SAINT LOUIS UNIVERSITY.

Introduction and Overview of the Course

Sourav Bhadra, Ph. D.

Adjunct Professor
Earth and Atmospheric Sciences
Saint Louis University

Welcome to the Geospatial Analytics Fall 2024

About Me

Sourav Bhadra, *Ph. D.*
Data Scientist
Engineering and Data Science, Breeding R&D,
Bayer Crop Science, Saint Louis, MO

- **(2023) PhD in Geoinformatics and Geospatial Analytics**
  Saint Louis University, Saint Louis, MO
- **(2019) MSc in Geography and Environmental Resources**
  Southern Illinois University Carbondale, IL
- **(2015) Bachelor of Urban & Regional Planning**
  Khulna University of Engineering & Technology, Bangladesh

About Me


plantphenotyping
googleearthengine
cartography
geodatabase
pip
datascience
foundationalmodel
insar
streamlit
remotesensing
artificialintelligence
bigdata
datavisualization
gis
spatialanalysis
generativeai
cropbreeding
sql
imageanalytics
geospatialscience
largelanguagemodel
lidar
uav
machinelearning
python
statistics
database
hyperspectral
thermal

Let’s introduce ourselves

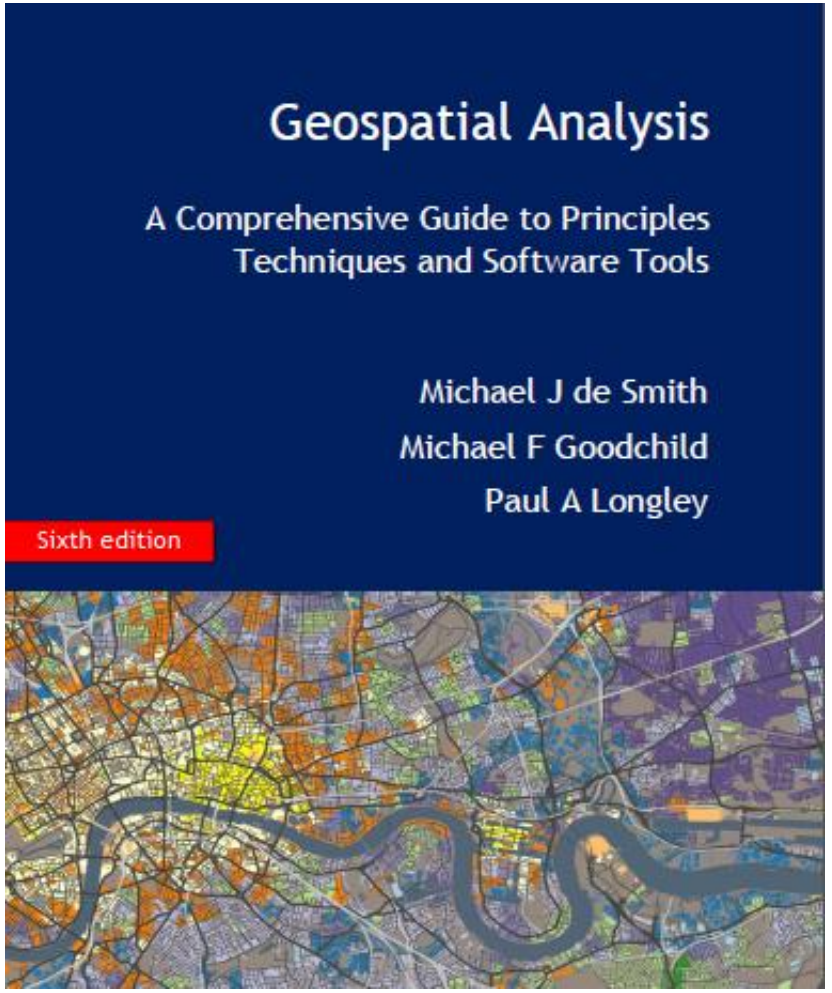
- Your Name
- Your Program
- Your Major
- Your Interest
- *(optional)* Why you picked this course?
- *(optional)* What is your expectation from the course?

Learning Outcomes

- Explain and apply fundamental concepts of spatial analysis.
- Explore and analyze spatial data using statistical methods.
- Conduct surface and field analyses, including geometry and interpolation.
- Use Python and geospatial tools for complex analyses.
- Analyze and interpret multidimensional climate data.
- Design, execute, and present a geospatial analysis project.

Required Textbook

- Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools (6th Edition)
- Check online as well: https://www.spatialanalysisonline.com/



Meetings

- Tuesdays and Thursdays
- 8:00 AM to 9:15 AM
- Class participation is highly encouraged
- Lectures will not be recorded for future references

Teaching Assistant

- Md Ahasan Habib

Grading

- Attendance (5%)
- Lab Assignments (45%)
- Midterm Exam (25%)
- Final Project (25%)

Letter Grade	Range	GPA
A	93 – 100	4.00
A-	90 – 92.9	3.70
B+	87 – 89.9	3.30
B	83 - 86.9	3.00
B-	80 - 82.9	2.70
C+	77 - 79.9	2.30
C	70 - 76.9	2.00
F	< 70 >	0.00

Expectations from students

- Attend every class session, as each lecture builds on the previous one. If you anticipate missing a class, please inform me in advance. Attendance will be taken.
- Arrive on time to ensure you don’t miss any crucial information.
- You are responsible for catching up on any material or announcements, including changes in assignments, meeting times, or due dates, if you miss a class.
- Participation isn’t just about speaking; active listening and thoughtful contributions that advance the discussion are equally important.
- Submit all assignments at the beginning of class on the due date. Late submissions will impact your grade.
- To maintain a focused learning environment, refrain from non-academic activities on electronic devices during class.
- If you anticipate any disruptions, such as an emergency phone call or appointment, please notify me ahead of time.

Lab assignments

- There will be a total of 8 labs (tentatively) in this course.
- Students are expected to follow the instructions provided in the lab manual and answer all the questions thoroughly.
- The lab assignments make up 45% of your overall grade, so please ensure you submit them on time to maintain a strong academic standing.

Mid-term Exam

- The mid-term exam is scheduled for October 17 during our regular class time.
- The exam will primarily consist of open-ended questions based on our lectures.
- It’s designed not to test your memorization of concepts, but to assess your reasoning skills and your ability to apply geospatial concepts to real-world scenarios.
- We will go over the exam details together in our upcoming meetings.

Class Project

- The class project is a significant component of your learning experience, contributing 25% to your final grade.
- Major Expectations
  - **Originality**: Your project must be original, demonstrating your approach to solving a geospatial problem.
  - **PowerPoint Presentation**: You will present your project to the class in a concise PowerPoint presentation.
  - **Short Report**: Along with your presentation, you will submit a short report (3-4 pages) summarizing your project.

Team Channel

- If you have questions or need help with lab assignments or lectures, I encourage you to post your inquiries in Teams. This way, everyone can benefit from the discussion and learn together.

GIS5120-Fall24 | General | Microsoft Teams

Use of Generative AI

- You are allowed to use generative AI in a **limited capacity** in this course.
- You **CANNOT** use Generative AI to directly generate open-ended question answers in the assignments, but you can use it to understand Python codes (if available).
- Please note the assignments for which generative AI is allowed come after you have been introduced to foundational skills and concepts geospatial analytics.

Course website

- https://souravbhadra.github.io/GIS5120

Academic Integrity

Academic integrity is the commitment to and demonstration of honest and moral behavior in an academic setting. Since the mission of the University is "the pursuit of truth for the greater glory of God and for the service of humanity," acts of integrity are essential to its very reason for existence. Thus, the University regards academic integrity as a matter of serious importance. Academic integrity is the foundation of the academic assessment process, which in turn sustains the ability of the University to certify to the outside world the skills and attainments of its graduates. Adhering to the standards of academic integrity allows all members of the University to contribute to a just and equitable learning environment that cultivates moral character and self-respect. The full University-level Academic Integrity Policy can be found on the Provost's Office website at:

https://www.slu.edu/provost/policies/academic-and-course/academic-integrity-policy.pdf.

Disability Accommodations

Students with a documented disability who wish to request academic accommodations must formally register their disability with the University. Once successfully registered, students also must notify their course instructor that they wish to use their approved accommodations in the course.

Please contact the Center for Accessibility and Disability Resources (CADR) to schedule an appointment to discuss accommodation requests and eligibility requirements. Most students on the St. Louis campus will contact CADR, located in the Student Success Center and available by email at accessibility_disability@slu.edu or by phone at 314.977.3484. Once approved, information about a student's eligibility for academic accommodations will be shared with course instructors by email from CADR and within the instructor's official course roster. Students who do not have a documented disability but who think they may have one also are encouraged to contact to CADR. Confidentiality will be observed in all inquiries.

Note: due to accreditation requirements, regulatory differences, and/or location-specific resources, the School of Law, the School of Medicine, and SLU Madrid have their own standard language for syllabus statements related to disability accommodations. Faculty in those units should seek guidance for syllabus requirements from their dean's office.

Title IX

Saint Louis University and its faculty are committed to supporting our students and seeking an environment that is free of bias, discrimination, and harassment. If you have encountered any form of discrimination on the basis of sex, including sexual harassment, sexual assault, stalking, domestic or dating violence, we encourage you to report this to the University. Discrimination on the basis of sex includes discrimination on the basis of assigned sex at birth, sex characteristics, pregnancy and pregnancy related conditions, sexual orientation and gender identity. If you speak with a faculty member about an incident that involves a Title IX matter, that faculty member must notify SLU's Title IX Coordinator that you shared an experience relating to Title IX. This is true even if you ask the faculty member not to disclose the incident. The Title IX Coordinator will then be available to assist you in understanding all of your options and in connecting you with all possible resources on and off campus.

If you are pregnant or experiencing a pregnancy related condition, the Title IX Coordinator can assist you in understanding your rights and options as well as provide supportive measures.

Anna Kratky is the Title IX Coordinator at Saint Louis University (DuBourg Hall, room 36; anna.kratky@slu.edu; 314-977-3886). If you wish to speak with a confidential source, you may contact the counselors at the University Counseling Center at 314-977-TALK or make an anonymous report through SLU's Integrity Hotline by calling 1-877-525-5669 or online at http://www.lighthouse-services.com/slu. To view SLU's policies, and for resources, please visit the following web addresses: https://www.slu.edu/about/safety/sexual-assault-resources/index.php.

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Your first assignment: Make a Map! – Due **Sep 3**

- This assignment tests your understanding of how well you understand maps and ArcGIS Pro. It is part of the lab assignments but there is no lab manual.
- You literally make any thematic map in ArcGIS Pro. As the name suggests, it has to follow a specific theme. You CANNOT simply put some geospatial data together, it must convey a story or message or information.
- Requirements of the map:
  - Title of the map, short title should state the main message of the map
  - Use public data only (please do not use privately collected data, such as, your hiking trail in Yellowstone this summer)
  - Map must have north arrow, scale bar, necessary legends, and projection system you used.
  - You are welcome to provide additional information.
  - As long as you adhere to these requirements, you will get full marks. I will not judge your aesthetic ability at this moment. So, feel free to experiment.
  - Do NOT put your name in the map.
- Deliverables:
  - An exported PNG of the map in 300 DPI
  - Associated ArcGIS Pro files in a zip format.

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Thank You