

LONG SIGNATURE SHEET



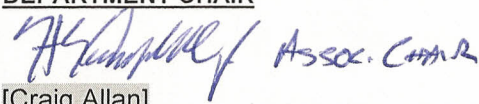
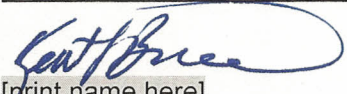
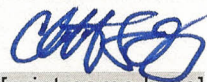
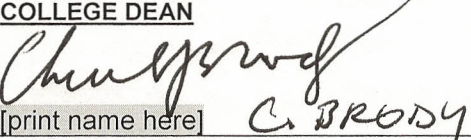
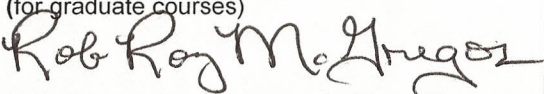
UNC CHARLOTTE

Proposal Number: GES 04-02-08

Proposal Title: Proposal to establish new course: GEOG 5110 GIS for Nonmajors

Originating Department: Geography and Earth Sciences

TYPE OF PROPOSAL: UNDERGRADUATE _____ GRADUATE X _____ UNDERGRADUATE & GRADUATE _____
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
3/20/12	3/30/12	6/25/12	Approved	<u>DEPARTMENT CHAIR</u>  [Craig Allan]
			Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u>  [print name here]
		9/24/12	Approved	<u>COLLEGE FACULTY CHAIR (if applicable)</u>  [print name here] K. BRINTON
		10/1/12	Approved	<u>COLLEGE DEAN</u>  [print name here] C. BRODY
			Approved	<u>GENERAL EDUCATION</u> (for General Education courses) [print name here]
			Approved	<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses)
6-25-12	9-4-12	5-22-13	Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses) 
			Approved	<u>FACULTY GOVERNANCE ASSISTANT</u> (Faculty Council approval on Consent Calendar)
				<u>FACULTY EXECUTIVE COMMITTEE</u> (if decision is appealed)

University of North Carolina at Charlotte

New Undergraduate Course Proposal

Department of Geography and Earth Sciences

I. TITLE: Proposed New Course: GEOG 4110/5110 GIS for Non Majors

II.A. Proposal Summary and Catalog Copy

1. Summary

The Department of Geography and Earth Sciences proposes to formalize a topics course taught within its undergraduate and graduate curriculum: GEOG 4xxx/5xxx: GIS for Non Majors. This course will be available to non-geography students in their third and fourth years of undergraduate study and in graduate study for the Masters degree. It may serve as an elective for Earth Science students, and those students from outside departments.

2. Proposed Catalog Copy

GEOG 5110 (3) Examines the fundamental concepts and techniques of Geographic Information System (GIS) technology and its application to social and physical sciences. Emphasis is placed on processing, collecting, organizing, displaying and analyzing geographic data from address geocoding, GPS, CD-ROM, World Wide Web and other sources. Emphasis is placed on data preparation, analysis and presentation. Labs introduce students to ArcGIS. Cross-listed as GEOG 4110. (Fall, Spring)

II.B. Justification

1. Need Addressed

GIS for Non Majors has been taught to non-geography undergraduate and graduate students as a topics course to determine campus-wide interest in learning about GIS and its application in various disciplines. The course has attracted students from such departments as criminal justice, public administration, engineering, biology, anthropology, business, real estate, and environmental sciences. Because the course is taught at an introductory level yet challenges students to apply GIS in their respective fields, it has been very popular among non geography majors. GIS is a widely used research and analysis tool in so many disciplines yet non-geography majors have insufficient prerequisite spatial knowledge and GIS experience to do well in the 4120/5120 GIS course for majors. GIS for non-majors thus enables students from other departments to gain sufficient GIS knowledge, skills and abilities to be able to apply the software as a research and analysis tool. The success of the course has placed GIS for non-majors in high demand by other departments.

2. Prerequisites

None

3. Course Numbering

GIS for Non-Majors has listed at the 4000/5000 so that students are far enough along with their major subject matter to be able to understand and apply GIS in their respective fields. 4110/5110 is not taken by any other Geography course.

4. Improvement

By formalizing the course, the department is able to continue to offer GIS for Non-Majors on a regular basis to serve the introductory GIS course needs for the entire campus.

II.C. Impact

II.C.1 Groups of Students Served by the Course

This course is aimed primarily at upper division undergraduates and graduates at the master's level in fields other than geography. It may serve as an elective for many other areas of study including earth science, geology, meteorology, sociology, criminal justice, computer sciences, biology, business, anthropology, public health, and engineering, and for students who have not yet declared a major.

II.C.2.a Frequency of Course Offering

We anticipate the course will be offered every fall and spring semester and possible during during the summer as demand dictates.

II.C.2.b Effect on Other Courses

Ms. Garo will teach this course as part of her regular teaching load, so anticipate no adverse effect on other courses. However, the course will prepare students for high level courses in GIS which increase demand for them (see below).

II.C.2c Anticipated Enrollment

Based on enrollment when taught as a topics course, we anticipate GEOG 4110/5110 will attract 15-20 students per section. The course has been taught as a topics course for several semesters, increasing in popularity over time. In recent semesters (fall and spring, 2011, 2012) the enrollment has consistently been 18-20 students. Given the positive feedback each semester, we expect this trend to continue. The lab can actually hold 30 students, if needed during any given semester, and it is planned to be offered each fall and spring.

II.C.2.d Effect on other Courses

The primary effect this course will have will be to better prepare students with interest in GIS to more effectively pursue other GIS-based courses such as GEOG 4120/5120. Beyond that, no other courses are likely to be impacted.

II.C.2.f Other Areas of Catalog Copy that Could Be Affected

4. Anticipated Enrollment

We do not anticipate other areas of catalog copy to be affected.

II.D. Resources Required to Support Proposal

II.D.1 Personnel

GEOG 4110/5110 will require no new personnel. Laurie Garo will teach this course as part of her standard course load.

II.D.2 Physical Facility

Current facilities and classroom space in the Department of Geography and Earth Sciences are sufficient to conduct this course.

II.D.3 Equipment and Supplies

Equipment and supplies required for this course are currently available in the Department of Geography and Earth Sciences and are provided under its annual operating budget.

II.D.4 Computer Needs

Computer needs required for this course are currently available in the Department of Geography and Earth Sciences and are provided under its annual operating budget.

II.D.5 Audio-visual Needs

Audio-visual resources required for this course are currently available in the Department of Geography and Earth Sciences and are provided under its annual operating budget.

II.D.6 Other Resources

Ms. Garo has a great working relationship with the Math Science Education Center in the Department of Education. Each semester she is able to borrow GPS units and Ozone readers as needed to carry out the GPS and field data collection portion of the course.

Likewise, Ms. Garo maintains a great working relationship with various GIS-using agencies in the Charlotte-Mecklenburg. Each semester she calls on a GIS practitioner to come to class to give presentations on GIS in their respective agencies. This provides students with real world examples of GIS and brings clarity to the work they do in class.

II.D.7 Funding for Additional Resources

None necessary.

II.E Consultation with Library and Other Departments/Units

II.E.1 Library Consultation: Library consultation was initiated on 5/18/2012 and holdings are considered adequate. See attached.

II.E.2 Consultation with Other Departments or Units: Departments listed below were canvassed for their input and all units support the addition of this course. See attached.

Biology

Criminal Justice
Sociology
Computer Science
Public Health Sciences
Anthropology
Engineering
Business

II.F. Initiation and Consideration of the Proposal

II.F.1 Originating Unit The Department of Geography and Earth Sciences received this proposal and passed it unanimously in 2008.

II.F.2 Other Considering Units: N/A

II.G. Attachments

1. Proposed Course Syllabi
2. Library Consultation
3. Sociology Consultation
4. Anthropology Consultation
5. Criminal Justice Consultation
6. Computer Science Consultation
7. Engineering Consultation
8. Biology Consultation
9. Business Consultation
10. Public Health Consultation
11. Public Administration Consultation

Department of Geography & Earth Sciences
Syllabus
GEOG 4000/5000 – GIS for Non Majors

Introduction:

This course covers the fundamentals of Geographic Information System (GIS) technology and how it is being applied in such diverse fields as planning, marketing, health, criminal justice, political science, natural resources, and engineering. Students will learn the processes to collect, organize, analyze and display geographic data obtained from sources such as address geocoding, GPS, CD-ROM and World Wide Web sites, however, the emphasis of the course will be on data preparation, analysis and presentation. Each student will complete a series of lab exercises that demonstrate GIS fundamentals and illustrate the typical steps in a GIS project. The course will culminate with students carrying out their own GIS Project. ESRI's ArcGIS software will be used for the laboratory portion of the course.

The primary objectives of the course are for the student to be able to:

- ◆ Define and describe a GIS;
- ◆ Identify the components of a GIS;
- ◆ Be well-versed in GIS fundamentals
- ◆ Understand the process and elements of a GIS project;
- ◆ Become familiar with several applications of GIS;
- ◆ Collect spatial data according to project aims;
- ◆ Input and manipulate tabular and spatial data;
- ◆ Understand the location, measurement and plotting (geocoding) of geographic information in relation to map coordinate systems;
- ◆ Use a GPS to collect and plot Latitude and Longitude data;
- ◆ Understand the basic cartographic concepts of scale, projections, generalization, and symbolization;
- ◆ Prepare presentation materials (maps, graphs, tables) of good quality cartographic standards;
- ◆ Carry out introductory spatial analysis using GIS analysis tools, according to project objectives;
- ◆ Use ArcGIS to complete a basic GIS Project.

Topics to be covered for achieving the above objectives are listed in the course outline below.

Lecturer: Laurie Garo

**Office Number/
Phone** Garo: McEniry 417; ph. 687-5981

Email lagaro@uncc.edu

Office Hours: Mondays – 11:00 am to 1:30 pm, Wednesdays 11:00 am to noon;
Tuesdays 11 am to noon, or by appointment.

Class Period: Wednesdays: 12:30 3:15 pm

Venue: McEniry 420

Assessment (4000):

Class/Lab Exercises	40%
Midterm Examination	15%
Final Examination	25%
GIS Project & Report	15%
Project Presentation	5%

Assessment (5000):

Class/Lab Exercises	35%
Midterm Examination	15%
Final Examination	25%
GIS Project & Report	20%
Project Presentation	5%

Graduate students will have additional test questions on exams, and are expected to produce a final project that includes a quantitative component, a more detailed report with cost estimation, and a professional-level presentation.

Grading

The course is graded by converting total points per item into percentages out of a total of 100%. The total percentage per letter grade are listed below.

90-100 % = A 80-89% = B 70-79% = C

60-69% = D 59% and below = F

Late Policy

Ten percent will be automatically deducted from all exercises that are handed in after the stated deadline. Any project handed in more than 2 weeks late will **NOT** be accepted.

Web Sites:

1. http://www.ncgia.ucsb.edu/giscc/cc_outline.html
2. <http://maps.esri.com/> (first time users must register)
3. http://www.colorado.edu/geography/gcraft/notes/intro/intro_f.html
4. <http://personal.uncc.edu/lagaro/cwg/mapproj/index.html>
5. http://www.colorado.edu/geography/gcraft/notes/gps/gps_f.html

6. <http://rst.gsfc.nasa.gov/>
7. <http://www.cmpd.org/>
8. <http://cmpd.cicp.org/>
9. <http://data.geocomm.com/>

Student Academic

Integrity Refer to: *Student Guidelines to the UNC Charlotte Code of Student Academic Integrity*

<u>Course Outline:</u>	<u>Lectures/Exercises</u>	<u>Web Sites(W)</u>
Aug 26	Introduction; Overview of Syllabus; Overview of Lab Sessions; General description of GIS & its Applications Introduction to GIS: Fundamentals of GIS; Elements of a GIS Project; Video: "GIS - Behind The District 2000-2001" Exercise 1: GIS Website Analysis	W:1 W: 2, 3, 4, 6
Sept 2	Introduction to ArcGIS Basics ArcGIS Basics Tutorial Characteristics of Spatial Data; Attribute Data Input and Management Exercise 2a : Attribute Data Queries Exercise 2b : Graphical Presentation of data queries	
Sept 9	Mapping Coordinate Data; GPS Exercise 3: Mapping Sex Offenders	
Sept 16	More Work with Attribute Data Tabular Joins; Spatial Joins; Field Calculator Exercise 4a: Tabular Joins Exercise 4b: Spatial Joins	
Sept 23	Map Scale Influence on GIS Accuracy	

Exercise 5: Map Scale and Measurements

Sept 30 Spatial Analysis using Census Data
Data Classification using GIS

Exercise 6: Choropleth Mapping for Comparison of Data Classifications

Oct 7 Introduction to Hazard Mapping and Modeling

Exercise 7a: Location Map of Mecklenburg County

Midterm Review (excludes hazard mapping)

Oct 14 **MIDTERM EXAMINATION**

Oct 21 Hazard Mapping: Skirting the Spill in Mecklenburg County;
Introduction to Buffering

Exercise 7b: Map of buffered areas around the incident

Oct 28 Hazard Mapping: Skirting the Spill in Mecklenburg County
Modeling hazards with ALOHA

Exercise 7c: Using ALOHA to model extent of chlorine spill

Nov 4 Creating Podcasts for inclusion in final project presentation
Final Project topic selection and approval;

Nov 11 **FINAL PROJECTS**

Nov 18 **FINAL PROJECTS; GIS DAY**

Nov 25 **THANKSGIVING BREAK**

Dec 2 **FINAL PROJECTS**

Dec 9 Last Day of Class
Project Presentations
Final Exam Review

Dec 16 (Wed) **FINAL EXAMINATION – 11:00 am to 1: 30 pm**
Room 420 McEniry Hall