

GIS 5049: GIS for Non Majors
Department of Environmental Science, Policy and Geography
University of South Florida St. Petersburg
Syllabus¹

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Office Hours	Tuesday and Thursday 9:00 – 9:50 and 12:00 – 12:30 Or By appointment	Tuesday and Thursday 9:00 – 11:00 & 2:00 – 3:00 Friday 2:30 – 3:00 Or by appointment

DISTANCE EDUCATION

This course will be delivered through a series of Podcast or virtual streaming lectures. You can view all lectures via the computer, take quizzes on BlackBoard, and take exams on the USF St. Petersburg campus. You will need a computer with Internet Explorer (Windows 2000/XP or Mac OS X v10.2.8 or later) and the lecture link: (click here) to be able to view the lectures.

Computer Requirements:

1. Computer access to current word processing, PowerPoint, Internet, & E-mail capabilities
2. Access the course web page daily. (<https://my.usf.edu>)
3. The course web page offers you many instructional aids. It is your responsibility to learn how to use the **blackboard site**. The student must become familiar with this site and the materials available. All assignments will be made available via blackboard. You are required to take exams and quizzes via Blackboard as well as submit all assignments (term project and lab projects) using Blackboard (digital drop box).
4. INTERNET : To reach your section's Homepage you must enter through the new USF Web Portal <https://my.usf.edu> . Many of you already have your official USF NetID (a modification of your name) and Password. If not, you need to register. Select “ Sign up ”, “ Activate your NetID ” and follow the instructions. You will need to know your USF ID Card Number: “640013...” (ten digits). You should find yourself in “Blackboard” click on “Courses” and “GenChem I”. After a little surfing you will find “Course Material”, “Assignments”, “Communication” ”Discussion Board ” or “ Roster (search)”, which lists

¹ This is for Spring 2008 – however, this is to give an idea – final version may change for the current semester

² Ring the doorbell if the main door is locked

all members of the class and their email addresses and Tools” ” Check Grade ” or “ Calendar ”.

5. Signed Syllabus Acknowledgement form (available via blackboard) – Due no later than **Jan 18th, 2008** (mail).
6. You will be needing ArcGIS software developed by ESRI to complete the lab exercises. A complementary (student version – 6 month trial) of ArcGIS software will be mailed to you upon receiving your ‘signed syllabus acknowledge form’.

Course Description

This graduate course is an introduction to the concepts and techniques of thematic mapping and the capture, storage, and visualization of digital geographic data. Students are expected to develop skills necessary for designing and evaluating cartographic representations of information. The course has five specific goals:

1. to provide an understanding of techniques by which geographic features are referenced on the earth and the methods by which they can be represented digitally for mapping and analysis purposes;
2. to provide a background to the fundamental principles of cartography, map design, and production;
3. to expose students to a variety of thematic mapping techniques;
4. to familiarize students with a widely-used mapping/GIS software application (*ArcGIS*); and
5. to ensure that students are prepared adequately for advanced courses on geographic information systems (GIS), cartographic modeling, and spatial analysis.

NOTE: The content of this course is a graduate level compilation of two undergraduate courses viz. GIS3006C and GIS 4043C. This course is recommended for the graduate students who have not taken GIS 3006C and GIS 4043C.

Course Readings

Required Text:

1. The textbook for this course is: Dent, B. D. 1999. *Cartography: Thematic Map Design* (5th edition). Boston: WCB/McGraw Hill. This title is available the USF bookstore.
2. ESRI, Inc. *arcGIS 9. Getting to Know ArcGIS Desktop*. Redlands, California: ESRI.
3. *Getting started with GIS* by Keith Clarke. Prentice Hall, 2002.
4. *Spatial Reasoning for Effective GIS* by Joseph Berry. John Wiley and Sons. 1996

Other Suggested Readings:

- (i) Campbell, J. 1998. *Map Use and Analysis*. Boston: McGraw Hill.
- (ii) Monmonier, M. 1996. *How to Lie with Maps*. Chicago: University of Chicago Press.
- (iii) Robinson, A., *et al.* 1995. *Elements of Cartography*. New York: John Wiley & Sons.

(iv) Some additional handouts and scientific articles will be provided whenever I feel that additional handouts will aid understanding of the subject.

Please feel free to consult ArcGIS manuals and on-line help.

Course Components

1. Introduction to fundamental concepts of digital mapping
2. Introduction to GIS software ArcGIS
3. Working on class projects (lab exercises)
4. Term Projects

Class Grading

1 Major Thematic Mapping term Project	20%
Lab Assignments	40%
Midterm 1	20%
Midterm 2	20%
Total	100%

Grading Scale

>= 96%	A+
90 - 95%	A
85 - 89%	B+
80 - 84%	B
75 - 79%	C+
70 - 74%	C
65 - 69%	D+
60 - 64%	D
<60%	F

Incompletes

Incomplete grades (I) are awarded only if the criteria in the USF catalog are met. USF policy: 00-01 Catalog p. 41. “ An “I” grade indicates incomplete coursework and may be awarded to an undergraduate student only when a small portion of the student's work is incomplete and only when the student is otherwise earning a passing grade.”

Exams

There will be two midterms. Exams are composed of theory (based on the lecture notes).

Make Up Exams

No Make up exams will be permitted.

Thematic Mapping Term Project

One major thematic mapping term projects will be assigned during this term. Guidelines and due dates will be announced at the time they are assigned via black board. **These dates and times will be adhered to rigidly!! No late submission.**

Lab Assignments

Several lab assignments will be due through out the semester. Please consult the course outline for details. **Unless otherwise specified the lab assignments are due the following week after they are assigned. For example: an assignment assigned for week 2 is due on week 3 (by FRIDAY 5:00 pm). No late submission.**

Minimum Recommended study requirements

1. This course is a CUMULATIVE learning experience, therefore, it is important that you:
2. Dedicate a minimum of four plus hours of study to the lecture course per week.
3. Preview material to be covered in class by reading ahead in the book and looking at the lecture slides on Blackboard website. (see below for *Keys to Success in the Cours*)
4. Come to class and take a good set of notes on what is covered in class.
5. Be prepared to be an active participant in class discussions and ask questions during class.
6. Immediately after class, review lecture notes, assigned reading, and work suggested chapter questions and problems. Stay on top of material; do not fall behind in your studying.
7. It is essential that you work suggested chapter questions and problems. You may want to keep a problem notebook. Attempt every problem; mastery of chemistry requires much practice.
8. Please seek help as soon as possible if you are having difficulty because this course will be taught at a rapid pace and many principles rely on mastery of previous material.

Academic Dishonesty

It is expected that students work independently on exams and assignments. According to the USF Academic Dishonesty Policy: "Punishments for academic dishonesty will depend on the seriousness of the offense and may include receipt of an "F" or "Zero" on the subject paper, lab report, etc., an "F" in the course, suspension or expulsion from the University. The University drop and forgiveness policies shall be revoked for a student accused of academic dishonesty. The internal transcript of a student who is awarded an "F" for academic dishonesty will read "FF." Notice that a student has been dismissed for reasons of academic dishonesty may be reflected on the student's transcript." For more information on the USF Academic Dishonesty Policy, refer to the Undergraduate Catalog.

Review Sessions before exam (via Blackboard chatroom)

General non-mandatory, but highly suggested one hour reviews will be held (11:00 – 12:00 noon each week) on the course website via the Blackboard Chat Room located under the

Communication Icon and selecting the Collaboration Icon for those interested. During the sessions students may ask questions about the materials, lab assignments and the quizzes (that have expired). Each session will be recorded so that students may access the sessions at anytime and print off the conversations. Listed below are details on how to access the Chat Room. Students have to participate for there to be any review discussion posted. Changes will be posted as needed

Students with Disabilities

If you are a student who has special needs because of any disability, please see the staff in the office or the Dean of Students, to self disclose and provide supporting documentation. Please feel free to discuss the issue with me in private.

Keys to Success in the Course

Key #1: You must understand how you best learn (listening, looking, hearing, talking) and adapt your study approach to your learning style. This class is designed to provide plenty of learning opportunity to different learning styles.

Key #2: You must read the assigned **readings before** coming to class. Please use the study guide at the end of each chapter. Know the terms **before** you attend class. Jargon will not go away. Unfortunately, it is a part of every field. The terms in **Digital Thematic Mapping** are not hard to understand. They are just strange and unfamiliar **at first**. A big hurdle for many students is that they are overwhelmed by jargon the first time they encounter the term. They shut down when they hear an unfamiliar word. If this "shut down" occurs in class, you'll miss the point. Look at the diagrams and visualize what the terms mean. Look up unfamiliar words and learn them.

Key #3 : You must review the material soon after you learn it for the first time! Most students need to learn the material at least 4 times. The first time is to learn the jargon before class. The second time is to re-learn the jargon and learn the concept in class. The third time is to re-re-learn what was stressed in class by reviewing ideas **WITHIN 1-3 DAYS AFTER THE CLASS**. If you do not reinforce your learning within 1-3 days, you will lose most of it. The fourth time is during test preparation.

Key #4: Assemble your class notes, texts, handouts, and so on. List all the topics you believe the teacher might use for test questions. It is crucial that your list is complete so take the time needed. Believe it or not, the best way to prepare for any test is to guess the test questions. Odds are, you will encounter hints in class.

Key #5: The bottom line is that you must take an active role in learning if you wish to succeed.

Key# 6: You will be given opportunity to work in small groups for class projects and in-class learning and notes exchange. Engage in your group actively and you will find **learning is fun**.

Class	Lecture Topics	Readings	Projects/ Exercise (Lab) ³
1.	Lecture 1: What is a map?	Dent: Chapter 1	
2.	Lecture 2: Introduction to Cartographic Processes and Introduction to ArcGIS		<u>Exercise 1a and 1b</u> : Introduction to GIS Software (ArcGIS)
3.	Lecture 3: Map Scale and Earth-Map relation	Dent: Chapter 2 Clark: Pages 40 - 56	<u>Exercise 2</u> : Map Projections and Coordinate System I: Effects of Map Projection
4.	Lecture 4: Map Projections	Dent: Chapters 2 & 3	<u>Exercise 3</u> : Map Projections and Coordinate Systems II : Examine Spheroids
5.	Lecture 5: Coordinate Systems	Dent: Chapters 2 & 3	<u>Exercise 4</u> : Map Projections and Coordinate System I: Effects of Map Projection
6.	Lecture 6: Census Geography Lecture 7 : How we collect data?	Clark: Pages 100 - 120	<u>Homework Project</u> : Census Geography: American Fact Finder <u>Homework Project</u> : GPS Exercise
7.	Lecture 8: Map design and composition Lecture 9: Map lettering and Typography Term Project: Assign	Dent: Chapter 13 & 14	<u>Exercise 5</u> : Map Design and Layout I : Designing maps with a purpose <u>Exercise 6</u> : Map Design and Layout II: Work with Visual Hierarchy
8.	Lecture 10: Cartographic Process Lecture 11: Introduction to GIS	Dent: Chapters 13 & 6 Clark: Pages 1 - 12	<u>Exercise 7</u> : Map Design and Layout III : Design elements & map projections <u>Exercise 8</u> : GIS Analysis: Query and analyze data
9.	Lecture 12: GIS data model and analysis Lecture 13: What is 'Dot mapping'?	Dent: Chapters 6 & 8 Clark:	<u>Exercise 9</u> : Mapping: Dot Density
10.	Lecture 14: Introduction to Choropleth map Lecture 15: What is Proportional Symbol Map Term Project : Due	Dent: Chapters 7 & 9	<u>Exercise 10</u> : Mapping: Choropleth <u>Exercise 11</u> : Mapping: Proportional Symbol
11.	GIS Spatial Analysis Exercises	Clark: Pages 166 – 176 & 201 - 209	<u>Exercise 12</u> : Creating Features (ArcGIS: pages 383 – 404) <u>Exercise 13</u> : Editing Features and Attributes (ArcGIS: pages 405 – 428)
12	GIS Spatial Analysis Exercises	Berry: Pages 105 - 118	<u>Exercise 14</u> : Querying data (ArcGIS: 197 – 224) <u>Exercise 15</u> : Joining and relating tables (ArcGIS: 225 – 251).
13	GIS Spatial Analysis Exercises	Berry: Pages 37 – 47 & 51 - 74	<u>Exercise 16</u> : Spatial Analysis Clip Dissolve <u>Exercise 17</u> : Buffer and Overlay
14	GIS Spatial Analysis Exercises	Clark: Pages 72 – 91 & 146 – 159 Berry: Pages 85 - 103	<u>Exercise 18</u> : Reclassify elevation grid <u>Exercise 19</u> : Reclass and Resample
15	GIS Spatial Analysis Exercises	Clark: Pages 72 – 91 & 146 – 159 Berry: Pages 85 - 103	<u>Exercise 20</u> : Vector to raster Conversion <u>Exercise 21</u> : Map algebra

Class Dates with Reference to Week

Week	Date
1	01/07/08
2	01/14/08
3	01/21/08
4	01/28/08
5	02/04/08
6	02/11/08
7	02/18/08
8	02/25/08
9	03/03/08
10	03/10/08
11	03/17/08
12	03/24/08
13	03/31/08
14	04/07/08
15	04/14/08
16	04/21/08

*NOTES:*¹ Complete and submit the exercises via Digital Drop Box.

I reserve the right to modify the schedule if necessary. In that unlikely case, postings on the website will take precedence over this schedule

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