ACTUARIAL SCIENCES GRADUATE CERTIFICATE

Banner Code: SC-CERG-ACTS

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The Actuarial Sciences Graduate Certificate is designed to serve students and professionals who are interested in pursuing careers as actuaries. The course content provides students with specific training related to the following exams administered by the Society of Actuaries (SOA):

- Financial Mathematics Exam
- Long-Term Actuarial Mathematics Exam
- Short-Term Actuarial Mathematics Exam
- Statistics for Risk Modeling Exam
- Investment and Financial Markets Exam

The courses also provide a solid foundation for the corresponding Casualty Actuary Society (CAS) exams. Passing the first professional exam, i.e. the SOA Probability Exam, is equivalent to meeting the prerequisites for the certificate courses in the area of probability and statistics.

The Actuarial Sciences Graduate Certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (https://catalog.gmu.edu/admissions/graduate-policies/) section of this catalog. International students and students having earned international degrees should also refer to Admission of International Students (https://catalog.gmu.edu/admissions/international-students/) for additional requirements.

Eligibility

Students intending to pursue the Actuarial Sciences Graduate Certificate must have three semesters of calculus, a course in linear algebra (equivalent to MATH 203 Linear Algebra), a calculus-based course in probability (equivalent to MATH 351 Probability), and statistics (equivalent to MATH 352 Statistics). Passing the first professional exam, i.e. the SOA Probability Exam, is also sufficient preparation for this certificate.

Application Requirements

To apply for this certificate, prospective students should submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now/) and its required supplemental documentation, and three letters of recommendation.

The GRE is not required for admission into this certificate.

Policies

For policies governing all graduate certificates, see AP.6 Graduate Policies (http://catalog.gmu.edu/policies/academic/graduate-policies/).

Transferring Previous Graduate Credit into this Certificate

Previously earned and relevant graduate credits may be eligible for transfer into this certificate; details can be found in the Credit by Exam or Transfer (https://catalog.gmu.edu/policies/academic/graduate-policies/) section of this catalog.

Requirements

Certificate Requirements

Total credits: 18

This certificate may be pursued on a part-time basis only.

Students should refer to the Admissions & Policies tab for specific policies related to this certificate.

Core Courses

Code	Title	Credits
MATH 551	Regression and Time Series	3
MATH 553	Advanced Mathematical Statistics in Actuarial Sciences	3
MATH 554	Financial Mathematics	3
MATH 555	Actuarial Modeling I	3
MATH 557	Financial Derivatives	3
MATH 653	Construction and Evaluation of Actuarial Models I	3
Total Credits		18

Preparation for the SOA Exams

The graduate certificate coursework provides preparation for the SOA exams as follows:

MATH 551 Regression and Time Series and MATH 553 Advanced Mathematical Statistics in Actuarial Sciences combined: Statistics for Risk Modeling Exam

MATH 554 Financial Mathematics: Financial Mathematics Exam

MATH 555 Actuarial Modeling I: Long-Term Actuarial Mathematics Exam

MATH 557 Financial Derivatives: Investment and Financial Markets Exam

MATH 653 Construction and Evaluation of Actuarial Models I: Short-Term Actuarial Mathematics Exam

The SOA exams overlap significantly with the Casualty Actuarial Society ("CAS") exams.

Counting Actuarial Courses for Other Mathematics Degrees

A student enrolled in the Actuarial Sciences Graduate Certificate and another graduate degree program in mathematics can count actuarial

mathematics courses toward the master's or doctoral degree according to the following rules:

- None of the core actuarial mathematics courses can count toward the Mathematics, PhD (https://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-phd/)
- None of the actuarial mathematics courses MATH 551 Regression and Time Series, MATH 554 Financial Mathematics and MATH 655 Pension Valuation can count toward the Mathematics, MS (https://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-ms/)
- The two actuarial mathematics courses MATH 555 Actuarial Modeling I and MATH 653 Construction and Evaluation of Actuarial Models I, can count toward the Mathematics, MS (https://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-ms/) provided that all other courses counted toward that degree are MATH courses. An exception can be made if the student wishes to count only one of these two courses toward the Mathematics, MS (https://catalog.gmu.edu/colleges-schools/science/mathematical-sciences/mathematics-ms/). In this case, at most one other non-MATH course can be counted toward the degree with approval of the graduate coordinator. An additional exception is made if the student has completed the actuarial sciences certificate before being admitted to the MS degree program: in this case, any 4 of the 6 core courses can count toward the MS degree.

Counting Actuarial Courses toward the Statistical Science, MS Degree

A student enrolled in this certificate and in the Statistical Science, MS (http://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/statistics/statistical-science-ms/) can count MATH 555 Actuarial Modeling I as an approved non-STAT elective course and can count MATH 653 Construction and Evaluation of Actuarial Models I as a STAT elective when designing a curriculum for this degree. The full curriculum should be designed in consultation with the student's Statistics Department (http://catalog.gmu.edu/colleges-schools/engineering-computing/school-computing/statistics/) advisor.