**UNIVERSITY OF MARY WASHINGTON – PROGRAM CHANGE PROPOSAL**

Electronically submit this completed form with attachments in one file to the Chair of the College Curriculum Committee.

**COLLEGE (check one):**
- Arts and Sciences [✓]
- Business
- Education

Proposal Submitted By: Julius N. Esunge
Date Prepared: 08/29/2013

Department /Program: Mathematics

Note: For any program change entailing the addition of any new courses, or revisions to existing courses, separate proposal for those course actions must also be submitted.

### PROPOSAL TO CHANGE EXISTING PROGRAM

(check no more than one of the following)

- Revise requirements for existing major
- Revise requirements for a concentration within an existing major
- Revise requirements for an existing degree program
- Revise requirements for existing certificate program
- Revise requirements for existing minor

Implementation Date: FALL semester, year:

### REQUIRED ATTACHMENTS FOR CHANGES TO EXISTING PROGRAMS:

1. **Rationale statement** (Why is this program change needed? What purposes will it serve?)
2. **Impact Statement** (Provide details about the Library, space, budget, technology, and impacts created by this program change. Supporting statements from the Library, IT Department, etc. evaluating the resource impact and feasibility of the program change are required.)
3. **Catalog Copy** (Provide the existing Catalog Description and the complete statement of the proposed new Catalog description that reflects the program changes)

### PROPOSAL TO CREATE NEW PROGRAM NOT REQUIRING STATE ACTION

(check no more that one of the following)

- New concentration within existing major Name:
- New minor Name: Actuarial Science
- New Major but NOT a new degree* Name:

*Use ONLY for interdisciplinary majors that will be grouped as part of the “Special Majors/General Liberal Arts and Sciences” degree (CIP Code 24.0101) or reported as a BLS degree (CIP Code 24.0199)

Implementation Date (semester and year): Fall 2014

### REQUIRED ATTACHMENTS FOR NEW PROGRAMS NOT REQUIRING STATE APPROVAL:

1. **Rationale statement** (Why is this additional program needed? What purposes will it serve?)
2. **Impact Statement** (Provide details about the Library, space, budget, technology, and impacts created by this program change. Supporting statements from the Library, IT Department, etc. evaluating the resource impact and feasibility of adding the new program are required.)
3. **Catalog Copy** (Provide the complete Catalog Description for the proposed new program)

**Department Chair Approval:** Keith E. Mellinger ___________________________ Date: 09/06/2013

**CCC Chair Approval:** ___________________________ Date: ______________

**Dean Approval:** ___________________________ Date: ______________

**UCC Chair Approval:** ___________________________ Date: ______________

**Provost Approval: ___________________________ Date: ______________**

*Required only in cases of proposals for new concentrations, new minors, or new majors that do not involve a new degree.
To: Tim O’Donnell, Chair
Curriculum Committee

From: Keith E. Mellinger, Chair
Department of Mathematics

Re: Proposed Minor in Actuarial Science

The Department of Mathematics is proposing a new minor to be offered starting in the fall of 2014. Please find our required comments below.

1. **Rationale Statement:** In recent years, there has been a steady stream of students requesting assistance with actuarial examination preparation, as well as many showing a keen interest to undertake focused study in this discipline. In this connection, Julius Esunge successfully directed a special major in Financial Mathematics, and another in Actuarial Mathematics. Establishing a minor in actuarial science will not only serve the needs of current students, but would also prove very attractive to prospective students. Interest in the actuarial profession continues to grow nationwide, especially in the wake of consistent rankings of actuary as one of the top paying jobs in the nation. This interdisciplinary minor is expected to attract majors with diverse backgrounds, for instance, mathematics, economics and business.

2. **Impact Statement:** We believe that the proposed minor would not create significant strain on our current resources. All courses required for this minor are already on UMW’s books. The anticipated increases in enrolment, and course offerings in our department, would be covered by the new tenure track line awarded to us in fall 2012, for which we had a successful hire. Further, this minor has received input from faculty in other departments, especially those contributing a significant number of courses, and whose students are likely to benefit from it.

3. **Catalog Copy:** The minor in actuarial science provides students with the necessary background coursework for careers in a field whose demand is constantly on the rise. The minor is open to students from all majors. It offers an opportunity for students to develop the skills expected of entry level actuaries; equipping them with the tools to help companies and businesses to better anticipate and manage risk. This minor also provides reasonable preparation for the first two actuarial examinations.

**Requirements for Actuarial Science Minor**

A total of 21 to 22 credits is required, as detailed below:

**A1: Prerequisite Courses**
- MATH 121, 122 (6) - Calculus 1 & 2

**B1: Required Courses** – 15 credits
- MATH 223 (3) – Calculus 3
- MATH 381 (3) – Probability and Statistical Inference 1
• MATH 481 (3) – Theory of Interest
• ECON 201 (3) – Principles of Macroeconomics
• ECON 202 (3) – Principles of Microeconomics

C1: Electives – 6 or 7 credits from the following:

• BUAD 331 (3) – Intermediate Accounting 1
• BUAD 332 (3) – Intermediate Accounting 2
• CPSC 310 (4) – Computer Information Systems
• ECON 301 (3) – Mathematical Economics
• ECON 303 (3) – Microeconomics
• ECON 304 (3) – Macroeconomics
• ECON 321 (3) – Money and Banking
• ECON 322 (3) – Investment Analysis
• MATH 351(3) – Numerical Analysis 1
• MATH 352 (3) – Numerical Analysis 2
• MATH 382 (3) – Probability and Statistical Inference 2