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.

<table>
<thead>
<tr>
<th>COLLEGE (check one):</th>
<th>Arts and Sciences</th>
<th>Business</th>
<th>Education</th>
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</thead>
<tbody>
<tr>
<td>Proposal Submitted By:</td>
<td>Jackie Gallagher</td>
<td>Date Prepared: 10/31/2016</td>
<td></td>
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<tr>
<td>Department /Program:</td>
<td>Geography / GIS Certificate</td>
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Note: for any program change entailing the addition 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 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 | x |
| Revise requirements for existing minor |
| Implementation Date: FALL semester, year: | Fall 2017 |

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: |
| 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): |

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, staffing and curricular 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)
4. Any change that impacts another Department must have a written statement (such as a copy of an email) from the Chair(s) agreeing to the change.

Department Chair Approval: Jackie Gallagher | Date: 10/31/2016

CCC Chair Approval: Surupa Gupta | Date: 11/21/2016

Dean Approval: Richard Finkelstein | Date: 11/22/16

UCC Chair Approval: Patricia Reynolds | Date: 12/12/2016

*Provost Approval: | Date: 12/12/2016

*Required only in cases of proposals for new concentrations, new minors, or new majors that do not involve a new degree
Rationale Statement

This revision to the Geographic Information Science Certificate aims to do three things:

1. To set the number of credits for the certificate at 19, a change from a minimum of 18 and a maximum of 24.
2. To add another elective to the certificate – a new course proposal has been simultaneously submitted by Dr. Ping Yin. This is GISC 482, Web GIS: Concepts and Applications, 4-credits.
3. To reflect a proposal to change the number of credits in GISC 471 from 1-6 to 4.

One of the requirements for the certificate can be fulfilled with a course that is currently pending a change in its program designation, a new title, and an increase from 3 to 4 credits. The Department of Earth and Environmental Sciences proposes to change GEOL 205, Computer Applications in Environmental Science and Geology (3 credits) to EESC 205, GIS Applications in Environmental Science and Geology (4 credits). This revision has prompted an examination of the catalog description and a correction to the maximum number of credits required for the GIS Certificate.

In examining the number of credits required for the certificate, the geography department has decided to specify that GISC 471 (a special topics course) be 4-credits instead of leaving it at variable 1-6 credits, potentially changing the number of credits earned for the certificate. This is addressed in a separate course change proposal.

The GIS Certificate program has been listed as having a minimum of 18 credits, which could be obtained by taking the original 3-credit GEOL 205 course, plus the other three required 4-credit courses and the 3-credit capstone. The reality is that most students earn it in 19 credits, because they take GEOG 250 or GISC 200 as their introductory course, both of which are 4-credit courses. With the change of EESC 205 to 4 credits, all students will obtain the GIS Certificate in 19 credits.

The GIS Certificate program has been listed as having a maximum of 24 credits – apparently derived through a misunderstanding of requirements (4 4-credit courses plus BOTH the 3-credit internship AND the 3-credit independent study; only one of the capstone options is required). Another way of earning 24 credits might have been to take a 6-credit special topics course, GISC 471 – although it has never been offered as such. By proposing to change GISC 471 to 4 credits only, this possibility is also removed.

It may be important to note that while certificate programs are generally limited to six 3-credit courses, the GIS Certificate consists of five courses, of which four are 4-credit laboratory courses.

In this program change, we aim to set the number of credits required for the GIS Certificate at 19. This is more in line with the SCHEV definition of an undergraduate certificate program.

Impact Statement

Adjusting the number of credits in the GIS Certificate to 19 will reduce confusion among students and advising faculty, but will otherwise have no impact on staffing, space, library use or software.
Certificate in Geographic Information Science (18-24 credits)

The Geography Department hosts an interdisciplinary certificate program in Geographic Information Science. Open to students in all majors and to non-degree seeking students, the program is designed to address the growing demand for GIS-trained personnel in business, government, education, health care, and numerous other settings. The field encompasses integrated hardware, software, and database systems that are capable of capturing, storing, analyzing, and displaying geographical information. Upon completion of the certificate, students may be eligible to apply for an additional professional certification in GIS administered by the GIS Certification Institute (GISCI).

Certificate Requirements:

1) Introductory Course (1 course)
GISC 200 or GEOG 250 or EESC/GEOL 205

2) Intermediate Course
GISC 351 or GEOG 351 (4 credits)

3) Programming Course
GISC 450 (4 credits)

4) Elective
Students must choose one elective from the following list: GEOG 340, GEOG 355, GISC 440, GISC 460, GISC 471 (4 credits)

5) Capstone Experience
To earn the certificate, students must complete either GISC 491 or GISC 499. All directed studies and internships must be approved by the Director of GIS Programs. (3-6 credits)

*Course descriptions for GEOG 250, 340, 351, and 355 can be found in this section of the Catalog while the course description for EESC/GEOL 205 is on page 125. All GISC course descriptions are on pages 220-221. Students with professional experience in GIS may have a maximum of one course or four credits waived with appropriate approval, but must take additional course credits to total 18 hours. Consult with Dr. Brian Rizzo (GIS program advisor) for additional information.
New catalog

Certificate in Geographic Information Science (19 credits)

The Geography Department hosts an interdisciplinary certificate program in Geographic Information Science. Open to students in all majors and to non-degree seeking students, the program is designed to address the growing demand for GIS-trained personnel in business, government, education, health care, and numerous other settings. The field encompasses integrated hardware, software, and database systems that are capable of capturing, storing, analyzing, and displaying geographical information. Upon completion of the certificate, students may be eligible to apply for an additional professional certification in GIS administered by the GIS Certification Institute (GISCI).

Certificate Requirements:

1) Introductory Course
GISC 200 or GEG 250 or EESC 205 (4 credits)

2) Intermediate Course
GISC 351 or GEG 351 (4 credits)

3) Programming Course
GISC 450 (4 credits)

4) Elective
Students must choose one elective from the following list: GEG 340, GEG 355, GISC 440, GISC 460, GISC 471, or GISC 482 (4 credits)

5) Capstone Experience
To earn the certificate, students must complete either GISC 491 or GISC 499. All directed studies and internships must be approved by the Director of GIS Programs (3 credits).

* Course descriptions for GEG 250, 340, 351, and 355 can be found in this section of the Catalog while the course description for EESC 205 is on page 125. All GISC course descriptions are on pages 220-221. Students with professional experience in GIS may have a maximum of one course or four credits waived with appropriate approval, but must take additional course credits to total 19 hours. Consult with Dr. Brian Rizzo (GIS program advisor) for additional information.