**Actuarial Science**

**ACTS 6301** Theory 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 SOA Exam LTAM. Prerequisite: STAT 5351 or instructor consent required. (3-0) T

**ACTS 6302** Theory of Actuarial Models: Financial Economics (3 semester credit hours) This 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 mean-variance portfolio theory, asset pricing models, market efficiency and behavioral finance, investment risk and project analysis, capital structure, forwards and futures, and theory of options. This class covers parts of CAS exam 3F and SOA exam IFM. Prerequisite: STAT 5351 or instructor consent required. (3-0) T

**ACTS 6303** Theory of Actuarial Models: Life Contingencies II (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 for multiple lives and the application of those models to insurance and other financial risks. Reserves, life contingencies for multiple lives, expenses and stochastic processes will be studied. This class covers parts of SOA Exam LTAM. Prerequisite: ACTS 6301 or instructor consent required. (3-0) T

**ACTS 6304** Construction and Evaluation of Actuarial Models I (3 semester credit hours) Introduction to useful frequency and severity models beyond those covered in Theory 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 5351 or instructor consent required. (3-0) T

**ACTS 6305** Construction and Evaluation of Actuarial Models II (3 semester credit hours) Introduction to useful frequency and severity models beyond those covered in Principles of Actuarial Models. The topics discussed include parametric models, credibility and simulation. This class covers parts of CAS Exam 4/SOA Exam C. Prerequisite: ACTS 6304 or instructor consent required. (3-0) T

**ACTS 6306** Advanced Actuarial Applications (3 semester credit hours) This class covers parts of CAS Exam 5 (Basic Techniques for Ratemaking and Estimating Claim Liabilities)/SOA Exam FAP (Fundamentals of Actuarial Practice). Instructor consent required. (3-0) R

**ACTS 6308** Actuarial Financial Mathematics (3 semester credit hours) The purpose of this 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 topics discussed include loans, bonds, and annuities, as well as determinants of interest rates and interest rates swaps. This class covers parts of the CAS Exam 2 and the SOA Exam FM. Instructor consent required. (3-0) Y