School of Natural Sciences and Mathematics

Master of Science in Actuarial Science Program

36 hours minimum

Program Objective

The objective of the program is to educate future leaders of the actuarial industry with training in actuarial theory and methods in a wide spectrum of actuarial applications involving probabilistic and statistical models. All students will be prepared to take five actuarial preliminary exams and will take two advanced actuarial classes to prepare for professional accreditation. Furthermore, students who did not take classes required for VEE (Validation of Educational Experience) credits in statistics, finance, and economics will have such opportunity. With this combined knowledge of mathematics particularly of probability, statistics, and decision theory together with knowledge of financial mathematics and insurance, the expected passing of five actuarial exams, and the three required VEE credits, graduates of the program will be able to work as senior actuaries in insurance, consulting, finance, government, and emerging markets.

Program 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

The Master of Science in Actuarial Science (AS) Program at the University of Texas at Dallas is administered through the Department of Mathematical Sciences.

Course Requirements

The University’s general degree requirements are discussed on the Graduate Policies and Procedures page (catalog.utdallas.edu/2013/graduate/policies/policy).

The minimal total required number of classes for graduation is 36 semester credit hours. Among them, 27 hours of required courses and 9 semester credit hours of electives.

Required Courses: 27 hours

STAT 5351 Probability and Statistics I
STAT 5352  Probability and Statistics II
ACTS 6301  Theory of Actuarial Models: Life Contingencies
ACTS 6302  Theory of Actuarial Models: Financial Economics
ACTS 6303  Theory of Actuarial Models: Life Contingencies II
ACTS 6304  Theory of Actuarial Methods
ACTS 6305  Theory of Actuarial Methods II
ACTS 6306  Advanced Actuarial Applications
ACTS 6308  Advanced Actuarial Financial Mathematics

Prescribed Elective Courses: 9 hours

For the prescribed elective courses student chooses three of the following:

STAT 6337  Advanced Statistical Models
STAT 6329  Applied Probability and Stochastic Processes
STAT 6338  Advanced Statistical Methods II
STAT 6343  Experimental Design
STAT 6347  Applied Time Series Analysis
STAT 7338  Time Series Modeling and Filtering
STAT 6348  Applied Multivariate Analysis
STAT 6390  Topics in Statistics Level 6
STAT 7334  Nonparametric and Robust Statistical Methods
MATH 6313  Numerical Analysis
STAT 6331  Statistical Inference I
FIN 6301  Financial Management
FIN 6308  Regulation of Business and Financial Markets
FIN 6310  Investment Management
FIN 6314  Fixed Income Securities
FIN 6360  Options and Future Markets
FIN 6382  Numerical Methods in Finance
OPRE 6335  Risk and Decision Analysis
MECO 6303  Business Economics

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**ACCT 6305** Accounting for Managers

**POEC 7306** Macroeconomic Theory and Policy

**POEC 6321** Economics for Public Policy

### Preparation for Actuarial Exams

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):

- **Exam 1/P**: **STAT 5351** and **STAT 5352**
- **Exam 2/FM**: **ACTS 6308**
- **Exam 3L/MLC**: **ACTS 6301**
- **Exam 3F/MFE**: **ACTS 6302**
- **Exam 4/C**: **ACTS 6304**
- **Exam 5/FAP**: **ACTS 6306**

### Validation by Educational Experience (VEE) Credits

- **Applied Statistical Methods**: **STAT 6337** and **STAT 6347**
- **Corporate Finance**: **FIN 6301**
- **Economics**: **MECO 6303** and **POEC 7306**

1. Exam 1/P
2. Exam 3L/MLC, Part I
3. Exam 3F/MFE
4. Exam 3L/MLC, Part II
5. Exam 4/C, Part I
6. Exam 4/C, Part II
7. Exam 5/FAP
8. Exam 2/FM
9. VEE, Applied Statistical Methods
10. VEE, Corporate Finance
11. VEE, Economics

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