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.
The actuarial profession, exam process, academic success, internships, resources for actuarial students, important skills for actuaries, and career paths in actuarial science.

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.
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.