11:573:233| Fundamentals of Environmental Geomatics Laboratory

Rutgers, the State University of New Jersey
School of Environmental and Biological Sciences
Spring 2026 – 1 Credit

Meeting Place: Room 237, Environmental and Natural Resources Building (ENR 237)

Meeting Time:
Section 1: Mondays, 3:50 p.m. – 5:10 p.m.
Section 2: Mondays, 2:00 p.m. – 3:20 p.m.
Section 3: Wednesdays, 2:00 p.m. – 3:20 p.m.
Section 4: Fridays, 2:00 p.m. – 3:20 p.m.
Section 5: Tuesdays, 5:40 p.m. – 7:00 p.m.

Instructors:
Dave Smith (Section 3)
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Josh Kover (Sections 2 and 5)
Email: jbk118@scarletmail.rutgers.edu

Marth Afflu (Sections 1 and 4)
Email: martha.afflu@rutgers.edu

Office Hours: TBA

Course Website: CANVAS "GEOMATICS LAB (SEC#) SP26"

Prerequisites: There are no prerequisites for this course. However, it is strongly recommended that students take ***both*** the lecture and the lab course during the same semester.

Textbook: There is no required text for this course.

This course is REQUIRED for the ***BSLA*** and ***Environmental Planning*** programs. It is also required for the ***Environmental Geomatics Certificate*** and ***Minor*** programs.

Course Learning Objectives:

1. Perform basic functions and apply tools for visualizing, manipulating, analyzing, and generating spatial datasets using ArcGIS Pro software.
2. Apply these tools together to perform complex spatial analysis of real-world environmental phenomena.
3. Understand and explain role of individual tools, datasets, and variables within a given analysis.
4. Follow a detailed written protocol.

*This is a **lab course,** and while there will be some explanation of the tools and methods we work with, this will be limited. **It is strongly recommended that students also take the accompanying lecture course (11:573:232)** to get a more complete understanding of how these tools and methods work and the general context of their use.*

Course Description:

This course focuses on providing hands-on experience with the GIS tools and methods presented in the Fundamentals of Environmental Geomatics lecture course. The intention of the lab is to supplement the lecture material, which provides a vital understanding of the conceptual framework for these tools and a broader context for how they are used.

Course Structure:

Typically, each class will begin with a short introduction to the current week's topic. Students will then follow a self-paced written lab tutorial. The instructor will be there to help answer questions and provide support when needed. Finally, each week, there will be an assignment in which students will be expected to apply the skills they have learned in that week's lab with minimal direction.

Grading:

Composition of Final Grade:

Weekly Labs:	90%
Participation:	10%
Attendance:	See Below

Numerical Ranges for Letter Grades:

A:	90-100%		
B:	80-86%	B+:	87-89%
C:	70-76%	C+:	77-79%
D:	60-69%		
F:	under 60%		

Attendance:

Students are expected to attend all lab sessions. This is particularly important for this course. The material we cover is cumulative, so missing a lab session will make it more difficult to follow along the next time.

More than two unexcused absences will result in a 10% reduction in your final grade for the course. Each additional two unexcused absences will result in a 10% reduction in your final grade.

Absences may be excused in cases of illness, family emergency, or organized professional development events (*e.g.,* conferences). For ***isolated absences***, students should report their absence using the Rutgers Self-Reporting Absence website (https://sims.rutgers.edu/ssra/).

For ***extended absences*** (two or more consecutive lab sessions) or ***repeated absences*** (four or more absences throughout the semester) students must obtain an Absence and Verification Notice (AVN) from the Dean of Students' Office (https://studentsupport.rutgers.edu/services/absence-and-verification-notices) to have those absences excused.

Participation:

- You are expected to arrive to class on time and to stay for the duration of the class period (or until you have finished with the in-class section of the assignment).
- While students are strongly encouraged to ask questions, you are expected show a concerted effort to follow and understand the written instructions.
- Similarly, while you may discuss the lab instructions with other students, distracting others from their work with excessive questions is not acceptable.
- You are expected to show respect for your classmates and instructor at all times. Deliberately distracting, offensive, or confrontational behavior will not be tolerated.
- You are expected to attend only the scheduled meeting time of section for which you are registered, unless given specific permission in advance to attend the meeting of another section.

Late Submissions:

All assignments are due at the beginning of the following lab session, unless otherwise noted.

- **Any assignment submitted less than one week late will be docked 10 points.**
- **Weekly lab assignments submitted more than one week late will be docked an additional 10 points.**
- **Weekly lab assignments submitted more than two weeks late will be accepted only with the instructor's approval.**
- **Any late assignments must be submitted no later than the last day of classes.**

Academic Integrity Policy:

All submitted work must be the individual work of the student submitting it. If any student is caught submitting work completed by another student, both will receive a grade of 0 for that assignment. For a second infraction of this rule, the offending student will be reported to the administration for further discipline.

Any written material submitted as a part of an assignment must be given in your own words.

The University's Policy on Academic Integrity can be found at: *http://academicintegrity.rutgers.edu/*.

Access to Computing Resources:

Some work outside of class will generally be necessary. You may choose to use the teaching lab to work on homework any time it is open, and ***no class is being held***. A schedule of lab hours will be posted outside of the lab and on Canvas.

ArcGIS Pro is also available for download through the university's software portal (https://software.rutgers.edu/info/login/). However, be aware that ***ArcGIS is available for Windows only***. Mac users will need to use either the physical computer lab or the Rutgers Virtual Computer Lab system (https://it.rutgers.edu/virtual-computer-labs/) for work outside of class.

All necessary data will be available directly through the cloud using Box using the Box Drive app. You should be able to switch seamlessly between computers without needed to upload, download, or sync data. You can download the Box Drive app here: https://www.box.com/resources/downloads .

Whether during class or outside of class time, standard computer lab rules and common sense apply when in the teaching lab:

- No food or open drinks are allowed in the lab.
- Do not leave any logged in computers unattended.
- Clean up your desk before leaving.
- Be respectful of others working in the lab.
- Do not attempt to install any software on any computer in the lab.
- Report any malfunctioning computers to your instructor as soon as possible.

Schedule of Topics:

The following is a list of topics that will be covered throughout the semester.

Lab 0: Setting Up
Lab 1: Introduction to ArcGIS Pro
Lab 2: Mapping Categorical Data and the Map Layout
Lab 3: Mapping Statistical Data
Lab 4: Basic Map Design Concepts
Lab 5: Understanding GIS Data
Lab 6: Spatial Analysis Concepts
Lab 7: Working with Tables and Attribute Data
Lab 8: Analysis of Vector Data
Lab 9: Analysis of Raster Data
Lab 10: Terrain Representation and Analysis
Lab 11: Data Sources and Data Transfer
Lab 12: Geocoding and Heads-Up Digitizing

Support for Students with Disabilities:

Rutgers University is committed to the creation of an inclusive and safe learning environment for all students, and welcomes students with disabilities into all the University's educational programs. The Office of Disability Services (ODS) is responsible for the determination of appropriate accommodations for students who encounter barriers due to disability. Once a student has completed the ODS process (registration, initial appointment, and submitted documentation) and reasonable accommodations are determined to be necessary and appropriate, a Letter of Accommodation (LOA) can be requested and will be sent to the student and instructor. This should be done as early in the semester as possible as accommodations are not retroactive, and a discussion should occur about how the accommodations will be implemented. More information can be found at www.ods.rutgers.edu. You can contact ODS at (848)445-6800 or via email at dsoffice@echo.rutgers.edu.

Counseling Services:

Rutgers provides a variety of mental health support services through the Counseling, Alcohol and Other Drug Assistance Program, and Psychiatric Services (CAPS). They provide crisis intervention, individual and group therapy, alcohol and other drug assistance programs, psychiatric care (medication management) and other services. In addition to general mental health issues, their staff has expertise in issues specifically related to the college environment. More information can be found at https://health.rutgers.edu/medical-and-counseling-services/counseling-services.

DEI Statement:

We here at Rutgers are extremely fortunate to have a community of people with diverse backgrounds, life experiences, and perspectives. This diversity of voices enhances the learning experience both inside and outside of the classroom. It can be difficult at times to understand and accept some of these differences, especially when those perspectives may challenge how we perceive ourselves, but learning to acknowledge and to become more comfortable with these differences makes us more well-rounded as people and more competent in our chosen professions. In this class, the expectation is that we will treat each other with respect, empathy, and patience. Disrespectful language or behavior will not be tolerated.

If you feel as though you have been the target of discriminatory behavior, please let your instructor know or report it to the Rutgers Diversity and Inclusion initiative (http://inclusion.rutgers.edu/report-bias-incident/). If you feel as though you have been treated unfairly by your instructor, please speak with them in person or report the incident to the SEBS Office of Academic Programs (https://sebs.rutgers.edu/academics).

This course fulfills the following program goals for the Bachelor of Science in Landscape Architecture Program.

1. *Explore* the potential of space and spatial relationships to create socially vibrant and culturally inclusive design solutions.
2. *Analyze* and thoughtfully incorporate natural features and systems to create enduring and ecologically sensitive design solutions.
3. *Communicate* creatively with the public, communities, and policymakers in graphic, written, and verbal formats to advance social justice.