to financial mathematics. This class covers topics of CAS Exam 2/SOA Exam FM. Prerequisites: (MATH 2451 and FIN 3320) or instructor consent required. (3-0) R