Date Submitted: 11/12/18 12:44 pm

Viewing: SC-CERG-ACTS : Actuarial Sciences Graduate Certificate

Last approved: 04/09/18 12:42 pm

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Changes proposed by: jbazaz

Catalog Pages Using this Program

Actuarial Sciences Graduate Certificate

Are you completing this form on someone else's behalf?

Yes

Requestor:

In Workflow

1. **Registrar-Programs:Workflow Review**
2. **MATH Chair**
3. SC Curriculum Committee
4. SC Associate Dean
5. SC CAT Editor
6. Assoc Provost-Graduate
7. Registrar-Programs

Approval Path

1. 11/12/18 2:02 pm Tory Sarro (vsarro): Approved for Registrar-Programs:Workflow Review

History

1. Nov 10, 2017 by clmig-jwehrheim
2. Feb 7, 2018 by Rebekah Zacharias (rzachari)
3. Apr 9, 2018 by Rebekah Zacharias (rzachari)

Name	Extension	Email
Igor Griva	4511	igriva

Effective Catalog: 2019-2020

Program Level:	Graduate
Program Type:	Certificate
Degree Type:	Graduate Certificate
Title:	Actuarial Sciences Graduate Certificate
Banner Title:	**Actuarial Sciences Grad Cert**
Registrar/OAPI Use Only – SCHEV Status	Approved
Registrar's Office Use Only – Program Start Term	Fall 2018
Registrar/OAPI Use Only – SCHEV Letter	ACTS.pdf
Concentration(s):	
Registrar/IRR Use Only – Concentration CIP Code	
College/School:	College of Science
Department / Academic Unit:	Mathematical Sciences
Jointly Owned Program?	No

Justification

The Society of Actuaries has introduced a new required exam: Statistics for Risk Modeling. The Department of Mathematical Sciences would like to modify the required course sequence for Actuarial Sciences Graduate Certificate to reflect the changes in the SOA exam requirements.

Catalog Published Information

Total Credits Required:	Total credits: 18

Registrar's Office Use Only - Program Code:

SC-CERG-ACTS

Registrar/IRR Use Only – Program CIP Code

Admission Requirements:

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies section of this catalog. To apply for this program, please complete the George Mason University Admissions Application. Interested applicants must submit three letters of recommendation. GRE scores are not required. 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.** ~~Completion of~~ the SOA **Probability Exam,** ~~Exam P~~ is also **sufficient** ~~sufficient~~ preparation for the **certificate** ~~certificate~~ program.

Program-Specific Policies:

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies.

Degree Requirements:

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 ~~Electives~~

~~Course List~~

~~Code~~	~~Title~~	~~Credits~~
~~Select 6 credits from the following:~~		~~6~~
~~MATH 557~~	~~Financial Derivatives~~	
~~MATH 653~~	~~Construction and Evaluation of Actuarial Models I~~	
~~MATH 654~~	~~Construction and Evaluation of Actuarial Models II~~	
~~MATH 655~~	~~Pension Valuation (recommended only for students who wish to pursue a career as a pension actuary)~~	
~~Any other elective approved by the graduate committee and chosen in consultation with advisor.~~		
~~Total Credits~~		~~0~~

Course List

Code	Title	Credits
MATH 551	Regression and Time Series	3

Code	Title	Credits
MATH 553	**Advanced Mathematical Statistics in Actuarial Sciences**	**3**
MATH 554	Financial Mathematics	3
MATH 555	Actuarial Modeling I	3
~~MATH 556~~	~~Actuarial Modeling II~~	~~3~~
MATH 557	**Financial Derivatives**	**3**
MATH 653	**Construction and Evaluation of Actuarial Models I**	**3**
Total Credits		18

Preparation for the SOA ~~SOA, CAS, and EA~~ Exams

The graduate certificate coursework provides preparation for **the SOA** ~~SOA, CAS, and EA~~ 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. ~~MATH 655 Pension Valuation covers all of the EA-2A Exam material~~

~~**MATH 551 Regression and Time Series is the SOA VEE for Applied Statistics and is preparation for part of the CAS Exam 3MATH 554 Financial Mathematics covers most of the SOA Exam FM material as well as CAS Exam 2 and much of the EA-1 examMATH 555 Actuarial Modeling I and MATH 556 Actuarial Modeling II cover all of the Exam MLC material and most of the CAS Exam 3L as well as the remainder of the EA-1 examMATH 557 Financial Derivatives covers all of the SOA EXAM MFE materialMATH 653 Construction and Evaluation of Actuarial Models I and MATH 654 Construction and Evaluation of Actuarial Models II covers all of the SOA Exam C material as well as CAS Exam 4~~

Counting Actuarial Courses for Other Mathematics Degrees

A student enrolled in the Actuarial Sciences Graduate **Certificate and** ~~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** ~~following~~ actuarial mathematics courses can count toward the Mathematics, PhD
- ~~:~~

~~Course List~~

~~Code~~	~~Title~~	~~Credits~~
~~MATH 551~~	~~Regression and Time Series~~	~~3~~
~~MATH 554~~	~~Financial Mathematics~~	~~3~~
~~MATH 555~~	~~Actuarial Modeling I~~	~~3~~
~~MATH 556~~	~~Actuarial Modeling II~~	~~3~~
~~MATH 557~~	~~Financial Derivatives~~	~~3~~
~~MATH 653~~	~~Construction and Evaluation of Actuarial Models I~~	~~3~~
~~MATH 654~~	~~Construction and Evaluation of Actuarial Models II~~	~~3~~
~~MATH 655~~	~~Pension Valuation~~	~~3~~

None of the actuarial mathematics courses **MATH 551 Regression and Time Series, MATH 554 Financial Mathematics** ~~MATH 551 Regression and Time Series, MATH 554 Financial Mathematics,~~ and **MATH 655 Pension Valuation** ~~MATH 655 Pension Valuation~~ can count toward the Mathematics, MS

- ~~.~~ **The** ~~Up to~~ two ~~of the~~ actuarial mathematics courses **MATH 555 Actuarial Modeling I** ~~MATH 555 Actuarial Modeling I, MATH 556 Actuarial Modeling II, MATH 653 Construction and Evaluation of Actuarial Models I,~~ and **MATH 653 Construction and Evaluation of Actuarial Models I, can** ~~MATH 654 Construction and Evaluation of Actuarial Models II can~~ count toward the Mathematics, MS **provided** ~~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** ~~actuarial mathematics course from the list~~ toward the 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** ~~certificate~~ before being admitted to the MS degree program: in this case, **any 4** ~~up to four~~ of **the 6 core** ~~these~~ courses can count toward **the** ~~the~~ MS degree.

Counting Actuarial Courses toward the Statistical Science, MS Degree

A student enrolled in this **certificate** ~~certificate~~ and in the Statistical Science, MS **can count MATH 555 Actuarial Modeling I as an** ~~can count MATH 555 Actuarial Modeling I and MATH 556 Actuarial Modeling II as~~ approved non-STAT elective **course** ~~courses~~ and **can count MATH 653 Construction and Evaluation of Actuarial Models I as** ~~can count MATH 653 Construction and Evaluation of Actuarial Models I and MATH 654 Construction and Evaluation of Actuarial Models II as STAT electives when designing~~ a **STAT elective when designing a** curriculum for this degree. The full curriculum should be designed in consultation with the student's Statistics Department advisor.

Retroactive Requirements Updates:

Plan of Study:

Additional Program Information

This information is required by the Office of Accreditation and Program Integrity.

Courses offered via distance (if applicable):

Indicate whether students are able to pursue on a: Part-time basis

What is the primary delivery format for the program? Face-to-Face Only

Does any portion of this program occur off-campus?

No

Are you working with a vendor / other collaborators to offer your program?

No

Related Departments

Could this program prepare students for any type of professional licensure, in Virginia or elsewhere?

Yes

Please explain:

This certificate prepares students for exams needed to become an actuary (certification required).

Are you adding or removing a licensure component?

No

Additional SCHEV & SACSCOC Information

Are you changing the total number of credits required for this program?

Are you changing the delivery format in any way (e.g adding an online option)?

Are you adding/removing a licensure option which was approved by SCHEV?

Will any portion of this program be offered at an off-campus location?

Are you adding significant new content areas to the program?

Will this program change affect any specialized accreditation?

Green Leaf Program Designation

Is this a Green Leaf program? No

Does this program cover material which crosses into another department?

No

Additional Attachments

Reviewer Comments

Additional Comments

The changes may look more significant than they are as I cut and pasted from a Word document.

Is this course required of all students in this degree program?

%wi_required.eschtml%

Key: 305