

GGG 463: GIS ANALYSIS AND APPLICATION

COURSE SYLLABUS, FALL 2023, 3 CREDITS

INSTRUCTOR

Name: Dr. Timothy Leslie

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COURSE STRUCTURE

Meeting time(s): W 4:30 – 5:45pm

Location: Exploratory Hall 2103

Modality: 50% in-person,
50% asynchronous online

Course URL: mymasonportal.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.

SECTION I – 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 convey 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.

SECTION II – ASSESSMENTS AND GRADE WEIGHTS

	ASSESSMENT	WEIGHT
	Modules	
	Through these modules you will demonstrate expertise across a range of knowledge bases after engaging relevant lectures and external materials.	35%
	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.	
	Hot Take	
	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 <u>do not</u> provide review sheets for exams.	20%
Project		Project Step 1 – Group, Context, and Data 5%
	Each student will participate in a course project.	Project Step 2 – Analysis Plan 5%
	Evaluation of the project will be distributed throughout several updates and milestone submissions that come together to make a cohesive product.	Project Step 3 – Results 5%
	Each milestone submission is accompanied by a conversation and discussion with the course instructor.	Project Step 4 – Draft 5%
		Project Step 5 – Primary Delivery 15%
		Project Step 6 – Secondary Delivery 5%

SECTION III - TENTATIVE SCHEDULE (SUBJECT TO CHANGE)

DATE	TOPIC(S)
AUG 23	Course Overview, Specification Grading, Course Project
AUG 30	What Makes Research Geographic?
SEPT 6	Ethics and the GIS Industry
SEPT 13	“Let’s Progress, not Regress”
SEPT 20	Feedback and Failure
SEPT 27	The Matters of Presentation
OCT 4	Multi-Method Research
OCT 11	Interpolation, Or, How I Learned to Stop Worrying and Love EBK
OCT 18	Classification and the Joys of Labels
OCT 25	Why GIS and Time is So Hard
NOV 1	The Co-Location Quotient Story
NOV 8	<i>NO CLASS - VETERANS DAY</i>
NOV 15	Course Exam
NOV 22	<i>NO CLASS - THANKSGIVING</i>
NOV 29	NO CLASS - Virtual Meetings on Project Drafts
DEC 6	NO CLASS - Project Submissions

SECTION IV – NAVIGATING THE COURSE

When part of this course, you are expected to be respectful of your peers and your instructor in both words and actions. This has several components:

- Coming to class is a critical component of the course. There is a strong positive correlation between the percentage of classes a student has attended in the course and the student's final grade for the semester.
 - Do what it takes to come on time, as coming late to class disturbs class activities and our learning process.
 - George Mason's policy is that if the instructor does not arrive within 15 minutes that the course meeting for the day is cancelled.
 - This is an anachronism, so instead I will inform students via e-mail in advance of class (with as much notice as possible) if class is cancelled for the day. I will also contact our departmental support staff if something happened on the way to work. Failing that, assume the worst happened to me. I ask that students make sure that my story gets the proper treatment on a *Law-and-Order* episode, and that I be played by Ryan Reynolds.
 - No unauthorized guests will be permitted in class.
- Learning is an active exercise in engaging the material, so bring a desire to participate.
 - Your participation is not only an important part of *your* learning, it will also contribute to the learning of your peers. We are in this class to share information and learning from each other. As members of our learning community, each of us has a responsibility to create an environment in which we can all learn from each other. By sharing and discussing each other's ideas, you will be able to examine your own thoughts and feelings hence, making the course interesting and enjoyable!
 - Ask questions.
 - Curiosity is the secret to learning.
 - This might mean asking for help or clarification of an assignment or class activities when you need it.
 - It is possible that there are mistakes in the course material – I am not infallible, and I will adapt or change as necessary.
 - Please focus on class and refrain from activities that are unrelated to the class during course time, regardless of the screens present. Cell phones and other communicative devices are not generally part of the pedagogical elements of this course.
- Express differences of opinion in a polite and sensible way.
 - Posting in electronic spaces requires care with grammar, spelling, diction, and tone. Emoji or acronyms and abbreviations should be used judiciously, if at all.
 - Keep an open mind to the constructive criticism, whether from the instructor or from classmates, and use it to improve your work.
- Manage your time proactively.
 - Keeping track of course deadlines and the upcoming assignments leads to substantially increased submission quality and lower stress levels. For *everyone*.

- Course due dates almost always clump up at the end of the semester, and stress at that time is high. I encourage a strategy where you cut your deadlines down by some amount (try 50%) and see how much more progress you make. Procrastination is a silent destroyer.
- Allow for the fact that some assignments can take more time than expected, and that your classmates may work at a faster or slower pace than you do.
 - Assume Murphy's Law ("anything that can go wrong, will go wrong, often at the most inopportune time") is always in effect and plan around it.
- Did you get your demands done in less time? Great! You can either take that time to revise and iterate or do other things you enjoy.
 - Did you not allocate enough time? Then acknowledge that your work is of lower quality than you planned and operate differently next time.
- Class Due Dates should not set your calendar.
 - Course due dates are determined for a multitude of reasons, some of them related to learning, some of them not. Most of them do not relate to you in an individualized way.
 - Instead, match your demands to your time, and identify how to schedule your time.

TECHNICAL EXPECTATIONS

Activities and assignments in this course will regularly use the Blackboard learning management system. Students are required to have regular, reliable access to a computer with an updated operating system and a stable broadband Internet connection.

- All course materials posted to Blackboard or other course site are private; any materials that identify specific students (via their name, voice, or image) are not to be shared with anyone not enrolled in this class.
- Elements of the course may also incorporate web-conferencing software such as Blackboard Collaborate and Zoom. These are to be viewed privately and not shared with others in your household. For these sessions, students are required to have a device with a functional camera and microphone for usage when they are speaking. At other times, I do not require cameras to be turned on but do appreciate it.
- The ability to manage files without assistance is an underlying element of completing the course activities, and having an organized digital space is crucial to reliable progress and submission.
 - You will likely want some form of portable (or easily accessible) electronic storage, as some of the files can become very large and numerous. I strongly suggest using a cloud service such as [OneDrive](#) (provided by Mason) or [Dropbox](#). Saving your work to a Mason machine or virtual machine is NOT reliable.
 - I encourage developing a subfolder and naming convention that relies on something consistent such as dates or revision number (e.g. avoid "project-draft-TL-15_submitted_final_fixed", instead try something along the lines of "ProjectText_Jan3").
 - Please save frequently while working on any assignments and keep separate backups.

Students seeking to use ESRI proprietary software off-campus and/or on non-Windows machines are directed to the [Citrix Virtual Lab](#), for which instructions are provided on the course website. Adobe products, if available, are limited to on-campus usage. Software keys for self-installation are not provided for any software.

Outside video and/or audio recording is permitted only with the prior written consent of the professor or if recording is part of an approved accommodation plan.

Students must use their Mason email account to receive important University information, including messages related to this class.

- The Family Educational Rights and Privacy Act (FERPA) means that I cannot discuss your educational record with your parents, your friends, or anyone except for you without explicit written permission. Because your GMU email is the only one that can be identified as belonging to you, the only way to communicate with you via email is through your GMU address.

For elements of the course website not related to unlocking / viewing course content or direct laboratory material, I cannot serve as your technical support, and direct you to [Mason ITS](#).

MODIFICATIONS

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

SECTION V – GRADING

GRADING STRUCTURE

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

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 or bring up concerns.

Each student in a course will be afforded the same opportunities, held to the same requirements, and evaluated according to the same criteria, except as required by university policies on the accommodation of students with special circumstances.

In general, there are no offers for extra credit opportunities in this class, and requests are not entertained. If extra credit opportunities do arise throughout the course of the semester, they will be announced and provided equitably to the entire class.

SUBMISSION CONSTRAINTS

All submissions will be done through Blackboard.

- For assignments with multiple student submissions, only the grade of the most recent submission will be graded / counted.
- Assignments due on a university closure or delay date are still due on that day unless otherwise specified.
- Assignment submission occasionally causes students to demonstrate unusual behavior. Please do not simultaneously email your submission to the instructor to “verify that it’s in.” Instead, use the tools within Blackboard to view or download your files after uploading to confirm they are readable and are the complete and intended version.
- Unless otherwise specified, you have **one** attempt to take any quiz or exam. In person, no tests will be handed out or enabled after the first person to finish has completed their exam.
- Unless otherwise requested, assignments should be submitted as PDF, with in-line text and tables (not screenshots of tables).
- All requests for grade reconsiderations must be done via email.
- Links to documents stored on services such as Google Docs / Drive will be treated as non-submissions.
- Students are responsible for ensuring that their submitted files are readable. Any corrupted file is treated as a non-submission.
- Students can expect to have grades on submitted material within 4 business days of submission. Please wait at least that long to contact the instructor. Blackboard is, at best, a difficult medium for feedback on submitted materials. If you are interested in more detailed feedback on graded material, please 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 regarding written drafts.

LATE SUBMISSIONS

Due dates are a part of all elements of the course. As a general policy, late submissions are penalized, and eventually not permitted. Bad things can happen at the last minute, and I encourage you to avoid planning for submissions at deadlines. While students will not be responsible for (documented) campus or blackboard problems that disallow submission, there are no accommodations for personal power outages, software glitches, or hardware malfunctions. Missing assignments are scored with a zero.

- The standard late work penalty is a 10% deduction for submissions less than 24 hours late, with a small but undisclosed grace period on submissions around the due date time. The penalty grows to 20% after 24 hours of the due date. These deductions are based on the total points possible for the relevant submission.
- There are posted end-of-semester cutoffs for all submissions that must be met for submissions to be graded, late or otherwise.
- If a student will miss classes due to a religious observance or participation in a University activity, they 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.
- Valid documentation that could justify full credit for late submissions could include a conference program that includes your presentation, military obligations, or conflicts with university-sanctioned activities documented by an appropriate university official. Illnesses or events for individuals for which you are not a primary caretaker are not sufficient justification for delay.

ACADEMIC STANDARDS AND 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 and dishonest practices. There is not sufficient space here to list every possible behavior or action that constitutes cheating. Any action that undermines the academic integrity of the course, the students, or the university constitutes a violation of the policy. Under no circumstances is it permissible to cheat, plagiarize, steal, or lie in matters relating to academic work.

Three fundamental principles to always follow:

- (1) all work submitted be your own, and unique to this course;
- (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations and authorship; and
- (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification.

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 established style). It is your responsibility to understand what constitutes plagiarism and familiarize yourself with the Honor Code.

Even with independent submissions, you may discuss your ideas with others and conference with peers on drafts of the work; however, it is not appropriate to give your paper to someone else to revise. You are responsible for making certain that there is no question that the work you hand in is your own. If only your name appears on an assignment, your professor has the right to expect that you have done the work yourself, fully and independently, and have not repurposed work from another class. If the assignment involves collaborative work, the names of all contributors should appear on the work.

Content generating AI websites and bots are not to be used unless specifically incorporated into an assignment.

Participation in some kinds of online study sites violate the Mason Honor code: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the course materials or exams; and uploading any of your own answers or finished work. Posting any course materials on any web site or providing any course content to someone who is not a current student without my written permission will be treated as academic misconduct, regardless of intent. This includes submission of my content to generative AI websites.

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. Honor Code referrals on exams or course elements worth more than 15% of the overall grade will recommend a sanction of at least course failure, with other referrals recommending at least a 0 on the relevant assignment and a letter grade deduction on the final course grade. The official GMU policies are available from the [Office of Academic Integrity](#).

REFERENCES AND LETTERS OF RECOMMENDATION

I can serve as a reference or write a letter of recommendation for you if you have completed a semester in an upper division or graduate course I have taught with a B or above. I require that you ask me before using me in this capacity. I will not serve in this capacity for individuals that I have referred and subsequently been found in violation of Academic Integrity standards.

SECTION VI – CONTACTING ME

I welcome you to contact me to support your learning and talk out concepts that you may be struggling with. I am available for support outside of class through two mechanisms: (1) appointments through Zoom, and (2) email. Appointments are better suited for answering questions along the lines “How do I do ___” or “What are your thoughts on ___”, while email is for responses that are yes/no in nature. If I believe your emailed concern is sufficiently complex that an email response will be insufficient, I will generally ask you to schedule a meeting or discuss it with me in class.

1) I use a scheduling system for outside-of-class Zoom appointments rather than relying on fixed office hours. To schedule into my available time, use Calendly at <https://calendly.com/tleslie-gmu/office-hours>. If you still cannot find an appointment that aligns with your availability, please email me with at least three possible meeting times and we will find a mutually convenient alternative.

2) **I am usually quick to respond to student e-mails**, within reason. Students who e-mail me Monday - Thursday can ordinarily expect a response within 24 hours, often sooner. Students who e-mail after 5 PM on Thursday or over the weekend can ordinarily expect a response by noon on the following Monday. As email accessibility can be variable during the day, questions regarding course elements due that day should be sent with tempered expectations.

3) Please stop sending me your diagnoses. If an excusal is necessary, ask your doctor to write a general non-specific note indicating you were unable to attend class and what time period this excusal covers. I appreciate the intention, but I do not want to read the intimate details.

Student e-mails tend to do several things that try my patience. My policy is that I will not respond to certain e-mails students send. These include emails when:

- The student could answer his/her own inquiry by reading the syllabus, watching the relevant videos, or reading the instructions fully. I have endeavored to provide useful content – if there are missing elements, please let me know and remedies will be applied.
- The student missed or will miss class. I do not need to know the exact reason for a missed class, and trust that you are making the best decision for you. An e-mail is likely unnecessary unless the absence involves an exam.
- The student wants to know what topics were missed during a class that was missed. The answer is always “you missed what was on the syllabus.”
- The student is protesting a grade without reference to specific points of objection. Students interested in improving their knowledge of material should schedule a meeting.
- The student is requesting that a module be made accessible without meeting the necessary requirements. The answer is “no”.
- The student is asking to round up a grade. The answer is “no”.
- The student is asking for an extra credit opportunity, often one that is specific to them. This is more fully addressed elsewhere in the syllabus, and the answer is “no”.
- The student is attempting to emotionally sway me into changing their grade claiming that to do otherwise would cause them to “lose their scholarship,” “disappoint their family flying in from India,” and/or “be forced to take an additional year of classes” [these are all real examples from students in my courses].

SECTION VII – INCLUSIVITY

NAME PREFERENCE

The University enables students and employees to use a chosen first name and indicate their pronouns where possible, except when use of a legal name is required by institutional policy or state/federal law.

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 that you would like to be addressed—including certain pronouns—I encourage you to let me know as well as to update your Mason file in Patriotweb. The Mason Code of Student Conduct sets an expectation that students will use the preferred name of their classmates and instructor.

DIVERSITY AND INCLUSION

I am determined to uphold the University’s mission, which states that, “We hold ourselves to the highest ethical standards as educators, scholars, and professionals,” and thus am committed to creating a culture of excellence, inclusion, and accessibility. The implementation of this commitment to diversity and inclusion is found in all settings, including individual work units and groups, student organizations and groups, and classroom settings; it is also found with the delivery of services and activities, including, but not limited to, curriculum, teaching, events, advising, research, service, and community engagement. I share this vision and am committed to its implementation at all levels and in all ways.

We welcome and value individuals for their uniqueness, as every student has contributions that no one else can make. Diversity is broadly defined to include such characteristics as, but not limited to, race, economic status, ethnicity, gender expression and identity, military service, national origin, first language, familial circumstances, religion, age, and disability. Diversity also entails different viewpoints, philosophies, and perspectives. Individuals are asked not to speak for the experience of others, nor to ask others to explain ‘the mindset’ of an identity they may have.

I will attempt to foster an environment in which each class member is able to hear and respect each other. It is critical that each class member show respect for all worldviews expressed in class. It is expected that some of the material in this course may evoke strong emotions, please be respectful of others’ emotions and be mindful of your own. You are responsible for the energy, words, and behaviors you bring into the classroom.

The content presented in this course comes from an academic history that is overwhelming white and male. I explicitly reject white supremacy and racism and am committed to equity, justice, and democracy in society, on campus, and within my classrooms. No matter the name or label, anti-Black and anti-Semitic, and racist thought and action are antithetical to my mission and values as an educator. I condemn the divisive and intimidating tactics of white supremacist views. I recognize that systemic racism is pervasive within our society and institutions, and pledge to combat it through receiving critical feedback on how I can be more inclusive and being more self-aware of my privileged identities.

I recognize that there is still much self- and systemic-work to be done to make the spaces of the University safe and hospitable to all and am committed to continuing to do that work. Please let me know if something said or done in the classroom, by either myself or other students, is particularly troubling or causes discomfort or offense. While our intention may not be to cause discomfort or offense, the impact of what happens throughout the course

is not to be ignored and is something that I consider to be very important and deserving of attention. If and when this occurs, there are several ways to alleviate some of the discomfort or hurt you may experience:

1. Discuss the situation privately with me. I am always open to listening to students' experiences, and want to work with students to find acceptable ways to process and address the issue.
2. Discuss the situation with the class. Chances are there is at least one other student in the class who had a similar response to the material. Discussion enhances the ability for all class participants to have a fuller understanding of context and impact of course material and class discussions.
3. Notify me of the issue through another source such as your academic advisor, a trusted faculty member, or a peer. If for any reason you do not feel comfortable discussing the issue directly with me, I encourage you to seek out another, more comfortable avenue to address the issue.

It is my intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit.

OFFICE OF DISABILITY SERVICES

I am committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people.

Federal law mandates the provision of services at the university-level to qualified students with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University.

If you are seeking accommodations for this class related to any sort of disability, detailed information about the Disability Services registration process is posted on their website. Students who suspect that they have a disability, temporary or permanent, but do not have documentation are encouraged to contact DS for advice on how to obtain appropriate evaluation. I encourage students who are considering using their accommodations to declare and discuss them with me as soon as possible, as I can only provide accommodations after receiving the authorizing documentation from Disability Services.

SEXUAL HARASSMENT, SEXUAL MISCONDUCT, AND INTERPERSONAL VIOLENCE

George Mason University is committed to providing a learning, living, and working environment that is free from discrimination and a campus that is free of sexual misconduct and other acts of interpersonal violence to promote community well-being and student success. We encourage any community member who believes that they have been sexually harassed, assaulted, or subjected to sexual misconduct to seek assistance and support.

As a faculty member and designated "Responsible Employee," I am required to report all disclosures of threats or occurrences of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator. If you wish to speak with someone confidentially, please contact the Student Support and Advocacy Center (703- 380-1434), Counseling and Psychological Services (703-993-2380), Student Health Services, or Mason's Title IX Coordinator (703-993-8730; cde@gmu.edu).

OTHER GMU RESOURCES

There are many campus resources that are available to help you succeed. For more details, please see a list of some of these resources online at <https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/>