Actuarial Science Courses (Statistics and Actuarial Science) (ACTS)

ACTS Courses
This is a list of courses with the subject code ACTS. For more information, see Statistics and Actuarial Science (College of Liberal Arts and Sciences) in the catalog.

ACTS:1000 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

ACTS:1001 Introductory Seminar on Actuarial Science 1 s.h.
Introduction to actuarial science; U.S. actuarial organizations and actuarial qualification process; program requirements and tips for academic success; career center, actuarial club, and internships; actuarial career; ethics; communication; introduction to actuarial computing.

ACTS:3080 Mathematics of Finance I 3 s.h.
Mathematics of compound interest, annuities certain, loan amortization schedules, bonds, yield rates, and introduction to interest rate risk management. Prerequisites: MATH:1860 with a minimum grade of B-. Requirements: calculus II or graduate standing.

ACTS:3110 Actuarial Exam P Preparation 1 s.h.
Preparation for the Society of Actuaries exam P. Corequisites: STAT:3100 or STAT:4100 or STAT:5100.

ACTS:3210 Actuarial Exam FM Preparation 1 s.h.
Preparation for the Society of Actuaries exam FM. Corequisites: ACTS:3080, if not taken as a prerequisite.

ACTS:4130 Quantitative Methods for Actuaries 3 s.h.

ACTS:4150 Fundamentals of Short-Term Actuarial Mathematics 3 s.h.
Severity, frequency, aggregate loss, estimation, credibility theory, pricing, and reserving for short-term insurance coverages; option pricing. Offered spring semesters. Prerequisites: STAT:4100 with a minimum grade of C+ or STAT:5100 with a minimum grade of C+. Corequisites: STAT:4101 or STAT:5101.

ACTS:4160 Topics in Actuarial Science arr.
Selected topics in actuarial science, financial mathematics, and quantitative risk management.

ACTS:4180 Life Contingencies I 3 s.h.
Reserves, multi-life models, multiple-decrement models, and Markov chains. Offered spring semesters. Prerequisites: ACTS:3080 with a minimum grade of C+ and ACTS:4130 with a minimum grade of C+ and (STAT:4100 with a minimum grade of C+ or STAT:5100 with a minimum grade of C+).

ACTS:4280 Life Contingencies II 3 s.h.
Multistate models, pension mathematics, emerging costs for traditional and equity-linked insurance, profit testing, profit measures, and embedded options. Offered fall semesters. Prerequisites: ACTS:4180 with a minimum grade of C+.

ACTS:4380 Mathematics of Finance II 3 s.h.
Derivatives markets, forwards, options, pricing models, and actuarial applications. Prerequisites: ACTS:3080 with a minimum grade of C+. Requirements: mathematical statistics, multivariate calculus, and linear algebra.

ACTS:4990 Readings in Actuarial Science arr.

ACTS:6160 Topics in Actuarial Science arr.
Selected topics in actuarial science, financial mathematics, and quantitative risk management.

ACTS:6200 Predictive Analytics 3 s.h.
Linear mixed models; generalized linear mixed models; generalized additive models; applications of these models using associated R packages. Prerequisites: STAT:4560. Corequisites: STAT:4561. Requirements: comfort working with R software environment. Same as DATA:6200, STAT:6200.

ACTS:6480 Loss Distributions 3 s.h.
Severity, frequency, and aggregate models and their modifications; risk measures; construction of empirical models. Offered spring semesters. Prerequisites: STAT:4101 or STAT:5101. Corequisites: ACTS:6580.

ACTS:6580 Credibility and Survival Analysis 3 s.h.

ACTS:6990 Readings in Actuarial Science arr.
Supervised reading and research in actuarial science, financial mathematics, or quantitative risk management.

Selected advanced topics in actuarial science, financial mathematics and quantitative risk management.