

11:573:493:02 | Spatial Data Visualization and Map Design

Rutgers, the State University of New Jersey
School of Environmental and Biological Sciences
Fall 2016

Meeting Place: Blake Hall, Room 129

Meeting Time: Friday 12:35 – 3:35 p.m.

Credits: 3

Instructor:

Dave Smith

Office: Room 127, Environmental and Natural Resources Building

Email: dave.c.smith@rutgers.edu

Office Hours: By appointment

Learning Goals:

1. Understand and apply the basic principles of the visual representation of spatial data such as symbol use, classification, and generalization.
2. Develop and apply technical skills required for computerized mapmaking using ArcGIS and Adobe Illustrator.
3. Develop and apply skills for clear visual communication of spatial information through mapping, such as appropriate color selection, development of strong visual hierarchy, and designing map products within specified formatting constraints.
4. Develop and apply a strong aesthetic foundation for map design through practice, analysis, and critique.

Prerequisites:

Permission of instructor*

**Note: students should have taken at least an introductory level course in GIS including hands on experience with ArcMap, such as Fundamentals of Environmental Geomatics (11:573:232) and Fundamentals of Environmental Geomatics Lab (11:573:233), or Introduction to Geomatics (16:550:545)*

Course Description:

As students and practitioners of geospatial information technology we deal with spatial information in many ways. While we often work with complex overlay analyses, geostatistical modeling, and other rich analytical methods, the creation and interpretation of maps remain as important to understanding spatial information as it has for thousands of years.

This course introduces students to the fundamental concepts of cartography, the science and art of making maps. By the end of this course, students should be able to design effective and aesthetically sophisticated maps. They should also have the ability to interpret and critically evaluate the many maps that they encounter in their daily lives and as they continue their academic and professional careers.

Textbook:

Required Text: *Designing Better Maps: A Guide for GIS Users* by Cynthia A. Brewer

Course Website:

<https://sakai.rutgers.edu> -- course site is listed as "SPATIAL DATA VIZ I F16"

Course Structure:

Class sessions will consist of a brief peer critique of maps from the previous week, followed by a short lecture or demonstration. After this, students will be presented with a mapping exercise. In most cases these exercises will require out-of-class time. Students will also apply what they have learned throughout the semester to develop a final mapping project.

The specific topics to be covered are shown in the following table.

Topic
Introduction
Introducing Illustrator
Scale, Projections, and Coordinates
Representing Categorical Data
Representing Numerical Data
Representing Terrain Data
Reference Maps
Small Maps and Wall Maps
Comparison Maps
Map Series
Digital Maps
Geovisualization and Information Design
Project Work Session
Project Presentations

Projects and Assignments:

Mapping Exercises: Each class session, students will be presented with an exercise that addresses a different topic in map design or data visualization. These exercises will be completed partially during class time and partially outside of class.

Critique: Each week, a small number of students will volunteer to have their most recent map critiqued by the class. All students will be expected to volunteer to have at least one map critiqued, and all students will be expected to participate in critiques of their classmates' work.

Response Papers: Once per week, each student will be tasked with finding a map that they find to be particularly well designed, interesting, or absolutely terrible and will write a short written critique of it.

Project: Each student will design a fully developed large-format map or map series that communicates some phenomenon or phenomena of interest to the student.

Grading:

The grading of required elements for this course will be weighted as follows:

Mapping Exercises	50%
Response Papers	15%
Critique Participation	10%
Final Project	25%

Letter grades will be assigned according to the following numerical values:

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

Attendance Policy:

More than three unexcused absences will result in a 10% reduction in your final grade. Each additional unexcused absence will result in a further 10% reduction in your final grade.

Students are expected to attend all class session for the full duration of the class period.

Absences may be excused in cases of illness, family emergency, or organized professional development events (*e.g.* conferences). In such cases, inform your instructor in writing within seven days of returning to campus.

Academic Integrity Policy:

Students will be held to the University's Policy on Academic Integrity, which can be found at:

<http://academicintegrity.rutgers.edu/policy-on-academic-integrity>