

GGG 463: (RS) Applied Geographic Information Systems

Course Syllabus, Fall 2018, 3 Credits

INSTRUCTOR

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COURSE BASICS

Meeting times: Tues / Thurs 1:30 - 2:45pm
Location: 2103 Exploratory Hall
Web location: Blackboard (courses.gmu.edu)
Student Hours: M 7-8, Th 3-4, or by appt

PRE-REQUISITES

- GGS 300 (Quantitative Methods) and 311 (Intro GIS) **must** have been taken previously to enrollment in this course. Students missing these courses without instructor approval will be removed from the course.
- GGS 310 (Cartography) is strongly recommended.

OVERVIEW & OBJECTIVES

Applying GIS comes in many shapes and forms. GGS 463 explores existing and potential capabilities of geographic information systems, with an emphasis on how geographic information analysis is used in the larger process of conducting scientific research. The goal is to teach you how to think about how to answer geographic problems in a robust and scientific manner.

This class is a Students as Scholars *Research & Scholarship Intensive* course that focuses on the application of GIS to answer a relevant geographic question. Applying GIS requires both a systematic purpose and a set of tools to use on that purpose. Instruction and class time will interweave the learning of geographic methods alongside active research activity. This research activity involves The Creation of an Original Scholarly Project, which includes:

- Articulating and Refining a Geographic Research Question,
- Gathering and Managing the Spatial Data Necessary to Answer this Question,
- Executing the Appropriate Spatial Methods, and
- Applying Appropriate Scholarly and Cartographic Conventions in Presentation.

Given these goals, GGS 463 is a project-driven course with accompanying skill acquisition. You will work through this research project as a GIS project team, present your findings in the form of a research poster at the University's Research symposium, and write a report on your particular selection. At the end of the course, each student will have a greater grasp of the research process, a deeper understanding of the ways in which spatial analysis can be implemented, a deeper understanding of the methods undertaken to grow our understanding of spatial processes, and insight into a particular geographic problem.

ASSIGNMENTS & EXPECTATIONS

All assignments will be available and submitted through Blackboard. While unlimited submissions are permitted in Blackboard, only the most recent submission will be graded. No late work will be accepted without a documented excuse.

You are expected to be respectful of your peers and your instructor in both words and actions. This ranges from classroom interactions to the simple act of showing up to class on time. While this is a computer classroom, this is for the purposes of doing GIS and associated data gathering and write-up. You are expected to be respectful of your peers and your instructor and to not engage in activities that are unrelated to the class.

My last name is pronounced LES-LEE. My preference is that you address me as "Professor," "Professor Leslie" or "Dr. Leslie." If there is a specific way that you would like me to address you—including certain pronouns—please

notify me as soon as possible.

This class is upper division course designed for students with an understanding of geographic information systems, and your work should show **attention to detail**. Grading emphasis will focus on both the completion of the assignment as well as the quality of the submitted document.

No tests will be handed out after the first person to finish has turned in their exam and left the room.

You will likely want a thumb drive or some other form of portable (or easily accessible) storage device/service. I strongly suggest using a cloud service such as dropbox.com.

I reserve the right to hold back a poster from the University Research celebration in cases of insufficient visual quality or scientific rigor.

GRADING SCHEMA

Assessment	% (of final grade)	Assessment	% (of final grade)
Research Milestones	30%	Exam	25%
Research Poster	10%	Lab Assignments	25%
Research Paper	10%		

Grades generally follow 90/80/70/60 with plus/minus being within 3 percent of the cutoffs. I reserve the right to alter the exact boundaries at the end of the semester.

If you are not satisfied with your progress during the semester, please see me as early as possible; do not wait until the end of the semester to address these concerns.

Evaluation of the Research Poster may incorporate feedback from faculty elsewhere in the department and University.

Exams will be a mix of multiple choice, true/false, fill in the blank, and free response. I **do not** provide review sheets for exams.

If extra credit opportunities arise throughout the course of the semester, they will be announced in class and appear in the Extra Credit Opportunities folder on Blackboard. These opportunities are rare and may not happen.

STUDENTS AS SCHOLARS

Students as Scholars is GMU's award-winning initiative to give students the opportunity to conduct undergraduate research. If you are interested in conducting research or simply learning more about the program, check out oscar.gmu.edu or stop by the Office of Student Scholarship, Creative Activities, and Research to learn about the many programs available to GMU students.

GGS COMPUTER LAB ASSISTANCE

All students in GGS courses should receive “swipe” access (using your Student ID) to the GGS Student Computer Lab (Room 2102, Exploratory Hall) upon registering for the course. If you are having problems with door access, please e-mail GGS administrator Sam Cooke (scooke4@gmu.edu) with SWIPE ACCESS in the subject line of your email.

If you need a license key for a self-installed copy of ArcGIS, please e-mail Professor Leslie.

If you experience problems with the computers (e.g., software or hardware issues) in the GGS Student Computer Lab, please email College of Science IT (cosit@gmu.edu) for technical assistance.

Please copy Dr. Leslie on any e-mail correspondence to outside parties if it is related to this course.

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.

ACADEMIC INTEGRITY

The integrity of the University community is affected by the individual choices made by each of us. 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.

Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited, using MLA or APA format (or similar). A simple listing of books or articles is not sufficient.

The principle of academic integrity is taken seriously, and violations are treated gravely. No grade is important enough to justify academic misconduct, and ignorance is not an excuse. Please see the University Catalog for a full description of the code and the honor committee process.

DIVERSITY

George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth. An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected. Notably, individuals are asked not to speak for the experience of others, nor to ask others to account for an entire group of which they may belong or identify.

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.

OTHER GMU 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>

OUTLINE & TENTATIVE SCHEDULE (subject to change)

	Date	Lecture Topic	Written Supplement	Due
1	27-Aug	Introduction	Fotheringham et al, Chp 3 Learning Styles 3 Stages of Failure	
2	29-Aug	Spatial Data	Fotheringham et al, Chp 2	
3	3-Sep	Research Design	Methods Chp 2 by Gatrell and Flowerdew	Lab 1
4	5-Sep	Descriptive Statistics	Burt et al Chp 3 & 4	
	10-Sep	Open Lab		Project 1
5	12-Sep	Research Design II	Methods Chp 4 by Flowerdew	
6	17-Sep	Point Patterns	Fotheringham et al, Chp 6	
7	19-Sep	Regression	Burt et al Chp 12	Project 2
8	24-Sep	Spatial Autocorrelation	Getis Reflection O'Sullivan & Unwin Chp 7 & 8	
9	26-Sep	Regression II	Burt Et Al Chap 13	Lab 2
10	1-Oct	Time Analysis	Sen Et Al Chap 2	Lab 3
11	3-Oct	Regression III		
12	8-Oct	Grouping Analysis	Jain 2010, Kupfer et al 2012	Lab 4
	10-Oct	Open Lab		Project 3
	15-Oct	No Class - Fall Break		
13	17-Oct	Interpolation & Kernel Density	O'Sullivan & Unwin Chp 9 & 10	Lab 5
14	22-Oct	Presenting Statistics		
15	24-Oct	Automating GIS		Lab 6
	29-Oct	Open Lab		Project 4
16	31-Oct	Categorical Analysis		Lab 7
17	5-Nov	Career Alignment		
G	7-Nov	Guest Speaker: GIS Careers		Lab 8
	12-Nov	Open Lab		Lab 9
	13-Nov	GIS DAY		
	14-Nov	Open Lab		
18	19-Nov	Ethics	Agnew Presidential Column Van der Velden et al, 2018	Research Paper
19	21-Nov	Research Posters	Gosling Chp 2, 3, 5, 6, 7, & 8	Project 5
	26-Nov	Open Lab		Lab 10
	28-Nov	No Class - Thanksgiving		
20	3-Dec	Draft Poster Day, Course Wrap-Up		Draft Poster, 10am
	5-Dec	FINAL EXAM		
	TBA			Poster
	13-Dec	Posters Presented as University Research Fall Celebration		