

# Course Syllabus

## Geography 321: Introduction to GIS, Fall 2023

- Section 01 and 02 LECTURE will meet Mondays 8:30 – 9:50 for lecture: Lucy Stone Hall (Room: B267)
- Section 01 LAB will meet Mondays 10:20 – 11:40: Lucy Stone Hall (Room: B266)
- Section 02 LAB will meet Thursdays 10:20 – 11:40: Lucy Stone Hall (Room: B266)

## General Information

Geographic Information Systems (GIS) is a rapidly growing field that is increasingly popular for a wide range of spatial analyses. Some of the uses for GIS include environmental modeling, urban and landuse planning, facilities management, social and demographic change analyses, economic development, site suitability analyses, marketing, and community development and enrichment initiatives.

Throughout the course a number of examples of how GIS is being used will be reviewed. A particular priority for the course will be to explore applications used in a professional setting within industry, academia, non-profit organizations and citizen groups.

This course introduces the fundamental concepts of GIS through lectures and hands-on exercises using the industry standard software **ArcGIS 10 and ArcGIS Pro** developed by Environmental Systems Research Institute (ESRI). While students will gain a working knowledge of the ArcGIS 10 and ArcGIS Pro software, the course will focus on fundamental concepts in GIS applicable to any GIS software, particularly analytical concepts that are foundational to spatial analysis. The software you will use is available on campus in the Department of Geography's computer lab (Room B-266). Students may access the GIS workstations in the computer lab remotely via Remote Desktop (instructions for access available on Canvas Site). Student versions of the software are also available for students' **personal computers (PC only)**.

The format for the course will be in-person lecture period on Mondays and an in-person hands-on lab period on Mondays and Thursdays. All lectures will be recorded to provide course content to students if they are unable to attend class due to various circumstances.

It is expected however, that you will work on lab exercises and assignments outside of class-time. There will be regularly scheduled times when the lab is open (GIS workstation remote access) and when the teaching assistant for this course will be available in the lab and/or remotely.

## Course Objective:

- To present a thorough introduction to GIS, spatial data formats, and the fundamentals and applications of computer-aided spatial analysis.

## Course Goals:

- Theoretical understanding of geospatial principles
- Review of how GIS is being used (with a focus on community-based applications)
- Familiarity with various data formats and how to work with them in a GIS
- Familiarity with the ArcGIS 10 and ArcGIS Pro software packages.
- Ability to use GIS to perform spatial analysis, query data, and derive meaningful
- Ability to use GIS for decision making and site suitability analysis with a focus on professional applications.
- Ability to think critically about GIS, its uses and applications.

## The text for this course is:

*GIS Fundamentals: A First Text on Geographic Information Systems, Sixth Edition* by Paul Bolstad.

This book is available from the Rutgers Bookstore ([rutgers.bncollege.com](http://rutgers.bncollege.com)). Also from **XanEdu**  ([https://www.xanedu.com/higher-education/educators/custom-books-catalog/gis\\_fundamentals\\_6e/](https://www.xanedu.com/higher-education/educators/custom-books-catalog/gis_fundamentals_6e/)) (in digital or hardcopy).

## Student Assessment

Students of Geography 321 will be assessed using GIS exercises and online exams. The exercises are broken into guided lessons and mastery exercises.

10 Guided Lessons found on the course web site	20%
5 Master Exercises found on the course web site	35%
Midterm Exam	20%
Final Exam	25%
Total	100%

Grades will follow SAS grading scale.

## Guided Lessons

These are tutorial exercises that guide students through a series of steps to both learn the GIS software and to demonstrate a variety of tools for GIS analysis; they teach concepts essential for completion of the Mastery Exercises (see below). These lessons will be done during lab sessions but students are expected to complete them as homework if they cannot finish them during lab time. All guided lessons are available on the course web site. Guided lessons are pass/fail only. To get credit for each, however, you will have to turn in a brief assignment to the instructor before leaving lab or by the next class period. Each assignment (such as printing out the final result from an exercise or answering a brief question) will be announced in class and on the course web site.

## Mastery Exercises

Mastery exercises are designed to test your ability to use GIS tools for basic analysis and problem solving. They will build upon the concepts covered in lecture periods as well as the tools acquired through the guided lessons in lab. Each mastery exercise consists of a data set and a problem to be solved. The steps to solving the problem will not be given but should be developed by each student.

## Using the Computer Lab

The computer lab is located in Lucy Stone Hall, room B-266. For current hours of operation see [Geography Department](https://geography.rutgers.edu/)  [\(https://geography.rutgers.edu/\)](https://geography.rutgers.edu/) website.

## Other Computing Resources

While all the software you will need for this course is available in the Geography computer lab workstations remotely, you are welcome to do the homework exercises wherever you find the software. ArcGIS 10 is available in **Campus Computing Facilities labs** [↗ \(https://oit-nb.rutgers.edu/labs\)](https://oit-nb.rutgers.edu/labs) as well as a free (timed) download for students. Please see the instructor or TA for details.

## Data Management

Data for all exercises will be served from the course web site and can be downloaded in relatively small sets for each exercise. In addition, data for the in-class labs are also available from the web site. Please join virtual lab sessions a few minutes early in order to set up your computer and download the data for that session.

## Contact Information

Instructor: Dr. Daniel Barone

E-mail: [daniel.barone@rutgers.edu](mailto:daniel.barone@rutgers.edu) (mailto:daniel.barone@rutgers.edu)

Office Hours: Tuesdays 9:00 – 10:00am and Thursdays 9:00 – 10:00am (or by appointment in-person or via zoom).

Office Locations: Busch Campus - CAIT Building, 2nd Floor OR Cook-Douglas - Marine Science Building, 1st Floor.

Topic: Office Hours - Dr. Barone

Teaching Assistant: Arafat Hassan

Email: [mh1531@scarletmail.rutgers.edu](mailto:mh1531@scarletmail.rutgers.edu)

Office Hours:

Office Location:

## ACADEMIC INTEGRITY

Please read the University's Academic Integrity Policy, on the web at [Rutgers University Academic Integrity](https://policies.rutgers.edu/10213-currentpdf) [Policy](https://policies.rutgers.edu/10213-currentpdf). Resources for students are available [here](http://nbacademicintegrity.rutgers.edu/home-2/for-students/). It is **your responsibility** to fully understand the principles of academic integrity and to abide by them in all your work at the University. Basically, the rules are simple: Don't cheat or plagiarize. Plagiarizing is easy to detect with Turnitin and the penalty for cheating or plagiarizing can be severe and include expulsion from the University. If you have the slightest doubt that any assignment you submit or action you take might be a violation of the Academic Integrity Policy, ask one of the instructors beforehand.

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of
- properly acknowledge all contributors to a given piece of
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is Adherence to these principles is necessary in order to ensure that
- everyone is given proper credit for his or her ideas, words, results, and other scholarly
- all student work is fairly evaluated and no student has an inappropriate advantage over
- the academic and ethical development of all students is
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

## STATEMENT OF DIVERSITY AND INCLUSION

It is our intention that students of all backgrounds will be well served by this course. We will work to create an environment of inclusion which respects and affirms the inherent dignity, value, and uniqueness of all individuals, communities and perspectives. We are lucky to have a diverse university. Diverse voices and life experiences enhance the learning process and we welcome students to share their personal experiences. We will not tolerate disrespectful language or behavior against any individual or group. If you feel as though

you have been disrespected or treated unfairly by the instructors or any other individual please let us

know. You may speak with the instructors in person, over email or report anonymously using the feedback note box. You may also report bias to the Rutgers Diversity and Inclusion initiative using this link: <http://inclusion.rutgers.edu/report-bias-incident/>  (<http://inclusion.rutgers.edu/report-bias-incident/>)

## STUDENT WELLNESS SERVICES

**Just In Case Web App**  (<http://m.appcreatorpro.com/m/rutgers/fda9f59ca5/fda9f59ca5.html>)  
<http://codu.co/cee05e>  (<http://codu.co/cee05e>)

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)   
(<http://www.rhscaps.rutgers.edu/>)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)   
(<http://www.vpva.rutgers.edu/>)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932- 1181.

## Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>  (<https://ods.rutgers.edu/>)

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>. 

(<https://ods.rutgers.edu/students/documentation-guidelines>) If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>. 

(<https://ods.rutgers.edu/students/registration-form>)

## Scarlet Listeners

(732) 247-5555 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>   
(<https://rutgers.campuslabs.com/engage/organization/scarletlisteners>)

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.