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GRADUATE SCHOOL

PROGRAM DESCRIPTION (Form 90A)

Catalog: 2014-2015

Due Date: October 1, 2013

This form is used for requesting minor changes in requirements of a degree granting unit, major, minor, concentration, specialization, certification program and miscellaneous changes of any academic program (see instructions). Otherwise, use RME Form. All Course Descriptions (Form 90's) needed to support changes described below are to be included to create a cohesive package.

**THIS CHANGE IS FOR (level):** Graduate Catalog

Submit two forms if change relates to both graduate and undergraduate programs.

**PROGRAM (Organizational Structure):**

**Degree granting academic unit (College or School)** College of Liberal Arts  
**Department or Division** Geography and Environmental Resources  
**Degree Type (BS, MS, etc)** Certificate programs: 1) GIS; 2) Sustainability  
**Major (include subject area code)** \_\_\_\_\_  
**Minor (include subject area code)** \_\_\_\_\_  
**Concentration (Graduate level only)** \_\_\_\_\_  
**Specialization (Undergraduate level only)** \_\_\_\_\_

**BRIEF SUMMARY OF CHANGE (Use additional page(s) if necessary):**

Change all 400-level courses to 500-level courses; change all 4 CHs to 3 CHs; change titles of several courses; adjust total CHs for GIS Certificate.

**Specific Changes:** Attach a copy of legible mark-up page along with a clean copy representing those changes.

The mark-up page is to be a copy of the actual catalog page(s) with **legible** corrections made directly on the copy. In the case of extensive or complex changes, please type a new catalog copy on plain paper, double spaced, representing how you recommend the new program requirements be shown in the catalog.

**Effective term is next published catalog:** **2014-2015** *Early effective date requires Provost approval.*

**APPROVAL:**

Please list contact person in case of questions:

TRANSFER STUDENT SERVICES

**Departmental Executive Officer**

*[Signature]*

7/17/13  
Date

**Dean**

*Kimberly Leonard*

9-26-13  
Date

*By signing I affirm that I have conferred with all programs affected by these changes.*

**Dean of the Graduate School**

*[Signature]*

10/17/13  
Date

**Associate Provost for Academic Programs**

*[Signature]*

10/28/13  
Date

**Director, Transfer Student Services:**

*Samara Workman*

11/12/13  
Date

Program changes have been reviewed for application to catalog and degree audit.

**Catalog Formatting:** \_\_\_\_\_ *Initial and date*

**Degree Audit:** \_\_\_\_\_ *Initial and date*

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completed, with 15 of these hours at the 500 level or above.

2. Include as required courses the following: GEOG 500-3, Principles of Research, during the first fall semester in **504**nce; GEOG 501-2 Seminar in Geographic and Environmental Research, the following semester; GEOG 404, Spatial Analysis or GEOG 412, Applied Geographic Statistics or equivalent, and one **502** seminar at the 500-level. GEOG 404, Introduction to Geographic Information Systems is recommended depending on the student's background.
3. In consultation with an adviser, develop a program of study, identifying courses to be taken, research skills to be developed, deficiencies to be rectified. This shall be approved by the faculty. The program of study will include a core of substantive courses in geographic and environmental resources, as explained in the policy statement on core curriculum for master's degree students, available from the graduate program director. The program of study may include courses offered by other departments. The graduate program will meet to review and approve/disapprove the program of study of each master's degree student enrolled in GEOG 500. An approved program of study will be filed with the graduate program director and department chair as part of GEOG 500.
- 6 (delete "4-") Develop a thesis or research paper proposal. The thesis or research paper proposal must be approved by the student's master's advisory committee before the student registers for GEOG 599, Thesis or GEOG 593, Research in Geography and Environmental Resources. A total of 4-6 semester hours of GEOG 599 may be awarded for a thesis at the discretion of the advisory committee upon final examination on the thesis (see #5 below). A total of 2-3 semester hours may be awarded for a research paper.
- 3 (delete "2-")
5. Submit a thesis or research paper to the advisory committee at least 2 weeks before the defense. A

- GEOG 521(3) - Urban Sustainability
- GEOG 522(3) - Economics of Environmental Sustainability
- GEOG 526(3) - US Environmental Policy
- GEOG 529(3) - Geography of Local and Organic Food
- GEOG 531(3) - Climatology
- ~~GEOG 535(3) - Energy Planning~~
- GEOG 536(3) - Natural Hazards
- GEOG 539(3) - Global Climate Change
- GEOG 554(3) - Conservation and Environmental Movements

certificate meets the needs of the expanding job opportunities for Masters' and Ph.D. students. This certificate ensures that the students understand advanced mapping technologies; know how to combine individual

models and functions in ArcGIS to carry out a complicated spatial analysis task; master advanced digital image processing and analysis technologies; and obtain competence in designing, developing, and managing spatial databases. Further, they will demonstrate an understanding of GIS's relationships with remote sensing, global positioning system (GPS), mathematics, statistics, and other sciences and obtain capacity in integrating multi-disciplinary methods for problem-solving. Finally, they will be competent in planning, developing, and implementing a complex GIS project. The program requires students to complete 18 credit hours of graduate level coursework from the following:

- GEOG 502 (3) - Intro to Geographic Information Systems
- GEOG 504 (3) - Spatial Analysis
- GEOG 506 (3) - Intro to Remote Sensing
- GEOG 508 (3) - Advanced Remote Sensing
- GEOG 520 (3) - Advanced GIS Studies
- GEOG 528 (3) - GIS Portfolio/Independent GIS Project

**GIS Portfolio / GIS Capstone Project**

**Certificate in Sustainability**

The Graduate Certificate in Sustainability enables students to expand their knowledge and understanding of the long-term sustainable use of the earth's resources, including water, land use and food systems, climate change, urban sustainability, and "green" energy. This certificate meets the needs of the expanding job opportunities in environmental sustainability. Students must maintain a 3.0 GPA in the certification courses. The program requires students to complete 18 credit hours of graduate level coursework, as follows:

- 524(3)**
- GEOG 424(3) - Sustainable Development
- Total of 15 or more Credit Hours from the following:
  - GEOG 421(3) - Urban Geography
  - GEOG 426(4) - Administration of Environmental Quality and Natural Resources
  - GEOG 431(3) - Climatology
  - GEOG 435(3) - Energy Planning
  - GEOG 436(3) - Natural Hazards
  - GEOG 454(3) - Conservation and Environmental Movements
  - GEOG 522(4) - Economics of Environmental Resources
  - GEOG 524(3) - Sustainable Development (424/524 listed twice)
  - GEOG 529(3) - Geography of Local and Organic Food
  - GEOG 539(3) - Global Climate Change

Students interested in Environmental Sustainability or Climate and Water Resources concentrations delivered through distance education should contact the Chair

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