

To: College of Science, Graduate Council
From: Edmund J. Zolnik, Assistant Professor
Subject: GEOG 505/GIS: Socioeconomic Applications
Date: November 6, 2006

The accompanying documentation is for a new applied GIS course I am proposing for the fall of 2007. Direct any questions to ezolnik@gmu.edu or (703)993-1144.

Course Number/Title

GEOG 505/GIS: Socioeconomic Applications

Course Objectives

The objective of this applied geography course is to provide students who work with spatially-referenced data with the technical skills to use Geographic Information Systems (GIS) to conduct spatial analyses on socioeconomic phenomena related to labor, land, retail and real estate markets. The course will also introduce students to some of the methodological skills that will help them analyze spatially-referenced data. By emphasizing the development of technical and methodological skills, the course will present students with the necessary background to understand the potential and the pitfalls of using GIS for spatial analyses of socioeconomic phenomena.

Course Justification

Graduate students in geography and other social science disciplines need rigorous technical and methodological training in cartography and statistics to study different socioeconomic phenomena. Given the applied nature of much of the socioeconomic research that is conducted at George Mason University by various departments and schools, it is imperative that students learn that GIS is more than a “black box”. With the proper technical and methodological training students will not only be able to undertake more sophisticated analyses of spatially-referenced data for their academic work, they will also develop skills that will make them more employable after they complete their graduate education.

Relationship to Other Programs

Enrollments are expected from graduate students in the School of Public Policy as well as the Departments of Economics and Marketing who have already expressed interest in this course.

All courses numbered 500 or above must be submitted to the Graduate Council for final approval after approval by the sponsoring College, School or Institute.

Graduate Council requires submission of this form for a new course or any change to existing courses. For a new course, please attach a copy of the syllabus and catalog description (**with catalog credit format, e.g. 3:2:1**). The designated representative of the College, School or Institute should forward the form along with the syllabus and catalog description, if required, as an email attachment (in one file) to the secretary of the Graduate Council. A printed copy of the form with signatures and the attachments should be brought to the Graduate Council meeting. Please complete the Graduate Course Coordinator Form if the proposed changes will affect other units.

Note: Colleges, Schools or Institutes are responsible for submitting new or modified catalog descriptions (35 words or less, using catalog format) to Creative Services by deadlines outlined in the yearly Catalog production calendar.

Please indicate:	New <u>X</u>
Department/Unit:	Geography
Course Subject/Number:	GEOG 505
Submitted by:	Edmund J. Zolnik, Ph.D.
Extension:	3-1144
E-mail:	ezolnik@gmu.edu
Course Title:	GIS: Socioeconomic Applications
Effective Term (New/Modified Courses Only):	Fall 2007
Credit Hours:	(Fixed) <u>3</u> (Variable) <u>3</u> to <u>0</u>
Grade Type (Check One):	<u>X</u> Regular graduate (A, B, C, etc.)
Repeat Status* (Check One):	<u>X</u> NR - Not Repeatable
Schedule Type Code(s):	<u>X</u> LEC = Lecture
Prerequisite:	Permission of instructor
Catalog Description:	Applied geography course to help students from the social sciences overcome the technical challenges (cartographic/statistical) of using Geographic Information Systems (GIS) to study labor, land, retail and real estate markets.

Department/Unit Approval Signature: _____ **Date:** _____

College/School Committee Approval Signature: _____ **Date:** _____

Graduate Council Approval Date: _____

Provost Office Signature: _____

Approval from Other Units:

Please list those units outside of your own who may be affected by this new, modified, or deleted course. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

Unit:	Head of Unit's Signature:	Date:
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Unit:	Head of Units Signature:	Date:

Graduate Council Approval: _____ Date: _____

Graduate Council Representative: _____ Date: _____

Provost Office Representative: _____ Date: _____

SYLLABUS

So geographers, in Afric maps,
With savage pictures fill their gaps,
And o'er unhabitable downs
Place elephants for want of towns.

Jonathan Swift
On Poetry: A Rhapsody
1733

“There are three kinds of lies: lies, damned lies, and statistics.”

Benjamin Disraeli

Course Title:	GIS: Socioeconomic Applications
Academic Department/Course Number:	GEOG 505
Semester/Year:	Fall 2007
Building/Room:	IN 320
Days/Time:	TR 3:00 p.m.-4:15 p.m.
Instructor:	Edmund J. Zolnik
Office:	R B477A
Office Telephone:	(703)993-1144
Office Hours:	TR 4:15 p.m.-5:15 p.m.

Course Objectives: To help students overcome the technical challenges (cartographic/statistical) of using Geographic Information Systems (GIS) to study labor, land, retail and real estate markets.

Course Requirements: Laboratory assignments will be based on the lecture material and require students to conduct cartographic and statistical analyses to answer applied research questions. The laboratory materials (data/programs/questions) will be posted on WebCT for students to download and use in the laboratory sessions. Each laboratory assignment will be due two weeks after it is assigned. Five of the seven laboratory assignments will count towards final grades. Each student will propose and conduct a semester-long project to answer a socioeconomic research question. The deadline for the written proposal will be Tuesday, October 10th. Each student will present their project on the last day of class—Tuesday, December 12th. Grades for the exercise will be based on the quality of the written proposal as well as the written and visual presentation of each project. Quizzes will cover the material presented in lecture and will be given during laboratory sessions. Five of the seven quizzes will count towards final grades.

Course Grade:	<u>Evaluation</u>	<u>Weight</u>
	Laboratory	50%
	Project	25%
	Quiz	25%

Course Schedule:

<u>Date</u>	<u>Day</u>	<u>Format – Topic</u>
8/29	T	Lecture – Exploratory Spatial Data Analysis
8/31	R	Lecture – Exploratory Spatial Data Analysis
9/5	T	Laboratory – How to Lie with Maps/Statistics
9/7	R	Laboratory – How to Lie with Maps/Statistics
9/12	T	Lecture – Sampling Theory
9/14	R	Lecture – Sampling Theory
9/19	T	Laboratory – Modifiable Areal Unit Problem
9/21	R	Laboratory – Modifiable Areal Unit Problem
9/26	T	Lecture – Scale Effects – Disaggregation
9/28	R	Lecture – Scale Effects – Aggregation
10/3	T	Laboratory – Disaggregation/Ecological Fallacy
10/5	R	Laboratory – Aggregation/Atomistic Fallacy
10/10	T	Lecture – Labor Markets
10/12	R	Lecture – Labor Markets
10/17	T	Laboratory – Wages/Rents/Amenities
10/19	R	Laboratory – Wages/Rents/Amenities
10/24	T	Lecture – Land Use Models
10/26	R	Lecture – Land Use Models
10/31	T	Laboratory – People/Place Prosperity
11/2	R	Laboratory – People/Place Prosperity
11/7	T	Lecture – Retail Location Models
11/9	R	Lecture – Retail Location Models
11/14	T	Laboratory – Big Box Retail
11/16	R	Laboratory – Big Box Retail
11/21	T	Lecture – Real Estate Markets
11/28	T	Lecture – Real Estate Markets
11/30	R	Laboratory – The Eminent Domain Game
12/5	T	Laboratory – The Eminent Domain Game
12/7	R	Laboratory – The Eminent Domain Game
12/12	T	Exercise 1

Updated:

November 7, 2006