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.

Bachelor of Science in Actuarial Science

Degree Requirements (120 semester credit hours)

Faculty

Professors: Larry P. Ammann, Zalman I. Balanov, Sam Efromovich, Susan E. Minkoff, Viswanath Ramakrishna

Clinical Professor: Ronald D. Dearing, Natalia Humphreys

Associate Professor: Mieczyslaw K. Dabkowski

Assistant Professor: Bhargab Chattopadhyay

Senior Lecturers: Malgorzata Dabkowska, Yuly Koshevnik

I. Core Curriculum Requirements: 42 semester credit hours

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 1

Life and Physical Sciences: 6 semester credit hours
PHYS 2325  Mechanics
   or PHYS 2421  Honors Physics I - Mechanics and Heat
   or CHEM 1311  General Chemistry I

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 I$^3, 4$
   MATH 2419  Calculus II$^3, 4$
   PHYS 2125  Physics Laboratory$^5$

II. Major Requirements: 78 semester credit hours

Major Preparatory Courses: 33 semester credit hours beyond Core Curriculum
   ACCT 2301  Introductory Financial Accounting
   ACCT 2302  Introductory Management Accounting
BCOM 3310 Business Communication

CS 1336 Programming Fundamentals

CS 1136 Computer Science Laboratory

CS 1337 Computer Science I

ECON 2302 Principles of Microeconomics

MATH 2417 Calculus I\(^3, 4, 6\)

MATH 2419 Calculus II\(^3, 4, 6\)

MATH 2418 Linear Algebra

MATH 2420 Differential Equations with Applications

MATH 2451 Multivariable Calculus with Applications

PHYS 2325 Mechanics\(^5\)

or PHYS 2421 Honors Physics I - Mechanics and Heat\(^5\)

or CHEM 1311 General Chemistry I\(^5\)

PHYS 2326 Electromagnetism and Waves\(^5\)

or PHYS 2422 Honors Physics II - Electromagnetism and Waves\(^5\)

or CHEM 1312 General Chemistry II\(^5\)

PHYS 2125 Mechanics Laboratory\(^5\)

PHYS 2126 Electromagnetism and Waves Laboratory

CHEM 1111 General Chemistry I Laboratory

or CHEM 1112 General Chemistry II Laboratory

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 4304 Construction and Evaluation of Actuarial Models

ACTS 4308 Actuarial Financial Mathematics

FIN 3320 Business Finance

FIN 3390 Introduction to Financial Modeling

MATH 3310 Theoretical Concepts of Calculus

MATH 3311 Abstract Algebra I

MATH 3379 Complex Variables
**MATH 4334** Numerical Analysis

**ITSS 3300** Information Technology for Business

**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](https://catalog.utdallas.edu/2015/undergraduate/programs/nsm/actuarial-science) and [NATS 1101](https://catalog.utdallas.edu/2015/undergraduate/programs/nsm/actuarial-science).

**Preparation for Actuarial Exams**

Exam 1/P: **STAT 4351** or **ACTS 4306**

Exam 2/FM: **ACTS 4308, FIN 3320**

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**

**Fast Track Baccalaureate/Master's Degrees**

In response to the need for post-baccalaureate education, a Fast Track program is available to well-qualified UT Dallas undergraduate students. Qualified seniors may take up to 15 graduate semester credit hours that may be used to complete the baccalaureate degree and also to satisfy the requirements for the master's degree. Interested students should see the Associate Dean of Undergraduate Education (ADU) for specific requirements.

1. Incoming freshmen must enroll and complete requirements of UNIV 1010 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 credit 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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