

Soils 368, Fall 2009, 3 credits
Introduction to Geographic Information Systems

Instructor

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Office hours: Please contact Dr. Rupp or Mr. Yau to arrange an appointment.

Class Time and Location: Lecture: Tuesday, 9 am Johnson Hall 204. Lab Section 1: Tu-Th, 2-5 pm. Lab Section 2: Wed-Fri, 2-5 pm. All labs are in Johnson Hall 116.

Prerequisites: A course in biology, geology, or soils

Text: Introducing Geographic Information Systems with ArcGIS, A Workbook Approach to Learning GIS, 2nd Edition by Michael Kennedy

Reading: Each chapter in the text has introductory material which should be read before coming to lab. In addition, I will make brief reading assignments (mostly from the web) occasionally through the semester.

WSU Learning Goals

This course contributes to the 6 learning goals of the baccalaureate as outlined by the university

(https://my.wsu.edu/portal/page?_pageid=303,159461&_dad=portal&_schema=PORTAL)

including: 1) Critical and Creative Thinking; 2) Quantitative & Symbolic Reasoning; 3) Information Literacy; 4) Communication; 5) Self in Society; and 6) Disciplinary Specialty.

The Geographic Approach (and which learning goals it meets):

Although the labs will provide the students with specific “how to” knowledge in manipulating data with a geographic information system, this knowledge will fit within a methodology known as “The Geographic Approach”.

1. **Ask:** What is the problem you are trying to solve or analyze, and where is it located? (1,3,4,6)
2. **Acquire:** Determine what data you need for your problem and ascertain whether it can be obtained or needs to be created. (1,2,3,6)
3. **Examine:** Understand what is in your data, its organization, its strengths and limitations. (1,2,3,6)
4. **Analyze:** Process your data and analyze the results. (1,2,3,6)

5. **Act:** Communicate your results effectively in a manner that is appropriate to the medium and to the audience. (1,3,4,5,6)

Student Learning Outcomes, Knowledge and Skill Development

Upon successful completion of this course students will be able to:

1. Identify the geospatial components of a project, problem or dataset.
2. Know how to locate, create and evaluate spatial datasets.
3. Demonstrate how to solve a geospatial problem with tools found in a GIS.
4. Demonstrate how to communicate with spatial data in an effective manner depending on the audience and the medium.

Course Environment

The lecture and lab are intended to be informal. Don't be afraid to ask questions of the instructors or your fellow students. There are times when the instructor(s) are busy, and it is much more efficient to ask a person next to you how they are approaching the exercise.

This is a computer class. Your motto should be "save early and save often".

You are welcome to use the computer lab outside the class hours provided another class is not using it. However, this should not be an excuse not to attend class. Attendance is expected in lecture and lab unless arrangements have been made.

Graded Components of the Course

2 Exams (each 15%)	30%
Laboratory exercises	60%
Fast Facts File	10%

Exams will be given during the lab periods indicated on the schedule. Each exam will be a combination of questions from lecture and the text and practical questions that will require you to use ArcGIS. You are free to use your text and notes for the exam.

Each lab will have a document file that contains the questions in the book (e.g. Chapter1.doc). Fill out the document as you do the lab or write your answers in your text and transfer them to the document file when you are done with the lab. When you have completed an assignment export the document as a PDF file for grading.

The Fast Facts File is a running "how to" file that you will keep and revise over the course of the semester.

Late Penalties: All assignments are due before the start of the next exercise. You may have a week's grace period if you email or text me before the exercise is due. After that the assignment will lose 10% per day.

Grading Scale:

A 94-100	B+ 87-89	C+ 77-79	D+ 67-69	F < 60
A- 90-93	B 84-86	C 74-76	D 60-66	
	B- 80-83	C- 70-73		

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Washington Building, Room 217). Please stop by or call 509-335-3417 to make an appointment with a disability specialist.

Plagiarism: Please see the university's policy on this subject at:
www.conduct.wsu.edu/plagiarism/main.html and www.wsulibs.wsu.edu/plagiarism/main.html

WSU Safety: Please see oem.wsu.edu/emergencies and alert.wsu.edu

Learning management systems and campus resources: ctlr.wsu.edu; WSU Writing Center:
<http://www.writingprogram.wsu.edu/units/writingcenter/>

Soils 368 Schedule
Fall semester 2009

Dates	Lab	Lecture
Aug. 25 - 28	Ch. 1 Introductory Concepts	Introduction
Sept. 1 - 4	Ch. 2 Characteristics and Examples of Spatial Data	Geospatial Data
Sept. 8 – 11	Ch. 3 Products of a GIS	Projections
Sept. 15 - 18	Ch. 3 cont. Ch. 4 Structures for Storing Geographic Data	Map Design
Sept. 22 - 25	Ch. 4 cont. Ch. 5 Geographic & Attribute Data	Geodatabases
Sept. 29 - Oct. 2	Ch. 5 cont.	Sources of Geodata
Oct. 6 - 9	Ch. 6 Analysis of GIS Data by Simple Examination	Selecting, Adding, Editing Data
Oct. 13 - 14	Ch. 6 cont.	Vector Spatial Analysis
Oct. 15 - 16	1st Exam	
Oct. 20 – 23	Ch. 7 Creating Spatial Datasets Based on Proximity, Overlay & Attributes	Use of GPS in GIS
Oct. 27 - 30	Ch. 7 cont. Ch. 8 Spatial Analysis Based on Raster Data Processing	Working With Rasters
Nov. 3 – 6	Ch. 8 cont.	Raster Spatial Analysis
Nov. 10 -13	Ch. 9 The Third Spatial Dimension	ArcGIS Extensions & Scripts
Nov. 17 - 20	Ch. 9 The Time Dimension	3D & Temporal GIS
Nov. 24 - 27	Thanksgiving Break	
Dec. 1 - 4	OpenStreetMap	OpenStreetMap
Dec. 8 - 9	OpenStreetMap	Alternative GIS Software
Dec. 10 - 11	2nd Exam	