GGS 463: GIS ANALYSIS AND APPLICATION
COURSE SYLLABUS, FALL 2024, 3 CREDITS

INSTRUCTOR

Name: Dr. Timothy Leslie

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COURSE STRUCTURE

Meeting time(s):	MW 3 – 4:15pm
Location:	Exploratory Hall 2103
Modality:	100% in-person
Course URL:	canvas.gmu.edu
Pre-Requisites:	C or better in GGS 300 and GGS 311
Textbook(s):	No required textbook. All external content will be available electronically.

COURSE OVERVIEW & OBJECTIVES

Applying GIS through analysis is the art and science of investigating and sharing patterns in spatial data. This course as a set of scaffolding elements to contribute towards a greater understanding of the research process, the ways in which spatial analysis can be implemented, and a particular geographic problem. The content of this course was developed in alignment and with the support of the Mason Impact *Research and Scholarship Intensive* curriculum. This curriculum emphasizes the importance of student-led research projects and the development of the associated critical thinking and analysis skills. Below is a list of specific set of learning objectives this course is designed to guide you towards obtaining:

Objective 1: Articulate and Refine a Geographic Research Question. An emphasis is placed on how to use geographic information analysis in strategic ways to build a set of technical and transferable skills. Students will work with a topic of their choosing, preferably focused on a meaningful real-world problem.

Objective 2: Gather and Manage the Spatial Data Necessary to Answer a Geographic Research Question. To support your continued development as a GIS analyst, we will investigate the process of identifying and acquiring the information necessary to answer geographic problems in a robust and scientific manner.

Objective 3: Identify Appropriate Spatial Methods and Execute Them Properly. A substantive portion of class will delve into spatial statistical analysis, temporal analysis, and data visualization methods. Students will be expected to utilize a set of these methods in a manner consistent with the literature.

Objective 4: Apply Appropriate Scholarly and Geospatial Presentation Conventions. Presenting information is crucial to its impact outside of the analyst space. You will conclude your scholarly project by creating two separate processes to conveys what your analysis tells us about the world around us. This poster brings together the academic context, spatial methods, and presentation of results in a way that useful for disciplinary scholars and external stakeholders.

ASSESSMENTS AND GRADE WEIGHTS

ASSESSMENT			WEIGHT
Technical Mastery Students will complete a series of practical exercises focusing on core GIS skills, such as data manipulation and spatial analysis, and map creation. These exercises are critical for building the technical foundation necessary for the course project and future professional work. This class will teach the technical application elements in ESRI ArcPro. You are free to use open source (QGIS), command line (R), or other software.			20%
Learning Exercises Students will participate in various in-class activities, ranging from group discussions to hands-on GIS tasks. These activities are designed to be interactive and encourage critical thinking, collaboration, and the application of course concepts.			15%
Spatial Snap Throughout the semester, students will make presentations on GIS applications that they have found beyond the course boundaries and will bring it back to the class.			5%
Exam The exam will be a mix of multiple choice, true/false, fill in the blank, and free response. I do not provide review sheets for exams.			20%
Project	Each student will participate in a course project. Evaluation of the project will be distributed throughout several updates and milestone submissions that come together to make a cohesive product. Each milestone submission is accompanied by a conversation and discussion with the course instructor.	Project Step 1 – Group, Context, and Data	5%
		Project Step 2 – Analysis Plan	5%
		Project Step 3 – Results	5%
		Project Step 4 – Draft	5%
		Project Step 5 – Primary Delivery	15%
		Project Step 6 – Secondary Delivery	5%

TENTATIVE SCHEDULE (SUBJECT TO CHANGE)

MONTH	DATE	TOPIC
AUG	M 26	Course Overview, Specification Grading, Re-Introduction to GIS
	W 28	
	M 2	**No Class - Labor Day**
	W 4	What Makes Research Geographic? (Course Project)
	M 9	Analysis Avoiding Statistics as Much As Possible
SEP	W 11	GIS Ethics
	M 16	Statistics and Regression
	W 18	
	M 23	Spatial Autocorrelation
	W 25	GIS and the Workplace
	M 30	Grouping
	W 2	Presenting GIS
	M 7	Multi-Method Research
	W 9	Interpolation and Kernel Density
OCT	M 14	**No Class - Fall Break**
	W 16	Time
	M 21	Categorical Analysis
	W 23	Categorical Analysis
	M 28	Machine Learning
	W 30	Project Check-In Day
	M 4	Spatial Network Analysis
	W 6	*TBD*
NOV	M 11	**No Class - Celebration of Regional Science**
	W 13	
	M 18	*TBD*
	W 20	**Exam**
	M 25	**No Class - Project Work Day**
	W 27	**No Class - Thanksgiving**
DEC	M 2	Virtual Project Consultations
	W 4	Virtual Project Consultations
	M 9	Project Presentations
	M 16	Final Project Submission

GRADING

The expected grade breaks are the following:

A	A-	B	B-	C	D
100 - 92	91.9 - 87	86.9 - 82	81.9 - 77	76.9 - 71	70.9 - 65

Submission Guidelines:

- Platform: All submissions will be done through Canvas.
- Multiple Submissions: For assignments where a student has multiple submissions, only the most recent submission will be graded.
- Format: Unless otherwise specified, assignments should be submitted as PDFs with in-line text and tables (not screenshots of tables).
- Document Links: Links to documents stored on services such as Google Docs/Drive will be treated as non-submissions.
- Readable Files: Ensure your submitted files are readable. Any corrupted file will be treated as a non-submission.

Late Submission Policy:

- Penalty: Late submissions will incur a 10% deduction. After 24 hours, the penalty increases by 10%. These deductions are based on the total points possible for the relevant submission.
- End-of-Semester Cutoffs: All submissions must meet the posted end-of-semester cutoffs to be graded.
- Valid Documentation**:** Valid documentation for full credit on late submissions includes a conference program with your presentation, military obligations, or university-sanctioned activities documented by an appropriate official. Illnesses or events for individuals for whom you are not the primary caretaker are not sufficient justification for delay.
- Religious Observance or University Activities**:** If you will miss classes due to a religious observance or participation in a University activity, you are obligated to notify the instructor within the first two weeks of the semester (University Policy AP.1.6.1). In such cases, a reasonable alternative opportunity will be provided.

Grade Concerns and Opportunities:

- Requests for Grade Reconsiderations*:* All requests for grade reconsiderations must be made via email. When requesting reconsideration, refer to specific points of objection. Each student will be held to the same requirements and evaluated according to the same criteria, except as required by university policies on accommodation.
- Expect No Extra Credit*:* Generally, there are no extra credit opportunities in this class, and requests are not entertained. If extra credit opportunities arise, they will be announced and provided equitably to the entire class.
- Support: If you are not satisfied with your progress during the semester, please see me as early as possible to address or bring up concerns.

Feedback and Grading Timeline:

- Timeline: Grades for submitted material will typically be provided within 4 business days of submission.
- Wait Period: Please wait at least 4 business days before contacting the instructor regarding grades.
- Detailed Feedback: For more detailed feedback on graded material, follow up either in class or through a scheduled meeting. Drafts are not given feedback or graded unless students come to office hours with specific questions.

NAVIGATING THE COURSE

Attendance and Participation:

- Importance of Attendance: Attending class is essential for your success in this course. There's a strong positive correlation between attendance and final grades, so make the most of every opportunity to learn.
- Punctuality: Arriving on time shows respect for your classmates and helps maintain the flow of our class activities. Please make every effort to be punctual.
- Class Cancellations: If I need to cancel class, I will notify you via email as soon as possible. In case of an unexpected absence, please understand and assume the best until further notice.
- No Unauthorized Guests: To maintain a focused learning environment, please do not bring unauthorized guests to class.

Engagement and Respect:

- Active Participation: Your participation makes our class vibrant and engaging. Share your thoughts, ask questions, and contribute to discussions to enhance everyone's learning experience.
- Curiosity: Questions are a vital part of learning. Feel free to ask for clarification or more information whenever you need it. Your curiosity helps us all learn better.
- Focused Learning: Let's all try to stay focused on our class activities. While technology can be a useful tool, keep the use of devices relevant to coursework.
- Respectful Communication: Express your ideas clearly and respectfully. Online, use thoughtful language and be mindful of tone to ensure effective communication.

Time Management and Deadlines:

- Effective Planning: Keep an eye on deadlines and plan your time accordingly. Staying organized can help reduce stress and improve the quality of your work.
- Staying Ahead: Try setting personal deadlines a bit earlier than the actual due dates. This can give you a buffer to refine your work and avoid last-minute rushes.
- Adaptability: Be prepared for unexpected challenges. If you finish your work early, you'll have extra time for revisions or other activities. If something goes wrong, learn from it and adjust your approach for next time.

Modifications

- Occasionally, circumstances arise during the semester that necessitate changes. Should they occur, any syllabus changes or additions will be communicated and considered final.

CONTACTING ME

Office Hours and Appointments

I am here to support your learning and help you with any challenges you may encounter during the course. I offer two primary ways to get in touch outside of class:

1. Zoom Appointments: To schedule a meeting, use my Calendly link: Calendly - Office Hours. If you cannot find an available time that fits your schedule, please email me with at least three possible meeting times, and we will find a mutually convenient alternative. Appointments are better suited for answering complex questions, such as "How do I do ___" or "What are your thoughts on ____?"
2. Email: I usually respond to emails quickly, Monday through Thursday. Emails sent after 12 PM on Friday or over the weekend will generally be answered by noon on the following Monday. For questions that can be

answered with a simple yes or no, email is the best option. If your concern is more complex, I may ask you to schedule a meeting or discuss it with me in class.

Email Etiquette

When emailing me, please follow these guidelines to ensure a timely and effective response:

- Read the Syllabus First: Many common questions are addressed in the syllabus. Please check here before sending your email.
- Clear and Specific: Clearly state your question or concern. If you are asking about a specific assignment, include its name and due date.
- Professional Tone: Use a professional and respectful tone in your emails. This includes proper grammar, punctuation, and complete sentences.

Common Email Inquiries

To maintain efficient communication, please note the following:

- Missed Class and Excusal Notes: If you miss a class, refer to the syllabus and classmates for missed information. You do not need to inform me of your absence unless it involves an exam or major assignment. If you need to be excused from class due to illness or another valid reason, please provide a general non-specific note from your doctor indicating the period covered.
- Grade Discussions: If you wish to discuss a grade, provide specific points of objection rather than a generalized response. This approach allows for a more productive and focused conversation.
- Grade Rounding: Requests to round up final grades will not be entertained. Please focus on meeting the course requirements to achieve your desired grade.

TECHNICAL EXPECTATIONS

Technical Requirements:

- Reliable Access: You'll need regular access to a computer with an updated operating system and a stable internet connection to complete course activities.
- Privacy and Sharing: Course materials posted on Canvas or other platforms are private. Do not share any materials that identify specific students (via name, voice, or image) with anyone not enrolled in the class.
- Specialized Software: If you need to use ESRI proprietary software off-campus or on non-Windows machines, you can access it through the Citrix Virtual Lab. Instructions are provided upon request.
- Adobe Products: Adobe products are limited to on-campus use only. There are no software keys for self-installation.

File Management:

- Organized Digital Space: Keeping your digital files organized is crucial. Consider using a consistent naming convention for your files, such as dates or revision numbers (e.g., "ProjectText_Jan3"). This can help you stay on top of your assignments.
- Frequent Saving: Save your work frequently and keep separate backups. Using a cloud service like OneDrive (provided by Mason) or Dropbox can help you avoid losing your work.

- Large Files: Some course files might be large. A portable or easily accessible electronic storage solution will be useful for managing these files.
- Self-Management: Managing files and technical tasks without assistance is a vital part of completing course activities. For non-content related technical issues on the course website, please contact Mason ITS for assistance. I cannot provide technical support for these issues.

Online Platforms:

- Canvas and Other Tools: Activities and assignments will regularly use Canvas. Familiarize yourself with this platform to ensure smooth participation.
- Web-Conferencing: We will use Zoom for office hours. You will need a device with a functional camera and microphone for speaking. While camera use is not always required, it's appreciated when you do turn it on during speaking.
- Recording Sessions: Outside video and/or audio recording is permitted only with prior written consent or if part of an approved accommodation plan. Sessions should be viewed privately and not shared with others.

GENERATIVE AI AND ACADEMIC STANDARDS

The use of content-generating AI websites and bots is prohibited unless specifically allowed in an assignment. Submitting content from generative AI websites without permission will be treated as academic misconduct.

INCLUSIVITY AND SUPPORT

Inclusivity and Respect:

As members of the George Mason University community, we value diversity in race, ethnicity, gender identity, socioeconomic status, nationality, and perspective. Each student brings unique contributions to our class, enriching our collective learning experience. This course may involve discussions on sensitive or controversial topics, and it is expected that everyone will approach these discussions with an open mind and a respectful attitude. It is my intent that all students feel well-served by this course and that the diversity you bring is viewed as a resource, strength, and benefit. If something said or done in the classroom by either myself or other students is particularly troubling or causes discomfort or offense, please let me know.

Name Preference and Pronouns

You are encouraged to use your chosen first name and indicate your pronouns. I use male pronouns (he/him) and my last name is pronounced LESS-LEE. My preference is that you address me as "Professor," "Professor Leslie," or "Dr. Leslie." If there is a specific way you would like to be addressed, please let me know and update your Mason file in PatriotWeb.