Instructor: Jake K. Carr
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Office hours: Thursday 12:00 to 1:35 PM - or by appointment

Course Objectives

The objective of this course is to develop a strong foundation in the principles of geographic information systems & science (GISS) and their applications in spatial analysis and information management. This course is designed to give students an understanding of geospatial technologies, their capabilities, uses, and limitations - all of which allows us to visualize, analyze, and interpret complex spatial data in order to better address the social and environmental challenges that exist in our world.

This foundational course will rely heavily on lectures that will focus on basic, but powerful, applications in spatial data analysis. Students are expected to read the required materials before class and participate in the discussion. In class exams will reinforce the topics introduced in the lectures and detailed further in the readings. There will also be a set of tutorial lab sessions throughout the term intended to develop geographic data analysis skills using GIS - with specific training using ArcGIS.

Course Reading & Lab Materials

Lectures are based on (required):
1. *Geographic Information Science and Systems, 4e*, by Longley, P.A., Goodchild, M.F., Maguire, D.J., and Rhind, D.W., Wiley, 2015.

Lab exercises come from (required):
2. *Getting to Know ArcGIS for Desktop, 3e*, by Law, M., and Collins, A., ESRI Press, Redlands, CA, 2013.

Additional lecture & lab material will be drawn from (not required):
3. *Geographic Information Systems: An Introduction, 2e*, by Bernhardsen, T., Wiley, 2015.
4. *Lining Up Data in ArcGIS: A Guide to Map Projections, 2e*, by Maher, M.M., ESRI Press, Redlands, CA, 2013.
5. *GIS Tutorial 1: Basic Workbook, 10.1e*, by Gorr, W.L., and Kurland, K.S., ESRI Press, Redlands, CA, 2013.

Grading

The final course grade will be computed based on the following distribution:
Class participation\attendence (25%)
Lab exercises (50%)
Exams (25%)

Grades will be determined with the following scale:
A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: below 60.

Course Topics

Unit	Topic	Reading[a]	Lab[b]
Unit 1: Introduction	Introduction	1, 2	3, 4
	Representation	3	
	Georeference	4	6, 14
	Uncertainty	5	7, 8, 9
Unit 2: Technical Matters	Data Models	7	10, 11, 12, 13
	Databases	9	15-{c}, 16, 17
Unit 3: Geospatial Analysis	Cartography	11	18-{d}, 19-{d}
	Spatial Analysis	13, 14	20-{b}

[a]Chapters from Longley, Goodchild, Maguire, and Rhind. [b]Chapters from Law and Collins.

There will be a *midterm exam* following Unit 1 - tentatively set for June 2. Our *final exam* is scheduled for June 30. All exams are given in class.

Academic Misconduct

Academic misconduct in any form will not be tolerated. This includes, but is not limited to, cheating and plagiarism. Students are referred to the definitions of academic misconduct found here: http://oaa.osu.edu/procedures/1.0.html. Plagiarism is the representation of another's works or ideas as one's own: it includes the unacknowledged word for word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas. All cases of suspected misconduct, in accordance with university rules, will be reported to the Committee on Academic Misconduct.

Students also need to keep and handle their own lab work appropriately to avoid being copied by someone else. All the students are responsible for removing their own lab work from public-access hard drives and store the data in their own media (e.g., jump drive). Those who fail to protect their own work and result in copied lab work will also be treated as involvement in plagiarism.

Students with Disabilities

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office for Disability Services at 614-292-3307 in room 150 Pomerene Hall to coordinate reasonable accommodations for students with documented disabilities.