

**Example of a Syllabus
GIS 5049: GIS for Non Majors
School of Geosciences
University of South Florida
Fall 2020**

Class Begins 08/24/20 and ends 12/5/2020

**Web-Based Class
Day and Time: On-line**

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		NOTE: For ArcGIS Software Installation related matters and the software glitches etc please contact Matt Spetka (mmspetka@usf.edu) and cc me cc me (bdixon@usf.edu). This will ensure more prompt and expedite response. Matt will be available on Wednesdays (online): 11AM -1:00 PM – please send him an email for an appointment should you need to see him some other day

DISTANCE EDUCATION

This course will be delivered through a series of Podcast or **virtual streaming lectures**. You can view all lectures via the computer, as well as take quizzes and exams on Canvas. You will need a computer with Internet Explorer (Windows 7 or newer or Mac OS X v10.2.8 or newer) to access the lectures **via Canvas and view the lectures**. However, ESRI products (ArcGIS software) required to complete the lab exercises works with Windows Vista or 7. *ArcGIS does NOT work with Mac platform and you may have some compatibility problem(s) with Windows 8 or newer version. You need to install appropriate patches when available and applicable (as posted on the Canvas). If you have Office 13, you may not be able to bring xls files directly into ArcGIS.*

Computer Requirements:

1. Computer access to current MS office (MS word, PowerPoint, and Visio), Internet access, & 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 **Canvas site**. The student must become familiar with this site and the materials available. All assignments will be made available via Canvas. You are required

- to take exams and quizzes via Canvas as well as submit all assignments (term project and lab projects) using Canvas (digital submission).
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 “Canvas” click on “Courses” and “GIS For Non-Majors”. After a little surfing you will find “Modules’, “Course Material”, “Assignments”, “Communication” ”Discussion Board ” or “ Roster (search)”, which lists all members of the class and their email addresses and Tools” ” Check Grade ” or “ Calendar ”.
 5. Signed Syllabus Acknowledgement form (available via Canvas) – **Due no later than Aug 28th**, **2020. Download the form, fill it out and then scan and upload. It requires your ‘actual’ signature.**
 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’. We recommend that you have windows vista, 2000, or 7 as ARCGIS works smoothly with these OS. Further, we recommend that you have MS office 2003 or 2007. If you have office 2010, you may face additional problems of software compatibility. ***Instructions will be posted on the Canvas to address these compatibilities. It is your responsibility to read the instructions carefully.***
 7. If you are using Library Computers here at USFSP – please see under FAQ for additional instructions. Permission levels in your personal computer will be different than the library computers.

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 Text¹:

1. The textbook for this course is: Dent, B. D. 2009. *Cartography: Thematic Map Design* (6th edition). Boston: WCB/McGraw Hill. This title is available the USFSP bookstore. **978 -0 – 07-294-382-5**
2. ESRI, Inc. ArcGIS 10.3. *Getting to Know ArcGIS Desktop*. Redlands, California: ESRI. ISBN-13: **978-1589483828**
3. *Getting started with GIS* by Keith Clarke. Prentice Hall, 2010. **ISBN-13: 9780131494985**
ISBN-10: 0131494988
4. *Spatial Reasoning for Effective GIS* by Joseph Berry. John Wiley and Sons. 1996. **978-0470236338**

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
5. Journals
6. Quizes

Class Grading*

1 Major Thematic Mapping term Project	20%
Lab Assignments	35%
Quiz(s)	5%
Journals	5%
Midterm 1	15%
Midterm 2	20%
Total	100%

¹ Some of these text book except for ArcGIS 10.3, I have chosen older edition to keep your book cost low. You are welcome to buy newer version if you choose and if available. But be sure to read the appropriate chapters. Readings in the syllabus are assigned based on the edition I included in the syllabus.

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

***NOTE – your weighted grade according to this syllabus is your final grade. Canvas keeps/shows grades that may not be weighted.**

Incompletes

Incomplete grades (I) are awarded only if the criteria in the USFSP catalog are met. USFSP policy can be found in the Catalog for the current academic year. “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) and some basic GIS software questions. Be sure to watch the videos. **See the tables 1 and 2 below for details**

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 Canvas. **These dates and times will be adhered to rigidly!! No late submission. You must submit your data and mxd as one zip file for the part III of the term project. The project is due on **11/29/20 5:00 PM (NO exception)**. You have to be able to synthesize, integrate and apply pertinent lab exercises, readings and lectures to be able to successfully complete the Term Project. Term Projects are not another exercise and hence we will provide limited instructions and you are required to fill in the gaps and connect dots to produce results for the tasks assigned for the term project. Approved/authorized materials you can consults to complete your team project are: reading assignment, lab exercises and received lectures provide by me via Canvas. Use of any other items/materials will be considered unauthorized materials under applicable policy for academic dishonesty.**

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 Sunday after they are assigned. For example: an assignment assigned for week 2 is due on Sunday (by 5:00 pm). No late submission.** You first assignment is due on **9/06/20**. Some of the lab exercises will be coming from the Green Book: (ESRI, Inc. ArcGIS Getting to Know ArcGIS Desktop. Redlands, California: ESRI.

Journal Writing

You are required to keep a journal for each week. You are also required to **turn** in your journal electronically to your Canvas account each week (**starting from week2**). You must submit them by **Sunday 5:00 pm each week. YOUR first journal is due on Sunday (9/06/20). No late submission.** 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. 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 books (Dent, 2009; Clarke 2002 and Berry 1996)?
- ii. What you did not understand after reading the assigned chapter from the text book (Dent, 2009; Clarke 2002 and Berry 1996)?
- iii. What did you like about the lecture or project?
- iv. What you did not like about the lecture or 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.

Minimum Recommended study requirements

1. This course is a CUMULATIVE learning experience, therefore, it is important that you: dedicate a minimum of **four plus hours** of study to this course (lecture and exercises) per week. Most of you will need more than this estimated time. Time I estimated to complete assignments are averages only, some of you will need more time than that. So manage your time well.
3. Preview material to be covered by recorded lectures by reading ahead in the book and looking at the lecture slides on Canvas website. (see below for Keys to Success in the Course)
4. Come to class (i.e view online lectures and follow along with power points) and take a good set of notes on what is covered in class.
5. Be prepared to be an active learner and ask questions via email.

6. Immediately after class (online lectures), 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 (including lab exercises). You may want to keep a problem notebook (concepts that you had difficulty with). Attempt every problem/labs – integrate information between lecture, readings and labs; mastery of subject 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 USFSP Academic Dishonesty Policy, refer to the Undergraduate/Graduate Catalog for the current academic year. All lab exercises, term projects, quiz as well as midterms are to be completed without any help from other students or unauthorized materials. For example for midterms and quizzes they are closed book and notes. For Term project you can't copy paste software related answers from ESRI website. If I suspect unauthorized collaboration, I will give 0 to everyone involved in collaboration in the assignment (and unauthorized use of materials) and may also give F in the course or FF.

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** watching lectures. Please use the study guide at the end of each chapter. Know the terms **before** you attend class/watch lectures. Jargon will not go away. Unfortunately, it is a part of every field. The terms in **Digital Thematic Mapping and GIS** 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 during lectures.

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 many small and large class projects. Engage in your course actively and you will find **learning is fun**.

IMPORTANT NOTES

You **MUST** be able to ‘Read the instructions correctly and follow them’. Make sure to **pay attention to details**. If you don't install the software correctly (following our instructions posted on the canvas) you will have problems as the semester progresses. Please read the software installation related instructions (posted on the canvas) carefully and install the software correctly. Further you have to install the appropriate service pack and 'meta data exclusion' patch (as posted on the canvas). Without proper environmental settings (that is software installed correctly along with all service packs and patches) - **you will NOT be able to complete the assignments (Exercise 9 onwards) and TERM project correctly and efficiently. This will lead to unnecessary frustration consequently your performance in this class may be impacted which will affect your grade.**

Solution is simple. Follow the steps below:

1. Install and Register the software - follow the instructions under FAQ
2. Download and install appropriate service pack (see under web resources)

Additionally, Make sure that you can see all the videos (located under links called ‘on-LINE video lectures’ and ‘Additional Lectures’ by week2 (from the start of the class). If not - you need to inform us on or before the end of week 2.

Dispute with Grades and complaints: If you have any question and concerns about your grade, please contact the instructor as soon as possible. If you are unsatisfied with the resolution, you are required to follow the grievance policies and procedures about your grade/concerns as outlined in your student handbook and catalog. Please remember: the syllabus is a contract.

Title IX: Gender-Based Crimes - Educators must report incidents of gender-based crimes including sexual assault, sexual harassment, stalking, dating violence and domestic violence. If a student discloses in class, in papers, or to an instructor, the instructor is required by law to report the disclosure. The Wellness Center ([727-873-4422](tel:727-873-4422)) and the USFSP Victim Advocate ([727-698-2079](tel:727-698-2079)) are confidential resources where you can talk about such situations and receive assistance in confidence

Class	Table 1: Lecture Topics	Readings	Projects/ Exercise (Lab)
1.	Lecture 1: What is a map?	Dent: Chapter 1	
2.	<i>Lecture 2: Introduction to Cartographic Processes and Introduction to ArcGIS</i>		<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 Quiz 1	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? Mid Term I	Clark: Pages 100 - 120	<u>Class Project1</u> : Census Geography: American Fact Finder <u>Class Project2</u> : GPS Exercise
7.	Lecture 8: Map design and composition Lecture 9: Map lettering and Typography Term Project: Assign Quiz 2	Dent: Chapter 13, 14 , 15 & 16	<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 4, 5, 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, 7 & 8	<u>Exercise 9</u> : Mapping: Dot Density
10.	Lecture 14: Introduction to Choropleth map Lecture 15: What is Proportional Symbol Map Quiz 3	Dent: Chapters 9, 10, 11 & 14	<u>Exercise 10</u> : Mapping: Choropleth <u>Exercise 11</u> : Mapping: Proportional Symbol
11.	GIS Spatial Analysis Exercises Additional Lecture: Geodatabase	Clark: Pages 166 – 176 & 201 - 209	<u>Exercise 12</u> : Creating Features (ArcGIS: pages 414 – 434) <u>Exercise 13</u> : Editing Features and Attributes (ArcGIS: pages 436 – 466)

12.	GIS Spatial Analyses Exercises Quiz 4	Berry: Pages 105 - 118	<u>Exercise 14</u> : Querying data (ArcGIS: 501 – 538) <u>Exercise 15</u> : Joining and relating tables (ArcGIS: 563 – 600).
13.	GIS Spatial Analysis Exercises Midterm II Additional Lecture: Spatial Analysis	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 Term Project : Due	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 Additional Lecture: Google Earth Pro Apps	Clark: Pages 72 – 91 & 146 – 159 Berry: Pages 85 - 103	<u>Exercise 20</u> : Vector to raster Conversion <u>Exercise 21</u> : Map algebra

Table 2: Class Dates with Reference to Week (Most assignments are due on Sunday 5:00 PM but exceptions are noted in **Red Text)**

Prior to the 1 st Class and During Week #1	Review Syllabus and Familiarize Yourself with Canvas	Signed Syllabus Must be uploaded via Canvas by 8/28/2020	Upload Signed Syllabus Form By 8/28/20
First Day of Class (8/24/2020) Week # 1	First Day of Attendance	Anytime between 8/24-8/28 5:00 pm log on to the canvas for First Day of Attendance ²	All you need to do for the first day of attendance is log-in to Canvas between 8/24-8/28
Week	Lab Exercises and Journal : Assign Dates	Lab Exercise and Journals: Due Date	Quizzes /Exams/ Term Projects
1	8/24/20 N/A	8/30/20 N/A	Signed Syllabus Acknowledgment form by 8/28/20
2	08/31/20	09/06/20 – Ex 1a & B	
3	09/07/20	09/13/20– Ex 2	
4	09/14/20	09/20/20 – Ex 3	
5	09/21/20	09/27/20- Ex 4	Quiz 1
6	09/28/20	10/04/20 – CP 1 & CP 2	Midterm I
7	10/05/20	10/11/20 – Ex 5& 6	Quiz 2

² If you fail to logon to the Canvas between 8/24/20 and 8/28/28 (5:00 pm on 8/28 you will be dropped from the course).

8	10/12/20	10/18/20 – Ex 7 & 8	
9	10/19/20	10/25/20 – Ex 9	
10	10/26/20	11/01/20 – Ex 10 & 11	Quiz 3
11	11/02/20	11/08/20 – Ex 12 & 13	
12	11/09/20	11/15/20- Ex 14 & 15	Quiz4
13	11/16/20	11/22/20 – Ex 16 & 17	Midterm II
14	11/23/20	11/29/20 – Ex 18 & 19	Term Project
15	11/30/18	12/05/20* - Ex 20 & 21	*Ex 20 and Ex 21 Due 12/05/20 1:00 pm

Other Important Dates

For Academic Calendar Click the Link Below: <http://www.registrar.usf.edu/enroll/regist/calendt.php>. **FINAL Ex 20 and 21 will be closed on 12/05/20 at 1:00 PM.**

*Note: * In general they are open for a ~week and you can take the exam/quiz anytime during the assigned week. Check actual exam/quiz for exact date and time.*

NOTES: Complete and submit the exercises via Canvas.

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