

Geographic Information Systems

NR 143

Fall Term 2007

Dr. Leslie Morrissey

Lecture: T/TH 3:30 - 4:20 p.m., Aiken room 116

Labs: TH 4:30 – 7:30 p.m. or F 1:25 - 4:25 p.m. Aiken Spatial Lab, rm. 222

I. Goal: The principal goal of this course is for *each* student to: 1) gain an understanding of the principles and concepts of GIS and 2) learn ArcGIS software. The final student project will test your knowledge of GIS and ArcGIS software.

II. Course Organization: Lecture topics will introduce the student to the many related and complex subjects that come together in GIS. Laboratory exercises provide hands-on experience with the premier desktop GIS software package - ArcGIS. The lab book (*Getting to Know ArcGIS, Second Edition updated for ArcGIS 9*) contains a copy of the software (180 days license) and data. If you have a fairly new and fast PC with XP operating system, you can work through most of the labs on your own PC. Otherwise, class lab periods are noted above although attendance is not mandatory. Readings and homework assignments will supplement and enhance lectures and labs.

III. Grading Criteria:	Midterm exam	25 % (100 pts)
	Labs (9 x 8 pts each)	18% (72 pts)
	Assignments (8 x 10 pts each)	20 % (80 pts)
	Student Project	12 % (48 pts)
	Final exam	25% (100 pts)

Exams will be objective and will consist of multiple choice, true-false, and short answer questions. Final grade will be awarded on the basis of standing within the class as determined by exams, assignments, lab and participation, cumulative for the semester (90% = A-, 80% = B-, 70% = C-, 60% = D-). *Tardy assignments or labs will be downgraded 10% per class day late. Unexcused missed lectures or coming into lecture late will result in a loss of 5 pts per incident as determined by your professor. You will be able to submit assignments, labs, and check your grades throughout the semester through WebCT.* www.uvm.edu/webct

IV. Course Materials: One laboratory book and the course web site (www.uvm.edu/envnr/NR143) will be utilized in this course. The web site contains lectures, labs, assignments, and general information. In addition, a laboratory book, *Getting to Know ArcGIS Desktop*, is also necessary yet optional – 2 copies of this book will be made available for use during labs if you choose not to buy it. However, I cannot guarantee access to these books during each lab. *All labs and assignments will be either checked by the TA during the lab period or uploaded to WebCT.*

V. Instructor Office Hours

Office hours: T/TH 1:00 – 3:00 p.m. or by appointment

Aiken Center, room 325 (Phone: 656-2695)

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TA: [Rebecca Rockefeller](mailto:Rebecca.Rockefeller@uvm.edu)
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Fall 2007 SCHEDULE

Week of	Topics	Reading	Lab
August 26	Welcome Intro. to GIS Applications (<i>World in a Box</i>) Reading: <i>Omsby, Getting to Know ArcGIS, Chap. 1 & 2, Introduction to ArcGIS</i>		<i>no labs this week</i>
Sept. 2	ArcGIS Overview, Lab 1 Maps, Projections, Scale Reading: <i>ArcMap, Map Projections, More about maps</i> <i>Datums: Who needs 'em anyway? Geographic Grid</i> Assignment 1 – GIS Literature Review (due in one week)		#1 ArcGIS Introduction Chap. 3 & 4
Sept. 9	Data Structures, Lab 2 Cartography Readings: <i>GIS and Mapping: Pitfalls for Planners, Cartography, Making Maps that Communicate</i> Assignment 2 - Maps, Scale, Projections (due in one week)		#2 Map Symbology Chap. 5 & 6
Sept. 16	Data Acquisition, Lab 3 Environmental Datasets Assignment 3 – Geocoding Addresses (due in one week)		#3 Cartography Chap. 7, 18 & 19
Sept. 23	Vector Analyses, Lab 4 Vector analyses cont. Reading: <i>Vector Analyses 1 & 2, Spatial Joins, Attribute Tables</i> Assignment 4 – Vector Topology (due in one week)		#4 Vector Analyses Chap. 8, 9 & 10
Oct. 1	<i>Map Room tour</i> Data Formats, Lab 5 Reading: <i>Geodatabases, Lesson 2: Geographic Data</i> <i>Concepts (Topology) in Understanding GIS, ArcGIS File Types</i> <i>Map Room tour (Bailey Howe Library basement) – Bill Gill coordinator</i> Assignment 5 – Using ArcGIS Software Resources (due in one week)		#5 ArcToolbox Chap. 11, 12 & 13
Oct. 7	<i>catchup</i> , Lab 6 Review for midterm exam Reading: <i>Employment Opportunities, Vector Editing</i> <i>START THINKING ABOUT YOUR STUDENT PROJECT!</i>		#6 GDB creation & HUD Chap. 14, 15 & 16

- Oct. 14 **Midterm** #7 Remote Sensing
 Remote Sensing
 Reading: *Project Design, check out the Student Project web page*
Assignment 6 – Student Project Proposal inc. VCGI Data Search (due in one week)
- Midterm is scheduled for Tuesday, October 16*
- Oct. 21 Review exam, Project Design #8 Raster Analyses
 Raster analyses, Lab 8 Spatial and 3D Analyst, ArcScene
 Reading: *Raster Analyses*
Assignment 7 – VCGI data download and import into ArcGIS (due in one week)
- Oct. 28 Raster analyses cont., #9 Suitability Modeling
 Suitability modeling, Lab 9
 Reading: *Mapping Change*
Assignment 8 – ModelBuilder (due in one week)
- Nov. 4 Delphi method Student Project Open Lab
 Guest seminar *(you can attend either*
lab)
- NEARC Conference, Wyndham Burlington Hotel, Nov. 4-7, 2007*
- Nov. 11 Spatial Statistics Student Project Open Lab
 catchup *(you can attend either lab)*
 Reading: *Google Earth Virtual Globe*
- Nov. 18 *Thanksgiving Recess November 19-23*
- Nov. 25 Data quality
 Data quality continued, assessment
(YOUR STUDENT PROJECT IS DUE ON OR BEFORE SUNDAY, DEC. 2ND!)
- Dec. 2 What's next? Review for final
LAST CLASS IN ON TUESDAY, DEC. 4TH

Final – Friday, December 14 @ 3:30 pm (lecture room)