



SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS
New Certificate

UNIVERSITY:	USD
TITLE OF PROPOSED CERTIFICATE:	Actuarial Sciences
INTENDED DATE OF IMPLEMENTATION:	Fall 2021
PROPOSED CIP CODE:	27.0101
UNIVERSITY DEPARTMENT:	Mathematical Sciences
BANNER DEPARTMENT CODE:	UMTH
UNIVERSITY DIVISION:	Arts and Sciences
BANNER DIVISION CODE:	2A

Please check this box to confirm that:

- The individual preparing this request has read [AAC Guideline 2.7](#), which pertains to new certificate requests, and that this request meets the requirements outlined in the guidelines.
- This request will not be posted to the university website for review of the Academic Affairs Committee until it is approved by the Executive Director and Chief Academic Officer.

University Approval

To the Board of Regents and the Executive Director: I certify that I have read this proposal, that I believe it to be accurate, and that it has been evaluated and approved as provided by university policy.

<i>Elizabeth M. Freeburg</i>	<u>5/4/2020</u>
Institutional Approval Signature	Date
<i>President or Chief Academic Officer of the University</i>	

1. Is this a graduate-level certificate or undergraduate-level certificate?

Undergraduate Certificate Graduate Certificate

2. What is the nature/ purpose of the proposed certificate? Please include a brief (1-2 sentence) description of the academic field in this certificate.

The purpose of this certificate is to provide a value added to the math major for students that desire to go into the field of Actuarial Sciences. Actuarial Sciences involves the calculation of risk using mathematical and statistical methods, and a background in this field will provide the skills needed for work in the insurance or financial services industries, among other areas.

3. If you do not have a major in this field, explain how the proposed certificate relates to your university mission and strategic plan, and to the current Board of Regents Strategic Plan 2014-2020.

The statutory mission of the University of South Dakota is provided in SDCL 13-57-1:
Designated as South Dakota's liberal arts university, the University of South Dakota, established and located at Vermillion, in Clay County, shall be under the control of the Board of Regents and shall provide undergraduate and graduate programs of instruction in the liberal arts and sciences and professional education in business, education, fine arts, law and medicine, and other courses or programs as the Board of Regents may determine.

The mission is provided in BOR Policy 1:10:1, University of South Dakota Mission Statement:

The legislature established The University of South Dakota as the liberal arts university to meet the needs of the State and region by providing undergraduate and graduate programs in the liberal arts and sciences, and professional education in business, education, fine arts, law, and medicine, and other courses or programs as the Board of Regents may determine. (SDCL 13-57-1).

The Board implemented SDCL 13-57-1 by authorizing undergraduate and graduate programs in the liberal arts and sciences and in professional education and by requiring the University to promote excellence in teaching and learning, to support research, scholarly and creative activities, and to provide service to the State of South Dakota, the region, and beyond. The University of South Dakota is the comprehensive university within the South Dakota System of Higher Education. Both the statutory mission and Board of Regents mission statement for the University of South Dakota designate the institution as the liberal arts university for the State of South Dakota and as the location of the Beacom School of Business. As such, USD is ideally suited to offer an interdisciplinary certificate that draws upon existing courses related to actuarial sciences.

4. Provide a justification for the certificate program, including the potential benefits to students and potential workforce demand for those who graduate with the credential.

The field of actuarial sciences has been a solid market for Mathematics majors for many years. It has a steady need and offers competitive salaries. US News reports on their website money.usnews.com/careers/best-jobs/actuary that Actuaries rank #11 in Best Business Jobs, #23 in Best Stem Jobs, #24 in Best Paying Jobs, and #54 in 100 Best Jobs. It also reports that in 2018 the average salary was \$102,880, the top quartile had an average salary of \$141,760, and the bottom quartile had an average salary of \$76,720.

5. Who is the intended audience for the certificate program (including but not limited to the majors/degree programs from which students are expected)?

Math majors (B.S.) and Economic majors with a math minor (B.B.A. and B.S.) would be the primary focus but other disciplines with a heavy math emphasis could also participate. The certificate includes prerequisite or appropriate substitution courses that are required for all majors in Mathematics or Economics with a Mathematics minor, and the certificate requirements will fit into the major requirements, allowing any major to complete the certificate with no additional credits.

6. Certificate Design

A. Is the certificate designed as a stand-alone education credential option for students not seeking additional credentials (i.e., a bachelor's or master's degree)? If so, what areas of high workforce demand or specialized body of knowledge will be addressed through this certificate?

No, this is not intended as a stand-alone credential.

B. Is the certificate a value added credential that supplements a student's major field of study? If so, list the majors/programs from which students would most benefit from adding the certificate.

Yes, Mathematics and Economics

C. Is the certificate a stackable credential with credits that apply to a higher level credential (i.e., associate, bachelor's, or master's degree)? If so, indicate the program(s) to which the certificate stacks and the number of credits from the certificate that can be applied to the program.

Yes, 3-6 credits can be used as elective credits for the Mathematics major, and 6 credits can be used toward the Economics major.

7. List the courses required for completion of the certificate in the table below (if any new courses are proposed for the certificate, please attach the new course requests to this form).

Prefix	Number	Course Title	Prerequisites for Course <i>Include credits for prerequisites in subtotal below.</i>	Credit Hours	New (yes, no)
Required Course					
MATH/STAT	481	Probability and Statistics	MATH 225*	3	
Elective Courses (Select 3 of 5)					
ECON	201	Principles of Microeconomics		3	No
ECON	202	Principles of Macroeconomics		3	No
ACCT	210	Principles of Accounting I		3	No
BADM	310	Business Finance	ACCT 211*	3	No
MATH/STAT	485	Theory of Statistics		3	No
				Subtotal	12

*Note prerequisites will be met in coursework from students with B.S. in Mathematics or B.S. or B.B.A. in Economics with a Mathematics minor.

8. Student Outcome and Demonstration of Individual Achievement.

A. What specific knowledge and competencies, including technology competencies, will all students demonstrate before graduation? The knowledge and competencies should be specific to the program and not routinely expected of all university graduates.

- Students will learn the basic knowledge and terms that are required in the field of Actuarial Sciences.
- Students will learn the knowledge and competencies to pass the first actuarial exam in probability.
- Students will learn the knowledge and competencies to help prepare for the second actuarial exam on financial mathematics.

B. Complete the table below to list specific learning outcomes – knowledge and competencies – for courses in the proposed program in each row.

Individual Student Outcome (Same as in the text of the proposal)	Program Courses that Address the Outcomes					
	MATH/STAT 481*	ECON 201	ECON 202	ACCT 210	BADM 310	MATH/STAT 485
learn the basic knowledge and terms that are required in the field of Actuarial Sciences	X	X	X	X	X	X
learn the knowledge and competencies to pass the first actuarial exam in probability	X					X
Students will learn the knowledge and competencies to help prepare for the second actuarial exam on financial mathematics		X	X	X	X	

9. Delivery Location.

Note: The accreditation requirements of the Higher Learning Commission (HLC) require Board approval for a university to offer programs off-campus and through distance delivery.

A. Complete the following charts to indicate if the university seeks authorization to deliver the entire program on campus, at any off campus location (e.g., UC Sioux Falls, Capital University Center, Black Hills State University-Rapid City, etc.) or deliver the entire program through distance technology (e.g., as an on-line program)?

	Yes/No	Intended Start Date
On campus	Yes	Fall 2020

	Yes/No	If Yes, list location(s)	Intended Start Date
Off campus	No		

	Yes/No	If Yes, identify delivery methods <i>Delivery methods are defined in AAC Guideline 5.5.</i>	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		
Does another BOR institution already have authorization to offer the program online?	No	If yes, identify institutions:	

B. Complete the following chart to indicate if the university seeks authorization to deliver more than 50% but less than 100% of the certificate through distance learning (e.g., as an on-line program)? This question responds to HLC definitions for distance delivery.

	Yes/No	If Yes, identify delivery methods	Intended Start Date
Distance Delivery (online/other distance delivery methods)	No		