GIS 3006: Computer Cartography
Department of Environmental Science, Policy and Geography
University of South Florida St. Petersburg
Syllabus[1]

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Office Hours	Monday 10:00 – 10:45 Wednesday and Friday 9:00 – 9:50 Or by appointment	Thursday 10:00 – 12:00 Friday 1:30 – 3:00 Or by appointment

Course Description

This 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.

Course Requirements

Since this is an introductory course, no prior acquaintance with mapping/GIS software is necessary. Familiarity with the MS Windows 98/2000/NT operating system is required. All assignments, class projects and lab exercises **should be submitted via Blackboard** unless specified otherwise.

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.

[1] This is for fall 2007 – 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

2. ESRI, Inc. arcGIS 9. *Getting to Know ArcGIS Desktop.* Redlands, California: ESRI.

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.

Course Components

1. Introduction to fundamental concepts of digital mapping
2. Introduction to GIS software ArcGIS
3. Working on in-class and out-off class projects (lab exercises)
4. Ungraded quiz
5. Small group activity
6. Journal writing

Class Grading

Mid Term 1	15%
Mid Term 2	15%
Final	15%
1 Major Thematic Mapping Projects	20%
Lab Assignments	30%
Journal Writing	5%
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

Exams

There will be two midterms and one final. The final is mandatory. Exams are composed of both theory and lab exercises.

Thematic Mapping Project

ONE major thematic mapping project will be assigned during this term. Guidelines and due dates will be announced at the time it is assigned. **The 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. Lab assignments **are due the following week after they are assigned (unless otherwise specified)**. **No late submission**.

Journal Writing

You are required to keep a journal for each week. You are also required to **turn** in your journal electronically to your blackboard account a before the next class (**Tuesday midnight**). Journal writing is a great way to assess and evaluate your own learning process. I will grade your journal by 'check' and 'no check' method. No late submission. I will not grade the content or writing style of your journal. 5% of the total grade comes from this journal writing.

- ✓ *Check = Turned in = 100% of the points assigned per week*
  No check = Not Turned in = 0% of the points assigned per week

Topics you need to address in your journals are:

i. What you liked the most after reading the assigned chapter from your text book (Dent, 1999)?
ii. What you did not understand after reading the assigned chapter from the text book (Dent, 1999)?
iii. What did you like about the lecture or class project?
iv. What you did not like about the lecture or class project?
v. List the concepts you grasped easily.
vi. List the concepts that were difficult to grasp.
vii. Are you finding the topics interesting? Yes – please explain. No – please suggest

Make Up Exams

Make up exams may be permitted and must be arranged prior to the exam unless it is an emergency. No Late submission of lab assignments or journal writing will be allowed unless the circumstance was beyond your control. However, you should inform me at the earliest opportunity.

Attendance Policy

Your grades will not be affected if you miss a class due to circumstance beyond your control. However, you are highly encouraged to weigh the opportunity costs of missing a class as lectures will greatly aid in understanding of the material. Please arrange to get notes from other students. Please note that notes or tapes from this class are not for sale. Students who anticipate the necessity of being absent from class due to the major observation of a major religious observance must inform me.

Academic Dishonesty

While class projects and final projects may usually be worked on in groups, each student is expected to turn in his/her own copy of project reports and maps and lab reports including maps (when assigned) written in his /her own words. Blatant copying will result in zeros on all involved reports. No exception or excuses. Please refer to 2005 – 2006 student handbook for detailed discussion.

Other Notes

1. We will be using Internet and blackboard extensively in this class. You are required to use blackboard for electronic journal submission, and check assignments. You could also contact your fellow students and use the discussion board to discuss course related materials.

2. Students taking this course come from a variety of backgrounds. It is hoped that all students will share thoughts and experience in order to make this a very enjoyable class for everyone.

3. If you are interested in the application of GIS in any particular field please contact me to discuss options and opportunities within the exciting and rapidly changing field.

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**.

DTM - Detailed Course Outline

Week	Date	Topics	Readings[3]	Class Projects/ Exercise (Lab)[4]
1.	**9/02**	*Introduction* Classmates, Course outline, Grades		
2.	**9/9**	*History of Cartography and Mapping Fundamentals*	Chapter 1	Class Project: Census Geography: American Fact Finder
3.	**9/16**	*Map Scale and Earth-Map relation* Examine screen sections and tools Concepts of ArcMap, ArcCatalog, ArcToolbox	Chapter 2	Exercise 1: Introduction to GIS Software (ArcGIS) Homework 1 (**Due)**
4.	**9/23**	*Map Projections*	Chapters 2 and 3	Exercise 2: Map Projections and Coordinate System I: Effects of Map Projection Homework II (**Due)**
5.	**9/30**	*Map Projection and Coordinate Systems*	Chapters 2 and 3	Exercise 3: Map Projections and Coordinate Systems II : Examine Spheroids
6.	**10/7**	**Midterm I**		
7.	**10/14**	*Map Design and Composition* **Thematic Project 1: Assign**	Chapter 13	Exercise 4: Map Design and Layout I : Designing maps with a purpose
8.	**10/21**	*Map lettering and Typography* **Lab: Thematic Project 1**	**Chapter 14**	Exercise 5: Map Design and Layout II: Work with Visual Hierarchy Exercise 6: Map Design and Layout III : Design elements & map projections
9.	**10/28**	*GIS and Data Model* **Thematic Project 1: Due**	Chapter 6	Exercise 7: GIS Analysis: Query and analyze data
10.	**11/04**	**Midterm II** **Thematic Project 2: Assign**		
11.	**11/11**	**Holiday**		
12.	**11/18**	*What is 'Dot mapping'?* *What is Proportional Symbol in Maps?*	Chapter 8 Chapter 9	Exercise 8: Mapping: Dot Density Exercise 9: Mapping: Proportional Symbol
13.	**11/25**	**Holiday**		
14.	**112/02**	**Introduction to Choropleth mapping Cartographic Data Sources** **Introduction to on-line GIS** Discussion/demonstration of GIS projects **Lab: Thematic Project 2**	Chapter 7	Exercise 10: Mapping: Choropleth
15.	**12/09**	*Introduction to online GIS* *Discussion/Demonstration of GIS projects* **Thematic Project 2: Due**		
16.	**12/16**	**Final!**		

[3] *** All readings in Dent 1999, unless otherwise noted.**

[4] You are welcome to complete the lab exercises in class – if you can't complete them in class they are due the following week 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.