

GGG 653: Geographic Information Analysis

Course Syllabus, Spring 2016, 3 Credits

INSTRUCTOR

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COURSE BASICS

Meeting times: Wednesday, 4:30-7:10pm
Location: 2310 Exploratory Hall
Web location: Blackboard
Office hours: Tues 4-6pm, Thur 1-3pm, or by appt

TEACHING ASSISTANT

Michael Wolf, mwolf7@masonlive.gmu.edu, *office hours and location TBD*

REGISTRATION DATES

Drop w/o tuition penalty: January 26, 2016
Drop with tuition penalties: January 27 - February 19, 2016

PREREQUISITES

GGG 553 - Geospatial Information Systems (or previous coursework/experience in GIS)
GGG 560 - Quantitative Methods (or a comparable statistics/methods course)

REQUIRED TEXT

No required textbook. Readings will be distributed via Blackboard. Students will also be responsible for gathering peer-reviewed articles for use in a literature review.

OTHER REQUIREMENTS

USB thumb drive or some other form of portable (or easily accessible) storage device/service (1 Gb minimum)

OVERVIEW & OBJECTIVES

GGG 653 explores existing and potential capabilities of geographic information systems in conducting spatial analysis and modeling. An emphasis is placed on how geographic information analysis is used in the larger process of conducting scientific research. Throughout the course, students are required to complete a rigorous, high-quality research project of their own choosing. Weekly material will cover how geographic information and GIS are used throughout the research process, as well as more advanced applied GIS topics such as data integration, spatial statistical analysis, temporal analysis, and data visualization.

ASSIGNMENTS & EXPECTATIONS

GGG 653 is a project-driven course. Students are required to procure a high-quality spatial data set, develop a research question, complete an analysis, and draft a final project paper. The final project will account for a majority of the grade in the course. Evaluation of the project will be distributed throughout the semester among updates, an initial submission, a revised submission, and a short presentation as detailed below. Students will be required to submit 5 literature review assignments, which will be "directed" searches and reviews (provided via assignment sheets). Students will be responsible for locating relevant literature that is related to their project. Attendance and participation in class discussions are expected and required in GGG 653, as much of the specific course material will be tailored to the nature of the student research projects.

GRADING SCHEMA

Assessment	Points	% (of final grade)
Literature Reviews (5)	150	15%
Research Project	750	75%
Update #1	150	15%
Update #2	150	15%
Initial Submission	300	30%
Oral Presentation	75	7.5%
Revised Submission	75	7.5%
Participation	100	10%

Assigned material is due by the start of the lecture on the due date. Late submissions will be penalized 20% per day. The only exceptions will be for the usual *documented* medical reasons or by *previous agreement* with the instructor.

Grades will be based on the following cutoff values, although I reserve the right to alter the exact values at the end of the semester:

A (93%), A- (90%), B+ (87%), B (83%), B- (80%), C (70%)

OUTLINE & SCHEDULE (This is likely to change, especially after Week 7, so please keep an eye on Blackboard)Note: the readings dates below refer to **the date they are to be read by!**Note: the assignment dates below refer to **the date they are due!**

W	Date	Lecture Topics	Readings / Assignments Due
1	1/20	W GGS 653 Course basis What is Geographic Information Analysis? Literature Search / Research Library	
2	1/27	W Representation: Data and Information Data Collection, Handling, and Integration Developing a Research Question	O'Sullivan 2010 (Chp 1) Literature Review #1
3	2/3	W Issues with Statistics and Spatial Data Scale / MAUP / Ecological Fallacy Linking the RQ and Method/Approach	O'Sullivan 2010 (Chp 2)
4	2/10	W Geographic Pattern and Process Mapping and Visualization Project/paper outline and organization	O'Sullivan 2010 (Chp 4) Literature Review #2
5	2/17	W Global and Local Spatial Autocorrelation Moving Past the (Arc)GIS Paradigm Writing an Introduction and Lit Review Section	Getis 2007 * Project Update #1
6	2/24	W Exploratory Spatial Data Analysis Geographically-weighted Approaches Project Discussions	Anselin et al. 2006
7	3/2	W Neighbors, Bandwidths, and Weights Measuring Distance and Separation Writing a Data/Methods Section	Getis and Aldstadt 2010 Literature Review #3
	3/9	W No Class, Spring Break	
8	3/16	W Multiple Regression Spatial Regression Approaches Writing a Results Section	TBD
9	3/23	W Grouping and Regionalization More Mapping and Visualization Project Discussions	TBD * Project Update #2
10	3/30	W <i>Guest Lecture TBD</i> (Dr. Delamater at AAG)	TBD Literature Review #4
11	4/6	W Time in GIS Temporal Data Decompositions Writing a Discussion/Conclusions Section	TBD
12	4/13	W Landscape Ecology Shape and Pattern Metrics Writing an Abstract	TBD Literature Review #5
13	4/20	W Point Pattern Analysis Patterns, Clusters, and Interpolation Journal Formatting and Preparation	TBD * Project Initial Submission
14	4/27	W Course Wrap Up and Summary Creating a Project Presentation Project Discussions	
5/4	W	Project Presentations (during Final Exam period)	* Project Final (Revised) Submission

ACADEMIC INTEGRITY

GMU has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions.

GMU EMAIL ACCOUNTS

Students must use their MasonLive email account to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

OFFICE OF DISABILITY SERVICES

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474, <http://ods.gmu.edu>. All academic accommodations must be arranged through the ODS.

RESOURCES

The Writing Center: <http://writingcenter.gmu.edu>

University Libraries, Ask a Librarian: <http://library.gmu.edu/ask>

Counseling and Psychological Services: <http://caps.gmu.edu>

University Catalog: <http://catalog.gmu.edu>

University Policies: <http://universitypolicy.gmu.edu>