

Geography 321: Introduction to GIS, Fall 2019

- Section 01 and 02 will meet Tuesdays 1:40 – 3:00 in Lucy Stone Hall, Room B-267.
- Section 01 will meet Thursdays 1:40 – 3:00 for lab in Lucy Stone Hall, Room B-266.
- Section 02 will meet Tuesdays 3:20 – 4:40 for lab in Lucy Stone Hall, Room B-266.

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 by and for community-based organizations and citizen groups. Students wishing to engage directly with community organizations interested to use GIS may add an additional credit while taking this course through the Civic Engagement and Service Education Partnerships (CESEP) Program (see below for details).

With or without the service learning component, this course introduces the fundamental concepts of GIS through lectures and hands-on exercises using the popular software application ArcGIS 10. While students will gain a working knowledge of the ArcGIS 10 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). Student versions of the software are also available for students' personal computers (PC only).

The format for the course is a lecture period on Tuesdays and a hands-on lab period on either Tuesdays or Thursdays. Both lectures and labs will be lead by the instructor and attendance is mandatory. In addition, it is expected that you will work in the computer lab outside of class-time. There will be regularly scheduled times when the lab is open and when the teaching assistant for this course will be available in the lab.

Course Objective:

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

Course Goals:

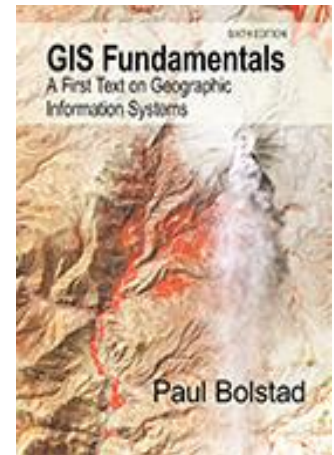
- Theoretical understanding of GIS.
- Review of how GIS is being used (with a focus on community-based applications)
- Familiarity with various data formats and how to work with them.
- Familiarity with the ArcGIS 10 software package.
- Ability to use GIS to perform spatial analysis, query data, and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

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).

Also from XanEdu (in digital or hardcopy).



Student Assessment

Students of Geography 321 will be assessed using GIS exercises and 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 be assigned on a fixed scale as follows:

88-100 %	A
75-87	B
62-74	C
50-61	D

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](#) website.

Other Computing Resources

While all the software you will need for this course is available in the Geography computer lab, you are welcome to do the homework exercises wherever you find the software. ArcGIS 10 is available in [Campus Computing Facilities 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 arrive to lab sessions a few minutes early in order to set up your computer and download the data for that session.

Service Learning Component

The Civic Engagement and Service Education Partnerships (CESEP) Program offers support to this class and works to coordinate student placement with community organizations interested to apply GIS as part of their community initiatives. Students registering for a CESEP recitation course (1 credit service learning course) in addition to Geography 321 will work closely with a community organization on a semester-long GIS project and will present the project to the class at the end of the semester. For more information about this service learning opportunity and the CESEP program for Rutgers Students please see the instructor or go to The Collaborative: a Center for Community-Based Learning, Service, and Public Scholarship ([CESEP](#)).

Contact Information

Instructor: Dr. Kevin St. Martin
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Office Hours: Mondays 1:00 – 2:00 and Fridays 1:00 – 2:00 (or by appointment).

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