

COURSE CHANGE FORM

Complete 1a – 1f & 2a – 2c. Fill out the remainder of the form as applicable for items being changed.

1. General Information.					
a.	Submitted by the College of: <u>Arts and Sciences</u>	Today's Date: <u>10/18/2011</u>			
b.	Department/Division: <u>GEOGRAPHY</u>				
c.	Is there a change in "ownership" of the course?			YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
	If YES, what college/department will offer the course instead? _____				
d.	What type of change is being proposed?	<input checked="" type="checkbox"/> Major	<input type="checkbox"/> Minor ¹	(place cursor here for minor change[OSC1] definition)	
e.	Contact Person Name: <u>Matthew Zook</u>	Email: <u>zook@uky.edu</u>	Phone: <u>510-410-1410</u>		
f.	Requested Effective Date: <input checked="" type="checkbox"/> Semester Following Approval	OR	<input type="checkbox"/> Specific Term ² :	_____	
2. Designation and Description of Proposed Course.					
a.	Current Prefix and Number: <u>GEO 409G</u>	Proposed Prefix & Number: <u>GEO 409</u>			
b.	Full Title:	<u>GEOGRAPHIC INFORMATION SYSTEMS AND SCIENCE: FUNDAMENTALS</u>	Proposed Title:	<u>Advanced GIS</u>	
c.	Current Transcript Title (if full title is more than 40 characters):	<u>GIS AND SCI:FUNDAMENTALS</u>			
c.	Proposed Transcript Title (if full title is more than 40 characters):	<u>Advanced GIS</u>			
d.	Current Cross-listing: <input checked="" type="checkbox"/> N/A	OR	Currently ³ Cross-listed with (Prefix & Number):	_____	
	Proposed – <input type="checkbox"/> ADD ³ Cross-listing (Prefix & Number):	_____			
	Proposed – <input type="checkbox"/> REMOVE ^{3,4} Cross-listing (Prefix & Number):	_____			
e.	Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours⁵ for each meeting pattern type.				
Current:	<u>2</u> Lecture	<u>1</u> Laboratory ⁵	_____ Recitation	_____ Discussion	_____ Indep. Study
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research	_____ Residency
	_____ Seminar	_____ Studio	_____ Other – Please explain: _____		
Proposed:	<u>2</u> Lecture	<u>1</u> Laboratory	_____ Recitation	_____ Discussion	_____ Indep. Study
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research	_____ Residency
	_____ Seminar	_____ Studio	_____ Other – Please explain: _____		
f.	Current Grading System: <input checked="" type="checkbox"/> Letter (A, B, C, etc.)	<input type="checkbox"/> Pass/Fail			
	Proposed Grading System: <input checked="" type="checkbox"/> Letter (A, B, C, etc.)	<input type="checkbox"/> Pass/Fail			

¹ See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be sent to appropriate academic Council for normal processing and contact person is informed.

² Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

³ Signature of the chair of the cross-listing department is required on the Signature Routing Log.

⁴ Removing a cross-listing does not drop the other course – it merely unlinks the two courses.

⁵ Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See SR 5.2.1.)

COURSE CHANGE FORM

g.	Current number of credit hours: <u>3</u>	Proposed number of credit hours: <u>3</u>	
h.	Currently, is this course repeatable for additional credit?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
	<i>Proposed to be repeatable for additional credit?</i>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
	<i>If YES: Maximum number of credit hours:</i> _____		
	<i>If YES: Will this course allow multiple registrations during the same semester?</i>	YES <input type="checkbox"/>	NO <input type="checkbox"/>
i.	Current Course Description for Bulletin:	<u>Investigation of geographic information systems (GIS) and science (GIScience). Including theory and applications areas. A major portion of the course will be based on use of a current widely-used GIS computer software system. Considered will be aspects of geographic data entry and editing, spatial analysis, and map development and display. Relationship of GIS to the Global Positioning System (GPS) and satellite generated data will be addressed.</u>	
	<i>Proposed Course Description for Bulletin:</i>	<u>This course is developed to introduce intermediate and advanced topics in geographic information science and spatial analysis including theoretical and applications areas. Building upon a range of GIS software systems this course covers geographic data collection, entry and editing, spatial analysis, interpolation and map development and display.</u>	
j.	Current Prerequisites, if any:	<u>GEO 309</u>	
	<i>Proposed Prerequisites, if any:</i>	<u>GEO 309 or consent of instructor</u>	
k.	Current Distance Learning(DL) Status:	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Already approved for DL* <input type="checkbox"/> Please Add ⁶ <input type="checkbox"/> Please Drop
	*If already approved for DL, the Distance Learning Form must also be submitted <u>unless</u> the department affirms (by checking this box <input type="checkbox"/>) that the proposed changes do not affect DL delivery.		
l.	Current Supplementary Teaching Component, if any:	<input type="checkbox"/> Community-Based Experience	<input type="checkbox"/> Service Learning <input type="checkbox"/> Both
	<i>Proposed Supplementary Teaching Component:</i>	<input type="checkbox"/> Community-Based Experience	<input type="checkbox"/> Service Learning <input type="checkbox"/> Both
3.	Currently, is this course taught off campus?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
	<i>Proposed to be taught off campus?</i>	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
4.	Are significant changes in content/teaching objectives of the course being proposed?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
	If YES, explain and offer brief rationale:		
	<u>While the course remains the same in terms of content, the dropping of the "G" requires that this go through as a major course change. However, the content and teaching objectives remain the same. In the future graduate students will be able to take GEO609 GIScience Fundamentals and/or GEO709: Advanced GIScience which are currently being proposed as new courses.</u>		
5.	Course Relationship to Program(s).		
a.	Are there other depts and/or pgms that could be affected by the proposed change?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
	If YES, identify the depts. and/or pgms: <u>The switch from GEO409G to GEO409 (dropping the "G") means that graduate students from other departments will no longer be able to take this course. However, a proposed new courses that are being submitted simultaneously with this course change (GEO609 GIScience Fundamentals and GEO709: Advanced GIScience) will fulfill this need for graduate students.</u>		

⁶ You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.

COURSE CHANGE FORM

b. Will modifying this course result in a new requirement ⁷ for ANY program?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
If YES ⁷ , list the program(s) here: _____		
6. Information to be Placed on Syllabus.		
a.	<input checked="" type="checkbox"/> Check box if <u>changed to</u> 400G or 500.	If <u>changed to</u> 400G- or 500-level course you must send in a syllabus and <i>you must include the differentiation</i> between undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading criteria in the course for graduate students. (See <i>SR 3.1.4.</i>)

⁷ In order to change a program, a program change form must also be submitted.

COURSE CHANGE FORM

Signature Routing Log

General Information:

Course Prefix and Number: GEO 409

Proposal Contact Person Name: Matthew Zook Phone: 510-410-1410 Email: zook@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Chair, Geography	10/17/11	Sue Roberts / 7-2399 / sueroberts@uky.edu	
DUS, Geography	10/17/11	Tad Mutersbaugh / 7-1316 / mutersba@uky.edu	
College of A&S	11/08/11	Anna Bosch, Assoc. Dean / 7-6689 / bosch@uky.edu	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision ⁸
Undergraduate Council	2/8/2012	Sharon Gill	
Graduate Council	3/9/12	Dr. Brian Jackson	
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

⁸ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

GEO 409: Advanced GIS

Instructor: Dr. Matthew Zook

Phone: 859-257-2931 Email: zook@uky.edu (Email is the best way to contact me)

Office: POT 1475

Office hours: Tues/Wed (2:00 pm – 4:00 pm) or by appointment

This course meets MWF afternoon from 11 to 12 pm in CB313.

Bulletin Course Description

This course is developed to introduce intermediate and advanced topics in geographic information science and spatial analysis including theoretical and applications areas. Building upon a range of GIS software systems this course covers geographic data collection, entry and editing, spatial analysis, interpolation and map development and display.

Prereqs: GEO 309 or consent of instructor

Required Textbooks

Chang K-t.2010. Introduction to Geographic Information Systems, McGraw Hill.
ISBN: 0-07-282682-7.

Slocum T.A., McMaster R.B., Kessler F.C., and Howard H.H. 2009. Thematic Cartography and Geographic Visualization, Prentice-Hall. ISBN: 0-13-035123-7.

Wong D.W.S. and Lee J. 2005. Statistical Analysis of Geographic Information with ArcView GIS and ArcGIS, John Wiley & Sons Ltd. ISBN: 0-471-46899-1.

Course Description

This course is developed to introduce intermediate and advanced topics in geographic information science and spatial analysis including theoretical and applications areas. Building upon a range of GIS software systems this course covers geographic data collection, entry and editing, spatial analysis, interpolation and map development and display. Lectures will focus on the greater understanding of technology, and applications. Lab assignments provide students with practice in utilizing ArcGIS software and related GIS software on development, management, and analysis of GIS data. The GIS labs are an important part of a GIS training. They are designed to provide students with hands-on experience in GIS and assist students in understanding the advanced tools in GIS. During this class session, we will run a total of ten-to-eleven labs. All labs will be conducted in the CB 313. It is vital that students attend class on days that the exercises are assigned, as I will guide students through the steps necessary to complete the exercise. It is also vital to complete the exercises on time, as new exercises often depend on completion of the previous exercise. Much of your grade on individual exercises is determined by completing the exercise on time.

Course Objectives

Course objectives are (1) to utilize GIS for conducting spatial analyses, (2) to understand complex GIS terms and concepts, (3) and be able to recognize a variety of spatial data models.

Student Learning Outcomes

In addition to further building technical skills and competencies, students will also develop advanced GIS skills. Students shall be able to:

- Better apply principles of map design to create coherent, convincing, and technically correct maps;
- Perform more advanced operations in a GIS, including such as network analysis and interpolation;
- Implement complicated cartographic models using a GIS software;

Course Grading and Requirements

Class attendance & participation (15%)

Regular class attendance and active participation in classroom activity will be important to your learning experience in this class. You will be evaluated on your willingness to contribute to class discussions as well as class attendance. Roll will be taken at the beginning of every lecture and lab. If you are late, it is your responsibility to see me at the end of the class to make sure I have marked you present. If you are late for more than 30 minutes or leave class early without instructor's approval, 0.5 point will be deducted.

Lab assignment & quizzes (35%)

There will be one lab each week. Each lab is on a basis of 10 points. Each lab is assigned weekly and is due at the beginning of the following lab period. Late work will be deducted 10% daily. Pop quizzes will be given to examine your learning outcomes from previous class sessions. I will not announce when the quiz will be in advance. Taking lecture notes, actively thinking, and asking/answering questions will help you to understand the content in order to do well in labs and quizzes. Should you miss any class sessions, ask your classmates to fill in what you miss.

Project (30%)

Student will work as a team (or individually) to undertake a project. In most cases I will provide the project topic and direct students in how best to complete it. Exceptional students may be granted permission to pursue a project of their own design. A presentation in class and a poster are required to present the result. Final posters are due by 5:30 pm on April 13, 2012.

Midterm Exam (30%)

Midterm exam will take place in class on Wednesday, February 23, 2012.

Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/Registrar/AcademicCalendar.htm>)

There will be no final exam, instead you should focus on your final project to achieve high quality of GIS learning. However, if projects are poorly designed, final exam may be offered to consolidate your learning experience.

A final numerical score for the course is calculated as the weighted average of all components. Based on the final score, a final letter grade is assigned to the following scale:

A: 90-100 B: 80-89 C: 70-79 D: 60-69 E: Below 60

Course Policies:

Submission of Assignments:

All projects, papers and assignments are due at the beginning of lecture on the day indicated. Assignments turned in after this time (including at the end of class) will be docked 10 percent for every day late (including weekends). Assignments will NOT be accepted beyond five days after the due date.

Attendance Policy.

Attendance is crucial to your success in this class but role will NOT be regularly taken. Excused absences will be made, in accordance with Senate Policy on excused absences.

Excused Absences:

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences:

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request “appropriate verification” when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Academic Integrity:

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else’s work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student’s assignment involves research in outside sources of information, the student

must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Accommodations due to disability:

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

COURSE SCHEDULE

Week	Topic	Readings
1	Lec1: Course Introduction & Geovisualization Lab1: Geovisualization: 3D Visualization and Animation	Slocum et al. Ch11 and 20
2	Lec2: Data Mining and Point Pattern Analysis Lab2: Cluster analysis of points	Wong & Lee
3	Lec3: Data Mining and Polygon Pattern Analysis Lab3: Clusters analysis of polygons	Wong & Lee Chp 8
4	Lec4: Raster Data Analysis Lab4: Simple Operations on raster data	Chang Chp13
5	Lec5: Terrain Mapping and Analysis Lab5: Terrain mapping and surface analysis	Chang Chp14
6	Lec6: Viewsheds and Watersheds Lab6:Viewshed analysis and watershed delineation	Chang Chp15
7	Midterm Exam: Wrap up labs1-7. Work on term project.	
8	Spring Break (No Class)	
9	Lec7: Interpolation Lab7: Trend surface model and Kriging for interpolation	Chang Chp16
10	Lec8: Dynamic segmentation Lab8: Route and Event Analysis	Chang Chp17
11	Lec9: Path Analysis and Network Applications Lab9: Network Analysis using GIS	Chang Chp18
12	Lec10: Simple Programming in GIS Lab10: Vector & Raster programming in GIS	Chang Chp19

13 Work on the project

14 Work on the project
Poster due at 5:30 pm

15 Student Presentation of Term Projects

