The completed and signed proposal should be submitted by the Dean's Office to: curriculumplanning@asu.edu.

Before academic units can advertise undergraduate certificates or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and the University Senate, and be approved by the Office of the University Provost.

Definition and minimum requirements:

These are the minimum requirements for approval. Individual undergraduate certificates may have additional requirements.

An undergraduate certificate is a programmatic or linked series of courses from a single field or one that crosses disciplinary boundaries and may be free-standing or affiliated with a degree program. The certificate provides a structured and focused set of courses that can be used to enhance a student’s baccalaureate experience or professional development.

An undergraduate certificate program:

- Requires a minimum of 15 semester hours of which at least 12 semester hours must be upper division
- Requires a minimum grade of “C” or better for all upper division courses
- Consists of courses that must directly relate in whole or large part to the purpose of the certificate. Example: Geographic area certificates must include only courses specific to the title of the certificate, other than a non-English language
- Is cross disciplinary; or,
  - Certified by a professional or accredited organization/governmental agency; or,
  - Clearly leads to advanced specialization in a field; or,
  - Is granted to a program that does not currently have a major

College/School/Institute: College of Liberal Arts and Sciences
Department/Division/School: School of Mathematical and Statistical Sciences
Proposed Certificate Name: Analysis and Management of Insurance Risk
Requested effective Date: 2017-18
Delivery method: On-campus only (ground courses and/or iCourses)

Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.

Campus/Locations:
Indicate all locations where this program will be offered.
- ☐ Downtown
- ☐ Polytechnic
- ☒ Tempe
- ☐ Thunderbird
- ☐ West
- Other:

Proposal Contact
Name: Jelena Milovanovic
Phone number: 480-965-0064
Title: Professor of Practice
Email: jmz@asu.edu

DEAN APPROVAL(S)

This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.

College/School/Division Dean name: Paul Lepone
Signature: [Signature]
Date: 2/20 MMDD, YYYY

Note: An electronic signature, an email from the dean or dean’s designee, or a PDF of the signed signature page is acceptable.
1. Overview

A. Provide a brief description of the new certificate.
   Risk management is the identification, assessment, and prioritization of risks followed by coordination and economic application of resources to minimize, monitor the probability and impact of unfortunate events or to maximize the realization of opportunity. Risk management's objective is to ensure that uncertainty does not deflect the endeavor from the stated business goals. As such, the certificate will produce well-rounded business assessors of such risk, ready to utilize their knowledge of mathematics, statistics, economics, marketing, business, finance, and accounting in an insurance career.

B. This proposed certificate (check one):
   - [ ] Is cross disciplinary; or
   - [ ] Is certified by a professional or accredited organization/governmental agency; or,
   - [x] Clearly leads to advanced specialization in a field; or,
   - [ ] Is granted to a program that does not currently have a major.

C. Why should this be a certificate rather than a concentration or a minor?
   In addition to current students, this industry is full of professionals who will value the opportunity to obtain insurance expertise specific to risk management and the designated governing societies such as Charted Property Casualty Underwriters (CPCU), American Association of Managing General Agents (AAMGA) and others. In order to make that program accessible to post-baccalaureate and graduate students it is important that this program stand alone.

D. Affiliation
   If the certificate program is affiliated with a degree program, include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at ASU.
   This certificate would be attractive to students in degrees related to actuarial science, such as, Mathematics, Applied Mathematics, Finance, Economics and Business. It would be appropriate for students seeking certification from CPCU (Charted Property Casualty Underwriters) as well as preparing them for the State of Arizona's Department of Insurance Property and Casualty exam and the State of Arizona's Department of Insurance Life and Health Insurance exam.

E. Demand
   Explain the need for the new certificate (e.g., market demand, interdisciplinary considerations).
   Insurance has proven to be one of the most stable industries, surviving multiple recessions with the most recent being in 2008. With the aging workforce demographic, it has been projected that 400,000 employees will retire within the next 10 years. With the current replacement ratio of approximately 10%, there is a need to raise awareness of the career opportunities in insurance which range from sales, underwriting, claims, IT, and several others which will prepare our undergraduate students in their future career endeavors in insurance. This certificate will equip students with the skillset needed to embark in an entry level career in insurance.

F. Projected enrollment
   What are enrollment projections for the first three years?

<table>
<thead>
<tr>
<th></th>
<th>1st Year</th>
<th>2nd Year</th>
<th>3rd Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students (Headcount)</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
</tbody>
</table>
2. Support and Impact

A. Faculty governance
   Provide a supporting letter from the chair of the academic unit verifying that the proposed certificate has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the certificate as presented in the proposal, without impacting core program resources.

   See attached letter from Dr. Al Boggess, Director, School of Mathematical and Statistical Sciences

B. Other related programs
   Identify other related ASU programs and outline how the new certificate will complement these existing ASU programs. (If applicable, statements of support from potentially-affected academic unit administrators need to be included with this proposal submission.)
   Risk management experts come from an array of different undergraduate programs. Students completing degrees in Finance, Economics, Accounting, Actuarial Sciences, Marketing, Mathematics, and Business will be able to add this certificate ensuring that they have training in risk management and analysis specific skills.

C. Letter(s) of support
   Provide a supporting letter from each college/school dean from which individual courses are taken.

   See attached email from Dr. Kay Faris, Senior Associate Dean of Academic Programs, W. P. Carey School of Business
3. **Academic Curriculum and Requirements**

**A. Knowledge, competencies, and skills**

List the knowledge, competencies, and skills (learning outcomes) students should have when they complete this proposed certificate. Examples of program learning outcomes can be found at [http://www.asu.edu/oue/assessment.html](http://www.asu.edu/oue/assessment.html).

Graduates of the Certificate in Analysis and Management of Insurance Risk will:

1. Be able to analyze and manage financial risks with a combination of mathematical and statistical modeling techniques according to economic and financial principles.
2. Be well prepared for credentialing risk management exams administered by the CPCU, AAMGA, and State of Arizona.

**B. Admissions criteria**

List the admissions criteria for the proposed certificate. If they are identical to the admission criteria for the existing major and degree program under which this certificate will be established, please note that here.

Students must be admitted to an undergraduate degree program or already have a bachelor’s degree from ASU or another institution in order to enroll in the certificate. In order to be admitted to the university, complete the Office of Admission online application. Please contact the unit for additional information.

**C. Curricular structure**

Provide the curricular structure for this certificate. Be specific in listing required courses and specify the total minimum number of hours required for the certificate.

**Required certificate courses**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Number</th>
<th>Title</th>
<th>Is this a new Course?</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>301</td>
<td>Risk Management and Insurance</td>
<td>No</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective certificate courses (Choose 12 hours from the list of approved courses below)**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Number</th>
<th>Title</th>
<th>Is this a new Course?</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>201</td>
<td>Introduction to Elements and Techniques of Actuarial Science</td>
<td>No</td>
<td>3</td>
</tr>
<tr>
<td>ACT</td>
<td>302</td>
<td>Fundamentals of Enterprise Risk Management</td>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>ACT</td>
<td>320</td>
<td>Property and Casualty Insurance</td>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>ACT</td>
<td>330</td>
<td>Life and Health Insurance</td>
<td>Yes</td>
<td>3</td>
</tr>
<tr>
<td>ACT</td>
<td>484</td>
<td>Internship</td>
<td>No</td>
<td>3</td>
</tr>
<tr>
<td>CIS</td>
<td>308</td>
<td>Advanced Excel in Business</td>
<td>No</td>
<td>3</td>
</tr>
</tbody>
</table>

**Section sub-total:** 12

**Section sub-total:** 3
Other certificate requirements

**E.g.** – Capstone experience, internship, clinical requirements, field studies, foreign language skills as applicable

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section sub-total:</strong></td>
</tr>
<tr>
<td><strong>Total minimum credit hours required for certificate</strong></td>
</tr>
</tbody>
</table>

D. Minimum residency requirement

How many hours of the certificate must be ASU credit?

15

E. New Courses

Provide a brief course description for each new course.

**ACT 302: Fundamentals of Enterprise Risk Management (3):** This course examines in detail the Enterprise Risk Management (ERM) as a decision support system that helps organizations understand risk and assure the achievement of their goals. The course intends to provide understanding of what risk is and what does an ERM process look like for organizations including some common challenges and pitfalls of institutionalizing an ERM culture.

**ACT 320 Property and Casualty Insurance (3):** This course examines the fundamental principles and uses of property and casualty insurance. Detailed examination of contracts, rating, underwriting, regulation, and financial strength of insurers is also included. In particular, attention is devoted to the role of property and casualty insurance in addressing the economic and social problems encountered by businesses. Furthermore, this course will also assist in the preparation to take the State of Arizona’s Department of Insurance Property & Casualty exam.

**ACT 330 Life and Health Insurance (3):** This is a course designed to develop an understanding of life and health insurance and the place of those products in the risk management plans of individuals and businesses. In particular, attention is devoted to the role of life and health insurance in addressing the economic and social problems encountered by individuals and businesses. Furthermore, this course will prepare the students to take the State of Arizona’s Department of Insurance Life and Health Insurance exam.

Note: All new required courses should be submitted in Curriculum Changemaker and ready for Provost’s Office approval before this certificate is put on Curriculum and Academic Programs Committee (CAPC) agenda.
4. Administration and Resources

A. Administration
   How will the proposed certificate be administered (including admissions, student advisement, retention, etc.)?
   Certificate administration will be housed within the School of Mathematical and Statistical Sciences.

B. Resources
   What are the resource implications for the proposed certificate, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this certificate please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this certificate.

   No new resources will be required.

C. Primary Faculty
   List the primary faculty participants regarding this proposed certificate. For interdisciplinary certificates, please include the relevant names of faculty members from across the University.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Area(s) of Specialization as they relate to proposed certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jelena Milovanovic</td>
<td>Professor of Practice</td>
<td>PhD, workplace actuary experience</td>
</tr>
<tr>
<td>May Boggess</td>
<td>Associate</td>
<td>PhD, workplace pension actuary experience</td>
</tr>
<tr>
<td>Matt Hassett</td>
<td>Adjunct</td>
<td>PhD, workplace health actuarial experience</td>
</tr>
<tr>
<td>John Zicarelli</td>
<td>Professor of Practice</td>
<td>PhD, workplace property and casualty actuarial experience</td>
</tr>
<tr>
<td>Petar Jevtic</td>
<td>Assistant Professor</td>
<td>PhD, research focus in life insurance</td>
</tr>
</tbody>
</table>

5. Additional Materials

A. Complete and attach the Appendix document.

B. Provide one or more model programs of study (if appropriate).

C. Attach other information that will be useful to the review committees and the Office of the Provost.

PROVOST OFFICE APPROVAL(S)

This proposal has been approved by all necessary Provost office levels of review. I recommend implementation of the proposed organizational change.

Office of the University Provost

Signature: ___________________________   Date: _____/_____/20

Note: An electronic signature, email, or a PDF of the signed signature page is acceptable.
APPENDIX
OPERATIONAL INFORMATION FOR UNDERGRADUATE CERTIFICATES
(This information is used to populate the Degree Search/catalog website.
Please consider the student audience in creating your text.)

A. Proposed Certificate Name:
Analysis and Management of Insurance Risk

B. Description (150 words maximum)
Risk management is the identification, assessment and prioritization of risks that is followed by coordination and economic application of resources to minimize risk and monitor the probability and impact of unfortunate events, or to maximize the realization of opportunity. The objective of risk management is to assure uncertainty does not deflect the endeavor from the business goals. The certificate program helps students become well-rounded business assessors of risk, ready to utilize their knowledge of mathematics, statistics, economics, marketing, business, finance and accounting in an insurance career.

C. Contact and Support Information
Building Name, code and room number: (Search ASU map) WXLR 211
Program office telephone number: (i.e. 480/965-2100) 480/965-7195
Program Email Address: math@asu.edu
Program Website Address: https://math.asu.edu

D. Program Requirements: Provide applicable information regarding the program such as curricular restrictions or requirements, specific course lists, or academic retention requirements.
The certificate requires 15 credit hours from the approved course list with the only required course being ACT 301.

Required course (3 credit hours):
ACT 301 Risk Management and Insurance (3)

Elective courses (12 credit hours; choose four):
ACT 201 Introduction to Elements and Techniques of Actuarial Science (3)
ACT 302 Fundamentals of Enterprise Risk Management (3)
ACT 320 Property and Casualty Insurance (3)
ACT 330 Life and Health Insurance (3)
ACT 484 Internship (3)
CIS 308 Advanced Excel in Business (3)

Depending on a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this certificate.

E. Additional Admission Requirements If applicable list any admission requirements (freshman and/or transfer) that are higher than and/or in addition to the university minimum undergraduate admission requirements.)

Students must hold a minimum GPA of 2.50 to pursue this certificate and have completed the following prerequisite courses at ASU or an equivalent institution with a grade of “C” or better (scale is 4.00 = “A”):

CIS 105 Computer Applications and Information Technology (3) or equivalent
ECN 211 Macroeconomic Principles (3) or ECN 212 Microeconomic Principles (3)
MAT 210 Brief Calculus (3)
STP 226 Elements of Statistics (3) or ECN 221 Business Statistics (3)

Students must be admitted to an undergraduate degree program or already have a bachelor’s degree from ASU or another institution in order to enroll in the certificate. Applicants should contact the unit for additional information.

F. Delivery/Campus Information Delivery: On-campus only (ground courses and/or iCourses)

Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.
G. **Campus/Locations:**
   Indicate all locations where this program will be offered.
   
   - [ ] Downtown
   - [ ] Polytechnic
   - [x] Tempe
   - [ ] Thunderbird
   - [ ] West
   - [ ] Other:

Rev. 2/2016
MEMORANDUM

To: Dr. Paul LePore, Associate Dean
   College of Liberal Arts and Sciences

From: Al Boggess, Director, School of Mathematical and Statistical Sciences

Re: Support Letter for Certificate in Analysis and Management of Insurance Risk

Date: February 6, 2017

This is a strong letter of support for the proposed SoMSS Certificate in Analysis and Management of Insurance Risk. This certificate is a natural outgrowth of our recent and very successful degree program in actuarial science. This certificate will add value to many existing degree programs including those in mathematics, statistics, finance, economics and business. Students who successfully complete this certificate will enhance their marketability in insurance, the financial sector, and in many other industries. We’ve been hiring faculty in actuarial science and have the support of our local industrial advisory board. Thus, we will have adequate personnel to offer this certificate program.

The certificate has the support of our undergraduate program committee, which is charged with overseeing the undergraduate programs and course offerings within SoMSS as consistent with our bylaws. The certificate lists CIS 308, taught by the W.P. Carey School of Business, as one of the optional courses for this certificate. This listing has the support W.P. Carey as indicated by the accompanying e-mail from Dr. Kay Faris, Senior Associate Dean of Academic Programs in W.P. Carey.

Please let me know if you have any questions or concerns about this proposed certificate.

CC: Dr. Don Jones, Associate Director of Undergraduate Programs, SoMSS
   Dr. Jelena Milovanovic, Coordinator of Actuarial Science, SoMSS
Hi Al,

W. P. Carey is happy to support your request to use CIS 308 in the Certificate in Analysis and Management of Risk Insurance. We should be able to accommodate the expected demand from students.

Please let me know if you have additional questions.

Thanks,

Kay

Kay A. Faris
Senior Associate Dean, Academic Programs
W. P. Carey School of Business
Arizona State University
Tempe, AZ 85287-3406
Phone: 480-965-7587
Fax: 480-965-3846
Kay.Faris@asu.edu
From: Albert Boggess [mailto:boggess@asu.edu]
Sent: Thursday, February 02, 2017 3:44 PM
To: Kay Faris <KAY.FARIS@asu.edu>
Subject: certificate in Analysis and Management of Risk Insurance

Kay,

Can I have your approval (or that of your dean) to include CIS 308 as one of the electives on our newly proposed certificate in Analysis and Management of Risk Insurance? We anticipate a small number of students (15-25) per year at the beginning and perhaps double that in a two or three years. More details are attached in the attached proposal and list of courses.

A short email from you is all that is needed.

Thanks very much...

Al Boggess