

NRM 344: Introduction to GIS

Fall 2011

Stillwell 354

Lecture: Tues and Thurs 12:35-1:50

Lab: Thursdays: 2:05-3:55

Instructor: Ron Davis

Office: Stillwell 318

Phone: x2726

Office Hours: Mon-Wed 10:30-12:00 with others by appointment. I am usually in my office whenever I'm not teaching so if the door is open feel free to stop by with questions.

Purpose: Students will be able to apply GIS spatial analysis concepts and skills in the analysis, conservation, and management of natural resources.

- I. General Course Objectives (A detailed list of course objectives will be provided)
 - A. Develop a purpose statement or research question suitable for addressing a scientific problem using geospatial analysis.
 - B. For a research question, develop a set of measurable objectives needed to address the problem or answer the research question.
 - C. Develop a sequence of GIS methods suitable for meeting scientific research objectives
 - D. Students will be able to describe the purpose of each method and the nature of the output as it relates to a given objective and problem
 - E. Be able to generate the necessary outputs from GIS analysis (maps, tables, graphs, calculations etc.) needed for data analysis and interpretation and application of results.

*** Given the amount of information, and the complexity of GIS software the best advice I can give for this class is:

- 1) Don't let the work get ahead of you—if you wait until the day an assignment is due then something WILL go wrong. This will only add to the frustration but more importantly you'll less.
- 2) GIS is about asking and answering spatial questions and problem solving. Always keep in mind the question you're asking. As you'll hear me say ad nauseum: ***If you don't know what you need the GIS program to do, you'll have no way of knowing whether it's done it!***
- 3) It's a frustrating program at first but always keep in mind the question you're asking and this helps you keep track of what tools you need.
- 4) The weekly labs are intended to give you some practice with the software and concepts and often can be finished in a lab session. HOWEVER, don't just rush through them to finish. GIS takes practice and each new concept depends on earlier ones. Racing to finish an exercise might mean you get out of class sooner but you won't get much from it.
- 5) Try to have some fun. TRUST ME I know the frustration, but GIS is a lot like a big puzzle, so have some fun with the problem solving part of things!
- 6) Ask for help when you need it. The course builds on itself so telling me the day something is due that —I didn't understand|| is too late.

III. Course Materials

Required text(s): Bolstad, P. 2008. GIS Fundamentals: A First Text on Geographic Information Systems 3rd edition. Other readings will be provided as needed.

IV. Expectations of Students/Course Policies (Amendments will be announced in class)

ATTENDANCE: As with any class your work will reflect the amount of time you put into the course. While I don't have a formal attendance requirement I do penalize for late work and view it as YOUR responsibility to ensure that you catch up on any materials or assignments missed.

LATE WORK: Late work will be penalized 20% of the total points possible for each day late. After **5 days** the assignment will receive a grade of zero.

If you **MUST** miss an exam or other assignment due in class please make arrangements ahead of time.

Be **COURTEOUS** to other students **AND** the instructor. This includes but **IS NOT LIMITED TO** getting to class on time, avoid excessive talking, keeping cell phone **OFF** and not browsing the web during lectures etc. Put simply; avoid things that interfere with my teaching or student learning.

ACADEMIC INTEGRITY: Students, faculty, staff, and administrators of Western Carolina University (WCU) strive to achieve the highest standards of scholarship and integrity. Any violation of the Academic Integrity Policy is a serious offense because it threatens the quality of scholarship and undermines the integrity of the community. While academic in scope, any violation of this policy is by nature, a violation of the Code of Student Conduct and will follow the same conduct process (see Article VII.B.1.a.). If the charge occurs close to the end of an academic semester or term or in the event of the reasonable need of either party for additional time to gather information timelines may be extended at the discretion of the Department of Student Community Ethics (DSCE).

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Violations of the Academic Integrity Policy include:

Cheating - Using or attempting to use unauthorized materials, information, or study aids in any academic exercise.

Fabrication – Creating and/or falsifying information or citation in any academic exercise.

Plagiarism - Representing the words or ideas of someone else as one's own in any academic exercise.

Facilitation - Helping or attempting to help someone to commit a violation of the Academic Integrity Policy in any academic exercise (e.g. allowing another to copy information during an examination) According to WCU regulations: —Faculty members have the right to determine the appropriate sanction(s) for violations of the Academic Integrity Policy within their courses, up to and including a final grade of —F in the course.

My general policy is that a score of zero be assigned for the work in question although I consider each case and sanction individually depending on the severity of the offence and the impact on student grades these incidents are to be reported in each case.

I sincerely hope this will not be an issue but unfortunately it does occur. Generally some in class activities and projects might have a group-work component (i.e. data collection) but I very seldom use a group grade for any major assignments, tests, quizzes or written reports. **It is MUCH easier just to avoid these things in the first place. If you have questions regarding my policy for any given assignment (group vs. individual work) please ask.**

What you should expect from me:

I am readily available to answer questions and help with assignments. I have office hours but feel free to stop by at any time or call/email to set up an appointment. **NOTE:** Talk to me as soon as you are having problems or questions. If you wait until the day before something is due or the end of the semester to ask for help there will be little I can do for you.

I will strive to get your graded work back to you in a timely fashion. Handing assignments in on time and in a presentable fashion will help with this tremendously.

Expectations (i.e. such as what you need to —know|| for a test or quiz) are clear. Grading and course policies are implemented fairly.

Use of the GIS Lab: Priority use of the GIS lab is for those students enrolled in the GIS or Remote Sensing courses. Occasionally, other classes will use the lab though it will be open regularly for you to work on class projects. Specific hours will be posted. **NOTE:** Use of the lab for other class work, email, internet etc. is fine **UNLESS** it interferes with someone else’s access for GIS or Remote Sensing related work.

Accommodations for Students with Disabilities: Western Carolina University is committed to providing equal educational opportunities for students with documented disabilities. Students who require reasonable accommodations must identify themselves as having a disability and provide current diagnostic documentation to Disability Services. All information is confidential. Please contact Disability Services for more information at (828) 227-2716 or 144 Killian Annex. You can also visit the office’s website: <http://www.wcu.edu/12789.asp>

V. Grading Procedures: Grades will be determined based upon your overall average grade with contributions of various assignments will averaged and multiplied by the percentages shown below to calculate your final grade.

FINAL GRADE ALLOCATION	%
Weekly labs, in-class assignments, quizzes etc.	30
Midterm	20
Final Project	30
Final Examination	20

Grading Scale: Grades will be assigned according to the scale shown below.

Percentage	Grade
93-100	A
90 – 92	A-
87 – 89	B+
83 – 86	B
80 – 82	B-
77 – 79	C+
73 – 76	C
70 – 72	C-
67–69	D+
63–66	D
60–62	D-
Below 60	F

- **I do not disclose/discuss grade information by email or phone so if you need to discuss your grade please see me in person.**
- Unless otherwise stated assignments are to be turned in during class. Electronic submissions are **NOT** considered turned in until I have confirmed with you that I received the files.

Tentative Course Schedule: Fall 2011

Date	Topic	Reading	Lab/Notes/Comments
Tues, Aug 23	Spatial Questions and GIS	Ch. 1	Assignment 1: Spatial Questions
Thurs, Aug 25	Spatial Questions and Scientific Problem Solving	Ch. 2	Lab1: Maps, Spatial Features and Attributes
Tues, Aug 30	GIS Spatial Data Models	Ch. 2	
Thurs, Sep 1	GIS Spatial Data Models	Ch. 2	Lab2: Introduction to ArcGIS-I
Tues, Sep 6	Map Projections	Ch. 3	
Thurs, Sep 8	Maps and Projections continued	Ch. 3	Lab2: Introduction to ArcGIS
Tues, Sep 13	Data Sources and Management	Ch. 4	
Thurs, Sep 15	GPS Basics	Ch. 5	Lab3: Creating and projecting GIS data
Tues, Sep 20	Spatial Analysis: Vector Tools	Ch. 9	
Thurs, Sep 22	Spatial Analysis: Vector Tools	Ch. 9	Lab 4:Vector Analysis Tools
Tues, Sep 27	Data Extraction/Analysis	Ch. 8	
Thurs, Sep 29	Introduction to Raster Data and Analysis	Ch. 10	Lab 5:Vector Analysis Tools II
Tues, Oct 4	Raster Data and Analysis Continued	Ch. 10	
Thurs, Oct 6	MIDTERM		
Tues, Oct 11	Introduction to Semester Projects		
Thurs, Oct 13	Fall Break – No Classes		
Tues, Oct 18	Fall Break – No Classes		
Thurs, Oct 20	Terrain Analyses	Ch. 11	Lab 6: Introduction to Raster Data and Analyses
Tues, Oct 25	Raster Data and Spatial Modeling		
Thurs, Oct 27	Raster Data and Spatial Modeling	Ch. 13	Lab 7: Surface Analyses Tools
Tues, Nov 1	Data Quality, Accuracy and Model Evaluation	Ch. 14	
Thurs, Nov 3	Other Raster Tools		Lab 8: Predictive Modeling with Raster Data
Tues, Nov 8	Integrating Raster-Vector Data Analyses		
Thurs, Nov 10	Spatial Estimation	Ch. 12	TBA
Tues, Nov 15	Predictive Models in GIS		
Thurs, Nov 17	Project Work		Project Work
Tues, Nov 22	Applications in NRCM		
Thurs, Nov 24	Thanksgiving Holiday		
Tues, Nov 29			
Thurs, Dec 1	Project Work		Project Work
Tues, Dec 6			
Thurs, Dec 8	Final Exam		
Thurs, Dec 15th	Final Project Presentations		3:00-5:30