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

https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science
**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
**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):

1. **Exam 1/P**: [STAT 5351](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science) and [STAT 5352](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
2. **Exam 2/FM**: [ACTS 6308](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
3. **Exam 3L/MLC**: [ACTS 6301](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
4. **Exam 3F/MFE**: [ACTS 6302](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
5. **Exam 4/C**: [ACTS 6304](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
6. **Exam 5/FAP**: [ACTS 6306](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)

### Validation by Educational Experience (VEE) Credits

- **Applied Statistical Methods**: [STAT 6337](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science) and [STAT 6347](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
- **Corporate Finance**: [FIN 6301](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)  
- **Economics**: [MECO 6303](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science) and [POEC 7306](https://catalog.utdallas.edu/2013/graduate/programs/nsm/actuarial-science)

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