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. Requirements: actuarial science interest major and first-year standing.

ACTS:3080 Mathematics of Finance I   **3 s.h.**
Mathematics of compound interest, annuities certain, amortization schedules, yield rates, sinking funds, and bonds. 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:4010 Actuarial Exam IFM Preparation   **1 s.h.**
Preparation for the Society of Actuaries exam IFM. Requirements: multivariate calculus, linear algebra, and statistics. Recommendations: prior or concurrent enrollment in FIN:3300 or ACTS:4380.

ACTS:4110 Actuarial Exam LTAM Preparation   **1 s.h.**
Preparation for the Society of Actuaries exam LTAM. Corequisites: ACTS:4280, if not taken as a prerequisite.

ACTS:4130 Quantitative Methods for Actuaries   **3 s.h.**
Survival distributions, life tables, life insurance, life annuities, and premiums. Offered fall semesters. Prerequisites: STAT:3100 with a minimum grade of B- and ACTS:3080 with a minimum grade of C+. Corequisites: STAT:4100 or STAT:5100. Requirements: multivariate calculus and linear algebra.

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.**
Construction and selection of parametric models, credibility, and simulation. Offered spring semesters. Prerequisites: STAT:4101 or STAT:5101. Corequisites: ACTS:6480.

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

ACTS:7730 Advanced Topics in Actuarial Science/ Financial Mathematics   **arr.**
Selected advanced topics in actuarial science, financial mathematics and quantitative risk management.