School of Natural Sciences and Mathematics

Actuarial Science (BS)

The Bachelor of Science Actuarial Science (AS) 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. 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

   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 I\(^5\)

**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 I[^1, ^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: 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.

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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