School of Natural Sciences and Mathematics

Actuarial Science (BS)

The Bachelor of Science Actuarial Science (BS) Program at The University of Texas at Dallas is administered through the Department of Mathematical Sciences.

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.

Faculty

Professors: Larry P. Ammann, Michael I. Baron, Sam Efromovich, Robert Serfling

Associate Professor: Pankaj K. Choudhary

Clinical Professor: Ronald D. Dearing

Clinical Associate Professor: Natalia Humphreys

Bachelor of Science in Actuarial Science

Degree Requirements (120 semester credit hours)\(^1\)

I. Core Curriculum Requirements: 42 semester credit hours\(^2\)

Communication: 6 semester credit hours

- **COMM 1311** Survey of Oral and Technology-based Communication
- **RHET 1302** Rhetoric

Mathematics: 3 semester credit hours

- **MATH 2417** Calculus \(^3, 4\)

Life and Physical Sciences: 6 semester credit hours\(^5\)

- **PHYS 2325** Mechanics
  - or **PHYS 2421** Honors Physics I - Mechanics and Heat
  - or **CHEM 1311** General Chemistry I

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**PHYS 2326** Electromagnetism and Waves

*or* **PHYS 2422** Honors Physics II - Electromagnetism and Waves

*or* **CHEM 1312** General Chemistry II

**Language, Philosophy and Culture: 3 semester credit hours**

**HUMA 1301** Exploration of the Humanities

**Creative Arts: 3 semester credit hours**

**ARTS 1301** Exploration of the Arts

**American History: 6 semester credit hours**

**HIST 1301** U.S. History Survey to Civil War

**HIST 1302** U.S. History Survey from Civil War

**Government / Political Science (6 semester credit hours)**

**GOVT 2305** American National Government

**GOVT 2306** State and Local Government

**Social and Behavioral Sciences: 3 semester credit hours**

**ECON 2301** Principles of Macroeconomics

**Component Area Option: 6 semester credit hours**

**MATH 2417** Calculus I³, 4

**MATH 2419** Calculus II³, 4

**PHYS 2125** Physics Laboratory I⁵

II. Major Requirements: 77 semester credit hours

**Major Preparatory Courses: 29 semester credit hours beyond Core Curriculum**

**ACCT 2301** Introductory Financial Accounting

**ACCT 2302** Introductory Management Accounting

**BCOM 3310** Business Communication

**CS 1337** Computer Science I

**ECON 2302** Principles of Microeconomics

**MATH 2417** Calculus I³, 4, 6
**MATH 2419** Calculus II

**MATH 2418** Linear Algebra

**MATH 2420** Differential Equations with Applications

**MATH 2451** Multivariable Calculus with Applications

**PHYS 2325** Mechanics

  or **PHYS 2421** Honors Physics I - Mechanics and Heat

  or **CHEM 1311** General Chemistry

**PHYS 2326** Electromagnetism and Waves

  or **PHYS 2422** Honors Physics II - Electromagnetism and Waves

  or **CHEM 1312** General Chemistry II

**PHYS 2125** Mechanics Laboratory

**PHYS 2126** Electromagnetism and Waves Laboratory

**CHEM 1111** General Chemistry I Laboratory

  or **CHEM 1112** General Chemistry II Laboratory

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**Major Core Courses: 48 semester credit hours**

**ACTS 4301** Principles of Actuarial Models: Life Contingencies I

**ACTS 4302** Principles of Actuarial Models: Financial Economics

**ACTS 4304** Construction and Evaluation of Actuarial Models

**ACTS 4308** Actuarial Financial Mathematics

**FIN 3320** Business Finance

**FIN 3390** Introduction to Financial Modeling

**FIN 4300** Investment Management

**MATH 3310** Theoretical Concepts of Calculus

**MATH 3311** Abstract Algebra I

**MATH 3379** Complex Variables

**MATH 4334** Numerical Analysis

**MIS 3300** Introduction to Management Information Systems

**STAT 3355** Data Analysis for Statisticians and Actuaries

**STAT 4351** Probability

**STAT 4352** Mathematical Statistics
STAT 4382 Stochastic Processes

III. Elective Requirements: 1 semester credit hour

Freshman students are required to take UNIV 1010 and NATS 1101.\(^2\)

Preparation for Actuarial Exams

Exam 1/P: STAT 4351 or ACTS 4306

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

Exam 3L/MLC: ACTS 4301

Exam 3F/MFE: ACTS 4302

Exam 4/C: 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

1. Incoming freshmen must complete and pass UNIV 1010 Freshman Seminar and the corresponding school-related freshman seminar course. Students, including transfer students, who complete their core curriculum at UT Dallas must take UNIV 2020.

2. Curriculum Requirements can be fulfilled by other approved courses from accredited institutions of higher education. The courses are recommended as the most efficient way to satisfy both Core Curriculum and Major Requirements at UT Dallas.

3. A required Major preparatory course that also fulfills a Core Curriculum requirement. Semester credit hours are counted in Core Curriculum.

4. Three semester credit hours of Calculus are counted to fulfill the Mathematics Core Requirement with the remaining five semester credit hours to be counted under Component Area Option Core Requirement.

5. Six semester credit hours of Physics are counted under Science core, and one semester hour of Physics (PHYS 2125) are counted under Component Area Option core.

6. Students may choose one of the following calculus sequences: (a) MATH 2413, MATH 2414, and MATH 2415; or (b) MATH 2417 and MATH 2419.

7. NATS 1101 may be substituted for an appropriate elective for transfer students.

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