New Program Proposal

Date Submitted: 04/07/17 11:14 am

Viewing MATH-CRTU : Actuarial Science

Last edit: 11/06/17 9:59 am

Changes proposed by: bayer

Academic Career: Undergraduate, Lawrence
Program Type: Certificate
Department/Program: Mathematics
School/College: College of Lib Arts & Sciences

Consulting
School(s)/College(s):
- College of Lib Arts & Sciences
- School of Business

Consulting
Department(s):
- Economics
- Business

CIP Code: 27.0502
Program Name: Actuarial Science

Do you intend to offer a track(s)?
No

Location(s) of Instruction: Lawrence

Do you intend for this program to be offered online?
No

Effective Catalog: 2018 - 2019

Program Description
This 12 credit undergraduate certificate will prepare students majoring in different programs to enter the actuarial field. The program requires four upper division courses from an approved list. Included are courses that prepare students for two actuarial exams and other courses that satisfy the Validation by Educational Experience requirements of the Society of Actuaries.

Demand/Need for the Program
There is significant interest among undergraduate students, particularly those majoring in mathematics or economics, in pursuing a career in actuarial science. This is reflected in enrollment in MATH 630 Actuarial Mathematics, which has had an average enrollment of 25 in the last six years. (Before then it was offered under a topics course number.)

Comparative/Locational Advantage

Washburn University is the one university in Kansas on the Society of Actuaries list of “Universities and Colleges with Actuarial Programs.” The undergraduate Actuarial Science program is a track within the bachelor’s in mathematics.

Kansas State University has an Actuarial Mathematics Program. It does not result in a major, minor or certification, but is a recommended selection of courses in the mathematics major.

The following universities in the region offer actuarial programs recognized as “Centers of Actuarial Excellence” by the Society of Actuaries: University of Iowa, Bachelor’s of Science in Actuarial Science from the department of Statistics and Actuarial Science; University of Nebraska, Bachelor of Arts or Bachelor of Science in Actuarial Science, from either the College of Arts & Sciences or the College of Business Administration, housed in the Finance Department; Drake University, Bachelor’s in Actuarial Science from the College of Business and Public Administration.

The courses we propose for the certificate program are well-established courses, taught for years with significant enrollment. We are well-positioned to offer a certificate program based on these courses. Completion of the certificate program will put our students in a competitive position in the field of actuarial science.

Admission Requirements

Degree Requirements

The Actuarial Science certificate requires completion of the following 12 hours:

- **MATH 627** Probability 
- or **MATH 727** Probability Theory
- **MATH 630** Actuarial Mathematics

Choose two courses from this list: (6)

- **MATH 526** Applied Mathematical Statistics I
- **MATH 628** Mathematical Theory of Statistics
- **MATH 728** Statistical Theory
- **MATH 611** Time Series Analysis
- **ECON 526** Introduction to Econometrics
- **ECON 715** Elementary Econometrics
- **FIN 310** Finance
- or **FIN 311** Finance, Honors

Faculty Profile

<table>
<thead>
<tr>
<th>Name of Faculty and Rank</th>
<th>Highest Degree</th>
<th>Number of Faculty FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyrone Duncan, Professor</td>
<td>PhD</td>
<td>.4</td>
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<tr>
<td>Zsolt Talata, Associate Professor</td>
<td>PhD</td>
<td>.5</td>
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<tr>
<td>Bozenna Pasik-Duncan, Professor</td>
<td>PhD</td>
<td>.2</td>
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<tr>
<td>Other tenured and tenure-track faculty teach relevant courses, which are part of our regular curriculum.</td>
<td>PhD</td>
<td>.2</td>
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Student Profile

<table>
<thead>
<tr>
<th>Anticipated student enrollment</th>
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<tr>
<td><strong>Full Time</strong></td>
<td><strong>Part Time</strong></td>
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<tr>
<td>Year 1</td>
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<td>Year 3</td>
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<table>
<thead>
<tr>
<th>Anticipated number of program graduates</th>
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<tbody>
<tr>
<td>After 5 Years</td>
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<tr>
<td>After 7 Years</td>
<td>42</td>
</tr>
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</table>

Academic Support

No additional academic support is needed. The undergraduate certificate uses courses that we are already offering on a regular basis.

Facilities and Equipment

No additional facilities and equipment are needed. The undergraduate certificate uses courses that we are already offering on a regular basis.

Program Review, Assessment, Accreditation

We will collect data on the completion rate of the certificate requirements, on the success of the students in the Actuarial Exams (Probability and Financial Mathematics) and on the placement of graduates in actuarial positions. From this we will determine if changes need to be made in
the courses. Once the certificate has been established we can apply to the Society of Actuaries to have the University of Kansas listed as a University with Actuarial Program.

**Costs, Financing**

<table>
<thead>
<tr>
<th></th>
<th>Salaries</th>
<th>OOE</th>
<th>Equipment</th>
<th>Other</th>
<th>TOTAL</th>
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</thead>
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<td>Year 3</td>
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</tbody>
</table>

What is the source of the new funds?

No new funds are needed. The undergraduate certificate uses courses that we are already offering on a regular basis.

**Rationale for proposal**

This program will highlight students' background for pursuing careers in actuarial science, which many Mathematics and Economics majors already obtain. Since MATH 627 Probability and MATH 630 Actuarial Mathematics help to prepare students for actuarial exams, these are required for the certificate. Students can select from courses MATH 605, MATH 611, ECON 526 and FIN 310, which are approved by the Society of Actuaries as contributing to actuarial credentials, as well as statistics courses.

**Additional Information**

This certificate program has been approved by the Mathematics Department. We have consulted with Economics and Business, which agree to have their courses included.

MATH 526, ECON 526, ECON 715 and FIN 310 are offered every semester. MATH 627, 628, 630, 727, and 728 are offered once per year. MATH 605 and 611 are each offered twice every three years.

**Supporting Documents**

**Bridget Bradley (bbradley) (09/11/17 1:59 pm):** Sent to Dean Lejuez for 1st approval on 9.11.17

**Bridget Bradley (bbradley) (10/03/17 8:37 am):** Approved to move forward to Provost's office and CUSA subcomittee by Carl Lejuez.

**Christopher Anderson (cwanders) (11/06/17 10:16 am):** FIN 310 Finance and FIN 311 Finance (Honors) are substitutes for each other. Perhaps they should not be listed separately on a list from which two (2) courses must be selected.

**Karen Ledom (kjh) (11/10/17 10:10 am):** As a part of the consultation process, the Chair of Economics noted that although MATH 628 and MATH 728 are different courses, there are enough similarities that perhaps the department should reconsider whether both can fulfill the two course requirement in the same area.
Program Change Request

New Program Proposal

Viewing: PHIL-CRTU : Logic and Formal Reasoning

Date Submitted: 02/21/17 4:14 pm

Changes proposed by: c950m757

Academic Career: Undergraduate, Lawrence
Program Type: Certificate
Department/Program: Philosophy
School/College: College of Lib Arts & Sciences

Consulting School(s)/College(s):

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<th>Department(s)</th>
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<td>Electrical Engr &amp; Computer Sci</td>
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<tr>
<td>Mathematics</td>
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<tr>
<td>Economics</td>
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CIP Code: 51.1005
Program Name: Logic and Formal Reasoning

Do you intend to offer a track(s)?
No

Location(s) of Instruction: Lawrence

Do you intend for this program to be offered online?
Yes

Other Resources
Describe Other Resources
Some courses may be available online. For example, PHIL 310 is occasionally offered online, with instruction primarily via Blackboard.

Effective Catalog: 2018 - 2019

Program Description

In Workflow

A. CLAS Dean or Associate Dean
B. Provost's Office
C. CLAS Undergraduate Program and Course Coordinator
D. CUSA Subcommittee
E. CUSA Committee
F. CAC
G. CLAS Final Approval
H. OIRP CIP Approval
I. Provost's Office
J. Future Academic Catalog

Approval Path

A. 10/03/17 8:37 am
Bridget Bradley (bbradley): Approved for CLAS Dean or Associate Dean

B. 11/06/17 10:01 am
Aileen Ball (aball): Approved for Provost's Office

C. 11/10/17 9:58 am
Karen Ledom (kjh): Approved for CLAS Undergraduate Program and Course Coordinator

D. 11/10/17 10:01 am
Karen Ledom (kjh): Approved for CUSA Subcommittee

https://next.catalog.ku.edu/courseleaf/approve/
The certificate in Logic and Formal Reasoning will provide students with the opportunity to engage in a series of courses unified around the idea that logic and formal reasoning is a general skill, useful in a wide variety of academic contexts and applications. We have several courses in the Philosophy Department that emphasize this fact, and we believe that a certificate program will help students to seek courses in other departments that share this view. In consultation with the departments mentioned, students can complete a program with enough range to satisfy their individual interests while remaining specific enough to ensure that students who complete the certificate will be well-versed in particular, formal methods.

**Demand/Need for the Program**

A large number of philosophy students from both PHIL 148 and PHIL 310 have expressed interest in taking more courses that deal with logic and formal reasoning. When consulting other departments about the possibility of this certificate, we were met with enthusiastic responses. Additionally, we believe range of courses sufficient to satisfy the certificate will be appealing to both students who are primarily focused or majoring in philosophy, as well as students who are interested in an interdisciplinary approach to completing the program.

**Comparative/Locational Advantage**

We are unaware of any comparable programs in the state. Virtually all philosophy departments offer formal logic, but none in the region offer an interdisciplinary program focusing on logic and formal reasoning.

**Admission Requirements**

As a certificate program, the certificate will be available to any student who is able to complete the courses.

**Degree Requirements**

The rationale is that requirement 1 is an introductory course, requirement 2 is a necessary symbolic logic course, and requirement 3 comprises two advanced courses.

**Introductory Course - choose one of the following (or another by permission):**

- EECS 210: Discrete Structures
- MATH 450: Discrete Mathematics
- PHIL 148: Reason and Argument

**Symbolic Logic**

- PHIL 310: Introduction to Symbolic Logic

**Advanced Course - choose two of the following courses (or others by permission):**

- MATH 500: Intermediate Analysis
- MATH 558: Introductory Modern Algebra
- PHIL 610: Symbolic Logic
- PHIL 666: Rational Choice Theory
- ECON 590: Game Theory

**Faculty Profile**

<table>
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<th>Name of Faculty and Rank</th>
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<td>Corey Maley, Assistant Professor</td>
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<tbody>
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**Academic Support**

None

**Facilities and Equipment**

None

**Program Review, Assessment, Accreditation**

None

**Costs, Financing**

<table>
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</table>

What is the source of the new funds?

None

Rationale for proposal

We hope to provide students with an interest in formal logic and reasoning the opportunity to have a university-recognized, potentially interdisciplinary mechanism to pursue their interest using the resources from several different departments.

Additional Information

Supporting Documents

Email support from EECS for Logic and Formal Reasoning Certificate.pdf
Email support from MATH for Logic and Formal Reasoning Certificate.pdf
Email support from ECON for Logic and Formal Reasoning Certificate.pdf

Program Reviewer Comments

Bridget Bradley (bbradley) (02/21/17 3:46 pm): Sending back to department for specific course requirements. Even though this is not a degree. The degree requirements parts is need so that we know how students will complete certificate.

Bridget Bradley (bbradley) (02/21/17 3:47 pm): Rollback: Hi Corey - I'm sending this back since we will need to see specific course requirements under the degree requirements box. I know it is confusing since it is called "degree" requirements but that is where you will list the class requirements. Please let me know if you have any questions! Bridget

Bridget Bradley (bbradley) (09/11/17 1:58 pm): Sent to Dean Lejuez for 1st approval on 9.11.17

Bridget Bradley (bbradley) (10/03/17 8:37 am): Approved to move forward to Provost's office and CUSA subcomittee by Carl Lejuez.