School of Natural Sciences and Mathematics

Actuarial Science (B.S.)

The Actuarial Science program at UT Dallas is administered through the Department of Mathematics.

Students receive a rigorous mathematical background including all the major courses taken by students majoring in mathematics or statistics. Further, ten courses devoted to finance, economics, applied statistics, insurance and actuarial science are required. Upon completion of this program, a student will have the knowledge and business background necessary to pursue a career as an actuary, as well as to undertake graduate study in actuarial science, statistics, mathematics, economics or finance.

Bachelor of Science in Actuarial Science

Degree Requirements (120 semester credit hours)

I. Core Curriculum Requirements[1]: 42 semester credit hours

Communication (6 semester credit hours)

3 semester credit hours Communication (RHET 1302)

3 semester credit hours Business Communication (BCOM 3311)

Social and Behavioral Sciences (15 semester credit hours)

6 semester credit hours Government (GOVT 2301 and GOVT 2302)

6 semester credit hours American History

3 semester credit hours Social and Behavioral Sciences Elective (ECON 2301)

Humanities and Fine Arts (6 semester credit hours)

3 semester credit hours Fine Arts (ARTS 1301)

3 semester credit hours Humanities (HUMA 1301)

Mathematics and Quantitative Reasoning (6 semester credit hours)

6 semester credit hours Calculus (MATH 2417 and MATH 2419)[2]

Science with at least 1 semester credit hour of laboratory (9 semester credit hours)

CHEM 1311/1111 General Chemistry I with Laboratory[3]

CHEM 1312/1112 General Chemistry II with Laboratory[4]

And an additional acceptable science course

II. Major Requirements[5]: 66 semester credit hours

Major Preparatory Courses (21 semester credit hours)

ACCT 2301 Introductory Financial Accounting

CS 1337[6] Computer Science I

ECON 2302 Principles of Microeconomics

MATH 2418[6] Linear Algebra

MATH 2420[6] Differential Equations with Applications

MATH 2451[6] Multivariable Calculus with Applications

Major Core Courses (45 semester credit hours)

ACTS 4301 Principles of Actuarial Models: Life Contingencies I

ACTS 4302 Principles of Actuarial Models: Financial Economics

ACTS 4303 Principles of Actuarial Models: Life Contingencies II

ACTS 4304 Construction and Evaluation of Actuarial Models

ACTS 4308 Actuarial Financial Mathematics

FIN 3320 Business Finance

FIN 3370 Insurance and Risk Management

MATH 3310 Theoretical Concepts of Calculus

MATH 3311 Abstract Algebra I

MATH 3379 Complex Variables

MATH 4334 Numerical Analysis

STAT 3355 Data Analysis for Statisticians and Actuaries

STAT 4351 Probability

STAT 4352 Mathematical Statistics

MATH 4301 Mathematical Analysis I

III. Elective Requirements: 12 semester credit hours

Both lower- and upper-division courses may count as electives, but the student must complete at least 51 semester credit hours of upper-division credit to qualify for graduation. Students must choose two of the following courses:

ACTS 4306 Actuarial Probability as Problem Solving

STAT 4382 Stochastic Processes

MATH 4302 Mathematical Analysis II

FIN 4300 Investment Management

ACCT 2302 Introductory Management Accounting

ACCT 3331 Intermediate Financial Accounting I

MIS 3300 Introduction to Management Information Systems

FIN 3390 Introduction to Financial Modeling

FIN 3350 Financial Markets and Institutions

FIN 4310 Applied Corporate Finance

FIN 4340 Options and Futures Markets

FIN 3330 Personal Financial Planning

ECON 4330 Law and Economics

All students are required to take at least six semester credit hours of advanced electives outside their major field of study. These must be either upper-division classes or lower-division classes that have prerequisites.

Preparation for Actuarial Exams

Exam 1: STAT 4351 and ACTS 4306

Exam 2: ACTS 4308, FIN 3320, and FIN 4300

Exam 3: Life Contingencies part: ACTS 4301, ACTS 4303

Exam 3: Financial Economics part: ACTS 4302

Exam 4: ACTS 4304

Validation by Educational Experience (VEE) Credits

Applied Statistical Methods: STAT 3355 and STAT 4382

Corporate Finance: FIN 3320

Economics: ECON 2301 and ECON 2302

Minor in Actuarial Science

The Minor in Actuarial Science program at UT Dallas is administered through the Department of Mathematical Sciences. It is ideal for students who are interested in broadening their experience and knowledge base in the study and analysis of principles of Actuarial Science. The minor core courses prepare students for a number of actuarial exams required for a designation of Associate of the Society of Actuaries, Casualty Actuarial Society, or Canadian Institute of Actuaries. Specifically, the minor provides

students with an intense background in principles of actuarial models. All of the courses in the minor serve as starting points for learning the concepts covered on the preliminary actuarial exams (P/1, FM/2, MLC/3L).

Students not majoring in Actuarial Science may obtain a minor in Actuarial Science by satisfying 24 semester credit hours (9 semester credit hours of minor core courses and 15 semester credit hours of minor preparatory courses).

Minor Preparatory Courses (15 semester credit hours)[7]

MATH 2417 Calculus I (Differential Calculus)

MATH 2419 Calculus II (Integral Calculus)

MATH 2451 Multivariable Calculus with Applications

MIS 3300 Introduction to Management Information Systems

Minor Core Courses (9 semester credit hours)[8]

STAT 4351 Probability

ACTS 4301 Principles of Actuarial Models: Life Contingencies I

ACTS 4308 Actuarial Financial Mathematics

1. Curriculum Requirements can be fulfilled by other approved courses from accredited institutions of higher education. The courses listed in parenthesis are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at UT Dallas.
2. Students may choose one of the following calculus sequences: (a) MATH 2413, MATH 2414, and MATH 2415; or (b) MATH 2417 and MATH 2419.
3. Students may choose a Physics sequence instead of Chemistry: PHYS 2325/2125 Mechanics with Laboratory or PHYS 2421/2125 Honors Physics I - Mechanics and Heat with Laboratory.
4. Students may choose a Physics sequence instead of Chemistry: PHYS 2326/2126 Electromagnetism and Waves with Laboratory or PHYS 2422/2126 Honors Physics II - Electromagnetism and Waves with Laboratory.
5. A required Major course that also fulfills Core Curriculum requirements. If semester credit hours are counted in the Core Curriculum, students must complete additional coursework to meet the minimum requirement for graduation. Course selection assistance is available from the undergraduate advisor.
6. Indicates a prerequisite class to be completed before enrolling for upper-division classes.
7. Students whose major does not require MATH 2417 and MATH 2419 as part of their Mathematics and Quantitative Reasoning Core Curriculum Requirements, should take this sequence as their core curriculum courses to ensure efficiency toward the minor.
8. These classes prepare for the three preliminary actuarial examinations jointly administered by the Society of Actuaries (SOA), Casualty Actuarial Society (CAS) and the Canadian Institute of Actuaries (CIA).

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