In order to accommodate changing faculty, course offerings and program needs, the following changes are proposed to the Professional Science Master's degree in Geographic Information Science:

Summary of Changes:

1. Required courses
   a. Remove GEO 5860 from required course list, and replace with 3 additional credits to Elective Set II
2. Elective Set I
   a. Add GEO 5880: Geospatial Data Models to Elective Set I
   b. Rename Elective Set to "Elective Set I: Statistics & Modeling Requirement"
3. Elective Set II:
   a. Add the following courses to Elective Set II:
      i. CIT 4823: Big Data
      ii. OSC 4820 – Business Analytics and Data Mining
      iii. TEC 5323: Advanced Database Technology (offered every semester)
      iv. TEC 5970 PHP/Oracle Development (every other summer)
   b. Remove the following courses from Elective Set II:
      i. GEO 5850: GPS: Mapping the Modern Way

Rationale:

First, we are moving toward a "single-introductory-course" model to avoid two sequential prerequisites for advanced courses. This will also allow us to make advanced courses will be more topical, i.e. "GIS Programming", "Geodatabases".

Second, we are not sure if BIO 4820 will continue to be offered regularly, while GEO 5880 offers a viable alternative that covers the intended curricular area of elective set II which is clarified by the new name. Also, GEO 5850 is being discontinued.

Finally, technology and business courses that involve a data analysis component are added to expand options for students interested in these technical areas related to GIS.

Catalog Language:

The following sections show current catalog language, proposed new language with changes, and a clean copy of the proposed new language. The proposal includes a course (GEO 5880) that is in the process of being reviewed for modification, including a name change; the proposed new catalog language reflects the new course name (Geospatial Data Models).

Current catalog language:

Core Courses

It is assumed that applicants are interested in increasing their current competencies in the area of Geographic Information Sciences and its application to the business, government and non-profit sectors. All degree candidates must successfully complete courses designed as the core classes. The purpose of this group of required courses is to present aspects of the fundamental theory and practice of Geographic Information Sciences and give candidates a preliminary background in business administration.

Students will enroll in the following core courses. Credits: 15

- GEO 5810 - Introduction to Geographic Information Science Credits: 3
- GEO 5820 - Remote Sensing I Credits: 3
- GEO 5860 - Geographic Information Systems II Credits: 3
- MBA 5001 - Business Operations in Sustainable Energy Facilities Credits: 3
- OR
- MBA 5010 - Accounting from a Management Perspective. Credits: 3
- MBA 5680 - Organizational Behavior and Group Dynamics. Credits: 3

Elective Set I

Students will complete one of the following courses.

Credits: 3 to 4

- BIO 4750 - Biometrics. Credits: 3
- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 5381 - Advanced Biostatistics. Credits: 3
- MAT 5151 - Probability. Credits: 4

Elective Set II

Students will complete minimally 11 credit hours from the following list.

Credits: 11

- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 4840 - Resource Management and Environmental Assessment Credits: 3
- BIO 5380 - Landscape Ecology. Credits: 3
- GEO 4910 - GIS Programming Credits: 4
- GEO 5830 - GIS: Building Geodatabases Credits: 3
- GEO 5850 - Mapping the Modern Way Credits: 3
- GEO 5870 - Remote Sensing II Credits: 3
- GEO 5880 - GIS Modeling Credits: 3
- PLS 4793 - Civic and Nonprofit Leadership Credits: 3
- PLS 4893 - Budgeting in Government and Nonprofit Organizations Credits: 3

- PLS 5543 - Proseminar in Public Administration Credits: 3

Experiential (Internship) Component

Minimum of 3 credit hours of internship.

- BIO 5980A - Graduate Internship in Biological Sciences. Credits: 1-6
- ECN 5980 - Internship in Economics. Credits: 1 to 3
- GEO 5980 - Geography Internship Credits: 6
- PLS 5980 - Administrative Internship. Credits: 1 to 3
- TEC 5980 - Industrial Internship in the Technologies. Credits: 1 to 10
- MBA 5980 - Internship in Business Administration. Credits: 1 to 12

New catalog showing proposed changes:

Core Courses

It is assumed that applicants are interested in increasing their current competencies in the area of Geographic Information Sciences and its application to the business, government and non-profit sectors. All degree candidates must successfully complete courses designed as the core classes. The purpose of this group of required courses is to present aspects of the fundamental theory and practice of Geographic Information Sciences and give candidates a preliminary background in business administration.

Students will enroll in the following core courses. Credits: ~~15~~ 12

- GEO 5810 - Introduction to Geographic Information Science Credits: 3
- GEO 5820 - Remote Sensing I Credits: 3
- ~~GEO 5860 - Geographic Information Systems II Credits: 3~~
- MBA 5001 - Business Operations in Sustainable Energy Facilities Credits: 3
- OR
- MBA 5010 - Accounting from a Management Perspective. Credits: 3
- MBA 5680 - Organizational Behavior and Group Dynamics. Credits: 3

Elective Set I

Students will complete one of the following statistics and modelling courses.

Credits: 3 to 4

- BIO 4750 - Biometrics. Credits: 3
- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 5381 - Advanced Biostatistics. Credits: 3
- GEO 5880 – Geospatial Data Models. Credits: 3
- MAT 5151 - Probability. Credits: 4

Elective Set II

Students will complete minimally ~~11~~ 14 credit hours from the following list.

Credits: ~~11~~ 14

- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 4840 - Resource Management and Environmental Assessment Credits: 3
- BIO 5380 - Landscape Ecology. Credits: 3
- CIT 4823: Big Data Credits: 3
- GEO 4910 - GIS Programming Credits: 4

- GEO 5830 - GIS: Building Geodatabases Credits: 3
- ~~GEO 5850 - Mapping the Modern Way~~ ~~Credits: 3~~
- GEO 5870 - Remote Sensing II Credits: 3
- GEO 5880 - ~~GIS Modeling~~Geospatial Data Models Credits: 3
- OSC 4820 – Business Analytics and Data Mining Credits: 3
- PLS 4793 - Civic and Nonprofit Leadership Credits: 3
- PLS 4893 - Budgeting in Government and Nonprofit Organizations Credits: 3
- PLS 5543 - Proseminar in Public Administration Credits: 3
- TEC 5323 - Advanced Database Technology Credits: 3
- TEC 5970 – Special Topics in Technology Credits: 1-3

Experiential (Internship) Component

Minimum of 3 credit hours of internship.

- BIO 5980A - Graduate Internship in Biological Sciences. Credits: 1-6
- ECN 5980 - Internship in Economics. Credits: 1 to 3
- GEO 5980 - Geography Internship Credits: 6
- PLS 5980 - Administrative Internship. Credits: 1 to 3
- TEC 5980 - Industrial Internship in the Technologies. Credits: 1 to 10
- MBA 5980 - Internship in Business Administration. Credits: 1 to 12

Core Courses

It is assumed that applicants are interested in increasing their current competencies in the area of Geographic Information Sciences and its application to the business, government and non-profit sectors. All degree candidates must successfully complete courses designed as the core classes. The purpose of this group of required courses is to present aspects of the fundamental theory and practice of Geographic Information Sciences and give candidates a preliminary background in business administration.

Students will enroll in the following core courses. Credits: 12

- GEO 5810 - Introduction to Geographic Information Science Credits: 3
- GEO 5820 - Remote Sensing I Credits: 3
- MBA 5001 - Business Operations in Sustainable Energy Facilities Credits: 3
- OR
- MBA 5010 - Accounting from a Management Perspective. Credits: 3
- MBA 5680 - Organizational Behavior and Group Dynamics. Credits: 3

Elective Set I

Students will complete one of the following statistics and modelling courses.

Credits: 3 to 4

- BIO 4750 - Biometrics. Credits: 3
- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 5381 - Advanced Biostatistics. Credits: 3
- GEO 5880 – Geospatial Data Models
- MAT 5151 - Probability. Credits: 4

Elective Set II

Students will complete minimally 14 credit hours from the following list.

Credits: 14

- BIO 4820 - Spatial Analysis for Environmental Sciences Credits: 4
- BIO 4840 - Resource Management and Environmental Assessment Credits: 3
- BIO 5380 - Landscape Ecology. Credits: 3
- CIT 4823: Big Data Credits: 3
- GEO 4910 - GIS Programming Credits: 4
- GEO 5830 - GIS: Building Geodatabases Credits: 3

- GEO 5870 - Remote Sensing II Credits: 3
- GEO 5880 - Geospatial Data Models Credits: 3
- OSC 4820 – Business Analytics and Data Mining Credits: 3
- PLS 4793 - Civic and Nonprofit Leadership Credits: 3
- PLS 4893 - Budgeting in Government and Nonprofit Organizations Credits: 3
- PLS 5543 - Proseminar in Public Administration Credits: 3
- TEC 5323 - Advanced Database Technology Credits: 3
- TEC 5970 – Special Topics in Technology Credits: 1-3

Experiential (Internship) Component

Minimum of 3 credit hours of internship.

- BIO 5980A - Graduate Internship in Biological Sciences. Credits: 1-6
- ECN 5980 - Internship in Economics. Credits: 1 to 3
- GEO 5980 - Geography Internship Credits: 6
- PLS 5980 - Administrative Internship. Credits: 1 to 3
- TEC 5980 - Industrial Internship in the Technologies. Credits: 1 to 10
- MBA 5980 - Internship in Business Administration. Credits: 1 to 12

Effective Date: Spring 2018

Date approved by the department or school: August 1, 2017
Date approved by the college curriculum committee: September 22, 2017
Date approved by CGS: