

## Course Syllabus, Spring Semester 2011

### GIS 4043/L Introduction to Geographic Information Systems and Laboratory

*An undergraduate-level Geographic Information Systems and G.I. Science-focused course in the Department of Environmental Studies at the University of West Florida*

**Course Number:** GIS 4043/L

**Credit Hours:** 4

**Prerequisites:** None

**Term:** Spring 2011 (Jan 5, 2011 – April 28, 2011)

#### **Instructor's Office Hours and Contact Information; Course Web Sites**

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  - Mondays 10:00 – 11:00 a.m. and 4:00 - 5:00 p.m.
  - Tuesdays 2:00 – 5:00 p.m.
  - By appointment
- See course news web page for any changes, GA and GTA online and/or office hours
- ◆Email (*preferred method of communication outside of class forums*): [abloechle@uwf.edu](mailto:abloechle@uwf.edu) or send me an invite to chat in gmail.
- ◆Office Phone: (850) 857-6121 Department Fax: (850) 857-6036
- ◆Course web site: <https://elearning.uwf.edu>
- ◆Course blog: <http://uwf-gis.blogspot.com/>
- ◆eDesktop for GIS/required software and data: <https://nautical.uwf.edu/utility/ed/gisapps.cfm>
- ◆UWF Student Gmail: [gmail.students.uwf.edu](mailto:gmail.students.uwf.edu)

#### **Overview of the Course**

Geographic Information Systems and Geographic Information Science, GIS, is a rapidly evolving technology involving the study of spatial (geographic) location of features on the Earth's surface and the relationships between them. Because the work of various industries (see ESRI.com Industries) involves the study of location and spatial relationships, today's employers increasingly expect graduates of related degree programs, new applicants and current staff to possess a working knowledge of GIS. Environmental Systems Research Institute's (ESRI) suite of GIS software - ArcGIS in particular - has become the industry standard and is used by a majority of government agencies and private firms engaged in GIS activities. Specifically, employers are seeking professionals armed with a grasp of geospatial data types (vector, aerial imagery, satellite imagery, geodatabases, etc.), spatial analysis techniques and GIS project management skills. My primary goal is to ensure that by completing the course you will possess the theoretical and fundamental GIS skills valued by today's employers. A number of "alumni" from

this course and the Online GIS Certificate Program have secured internships and full-time jobs because they demonstrated GIS expertise in their portfolios and at job interviews.

The University of West Florida, Online GIS Certificate Program is run through the Continuing Education Department and hosted by the Environmental Studies Department in conjunction with the GeoData Center, which offers a suite of courses specifically devoted to GIS. Our online courses aim to build sought-after GIS skills through a comprehensive, real world-focused course of study in GIS. The classes are taught mainly as a combined lecture and computer laboratory course using ESRI's ArcGIS 10 software, Adobe Illustrator, remote sensing – ERDAS 10 software and a variety of hands-on exercises and activities. The majority of students interested in completing the certificate typically intend to pursue careers dedicated to the use of GIS while the remainder wishes to learn enough about the technology so it can be one of many tools available to them during their careers or graduate research. As such, the GIS courses offered by the Environmental Studies Department are both practical and theoretical in nature. Case studies and the hands-on use of ArcGIS software are favored with a particular focus on the acquisition, conditioning and analysis of real-world geospatial data typically used by GIS practitioners.

The Introduction to GIS course strives to provide a balance between the "how-to" of using ArcGIS 10 and the "why" of GIS by explaining the roles GIS technology plays in analyzing local and regional (even global) problems. Major components of the course include computer representation of geographic information, the construction of GIS databases, spatial analysis with GIS, application areas of GIS, and social and management issues that concern GIS. The lecture portion of the course is intended to provide the theoretical underpinnings of GIS while the lab portion of the course is intended to allow the student to put into practice those concepts and techniques described in lecture. At the end of the course, the student is expected to have an understanding of elementary GIS theory, working knowledge of ArcGIS, and the ability to develop GIS-based solutions to geographic modeling and analysis tasks. For most exercises, you will use real GIS data (mostly Florida), "warts and all", in order to learn how to overcome typical problems encountered by GIS practitioners. The last third of the course will focus on the development, execution and presentation of a final GIS project. Since the visual communication of quantitative data is a vital skill for most GIS industries, this project will help you further develop your GIS skills by framing an urban planning issue, developing a set of high-quality GIS maps to illustrate the issue, and presenting a focused summary of your methodology and findings to your colleagues. A key goal of the final project is to provide you with a portfolio piece to present to current and future employers as evidence of your GIS abilities. I am continually impressed by the work that beginning GIS learners produce for their final projects! I am looking forward to helping you learn ArcGIS 10 this semester! There are many avenues for assistance and to accelerate your understanding of GIS: in-class exercises and personal guidance from me, at least five office hours per week, and the ability to reach me via e-mail (I typically reply to clearly-worded messages very quickly).

Again, my primary goal is to ensure that by completing the course you will possess the theoretical and fundamental GIS skills valued by today's employers. There is a lot of work to complete in this course, but I'm here to help you succeed - and we'll have some fun, too.

### **Course Learning Objectives**

Students completing *GIS4043 Introduction to Geographic Information Systems with Lab* will be able to:

- I.** Describe how GIS practitioners typically use GIS as a tool for analysis and the display of quantitative data to solve problems
- II.** Utilize the core components and functionality of ArcGIS 10
- III.** Describe a variety of geospatial data types, data sources and metadata management techniques
- IV.** Create, manipulate and query geospatial data
- V.** Symbolize and classify geospatial data, understanding available choices and the implications of each technique
- VI.** Constructively critique cartographic styles and implement effective cartographic and display techniques

The following section lists each objective above, followed by specific topics and skills that will be covered during the semester.

**I.** Describe how various industries typically use GIS as a tool for analysis and the display of quantitative data to solve problems. Examples include:

- Applicability of GIS
- Accessing, analyzing and presenting demographic data from the U.S. Census Bureau
- Creating maps of state, county and zoning districts, General Plan land use designations, hazards and other local features
- Calculating areas and lengths (e.g. parcels, streets, jurisdictional boundaries, wetlands, farmland, habitat areas...)
- Proximity analysis (which features are closest, which features intersect, which features are within a distance of, which features share a common location...)
- Selection of features by tabular attribute and/or spatial location
- Creating reports that summarize geographic data using tables, graphs and other display techniques
- Preparation of maps for community meetings, Environmental Impact Reports and General Plans

**II.** Define GIS and explore why "spatial" is special.

- Differentiate G.I.Systems and G.I.Science
- Distinguish GIS from cartography and similar disciplines
- Recall the history of GIS and how it has developed into what we have today.
- Infer various map projections and coordinate systems
- Deduce when a particular spatial reference, coordinate system and map projection should be utilized for a particular spatial dataset.

- Employ different types of spatial data and measurement principles.
- Differentiate vector data model and raster data model including usage, compression, and storage.
- Discuss the role of GIS in the wider decision-making / management process.

### III. Utilize the core components and functionality of ArcGIS10

- Define the primary functions of a GIS (data capture, data storage, tools for querying data, tools for analyzing data, tools for displaying data, export functions)
- Explain the basic functionality of ArcMap, ArcCatalog and ArcToolbox
- Explain how MXD files are structured and how to repair broken links to component map layers
- Describe steps for creating and managing spatial bookmarks
- Measure distances and calculate area of spatial features
- Save MXDs with relative paths or absolute paths, and understand the difference
- Learn how to utilize ArcGIS Help.
- Begin simple data processing tasks and map creation.
- Complete common transformation of the differing data models.
- Utilize Geographic Information Systems for spatial analysis.
- Create, edit, and transform spatial data.
- Join and relate tabular data
- Design and execute Spatial Joins between multiple data sets
- Execute basic geoprocessing -- buffering, unions, intersections, dissolves, appends, and clipping
- Edit data layers with the Editor toolbar (e.g. changing locations of vertices, using the Sketch tool)
- Customize ArcMap (adding toolbars, dockable toolbars)
- Understand the difference between, and usage of, ArcMap's Data View and Layout View
- Work with multiple data frames in one Map Document
- Implement map templates to standardize map design
- Create and use Layer Files (.LYR ) and Layer Packages (.LPK) to store and share data and symbology

### VI. Describe a variety of geospatial data types, data sources and metadata management techniques

- Understand the definition and importance of metadata
- Use ArcCatalog as the primary management tool for creating, reading, searching and sharing metadata
- Use United States Census data
- Utilize shapefiles, personal geodatabases, file geodatabases
- Utilize vector data and raster data
- Understand the individual file components of a shapefile (DBF, SHP, SHX and others)
- Locate, download, import and convert GIS data sources in Internet data portals (local, state, federal)
- Work with Text (TXT), Excel (XLS), Comma-delimited (CSV) files in the context of ArcGIS

- Create and understand PRJ files for storing coordinate system information
- Create and understand XML files for storing metadata documentation
- Understand the pros and cons of various raster data types (TIF, GeoTIFF, JPG, GIF, PDF, AI, MrSID, etc.)
- Move, copy and share data within ArcCatalog and with other users
- Understand the difference between geographic vs. projected coordinate systems

#### **V. Create, manipulate and query geospatial data**

- Convert Excel (XLS) files to DBF and add them to ArcMap, or work with Excel files natively
- Understand the “anatomy” of data tables (records, attribute fields, cells, formulae)
- Open, sort and add data fields
- Arrange columns
- Summarize data columns
- Edit and add records
- Create definition queries
- View selected records and create a new map layer from selected features
- Create new shapefiles and geodatabases using ArcCatalog

#### **VI. Symbolize and classify geospatial data, understanding available choices and the implications of each**

- Understand thematic map types (choropleth, isarithmic, flow, multivariate, dot density, graduated symbol, graduated color, cartogram) and when to choose a particular type to convey information
- Understand data measurement scales (nominal, ordinal, ratio, interval)
- Understand data classification methods (natural breaks, quantile, equal interval, standard deviations) and reinforce the ability to read a histogram
- Utilize dynamic labels, interactive labels and annotation (both map-based and geodatabase-based)
- Understand when it is appropriate to normalize quantitative data

#### **VII. Constructively critique cartographic styles and implement effective cartographic and display techniques**

- Understand the map needs of various audiences (e.g. public, stakeholders, technical staff, decision-makers)
- Learn techniques to “tell the story” of the map effectively, quickly and responsibly
- Ensure the inclusion of all standard map elements: title, data sources, scale bar, north arrow, legend, etc.
- Ensure that all data sources are properly cited on maps
- Create visual balance in maps; employ techniques of visual hierarchy
- Determine the most effective cartographic choices (color, labels, line weights, etc.)
- Develop awareness that not everyone is comfortable reading or using maps
- Develop awareness that maps are a powerful medium for conveying information and the attendant implications for the map designer; developing awareness that biases can be introduced by the map designer

## Prerequisites

No prior knowledge of GIS is required to take this course; however, there is a lot of material to cover and this will be a fast-moving and fairly technologically advanced course. As such, there are a few basic prerequisites:

☑☑Competence with the Windows XP operating system, including the storing, copying and management of multiple data types; managing multiple windows and applications; and discipline to save work frequently.

☑☑Familiarity with data entry, sorting, editing and filtering using Microsoft Excel.

☑☑A strong motivation to learn, explore and have fun with computer applications is essential. This course will require a significant amount of independent work and relies heavily on student initiative.

☑☑A UWF email (gmail) account that you plan to check frequently. You will be asked to provide your blog link via email using your UWF gmail account on the first day of class in order to facilitate communications with the instructor. This will also let me know you are making your way through course orientation materials. I will only answer course related emails sent from your UWF email account.

## Required Textbooks and Software

The required textbook may be purchased online (at sites such as Amazon.com) or directly from the publisher. Note that if you purchase a used textbook online, you are responsible for obtaining the book from the seller in a timely manner. All students must have access to eDesktop for GIS (software) to participate in this course. Only Online GIS Certificate Program students are granted access and students must pay a \$250 fee to access by the end of drop/add period.

### Required Textbook:

*An Introduction to Geographical Information Systems*. 3rd ed., Pearson Education Limited (2006). ISBN: 0131293176

by Heywood, Ian; Cornelius, Sarah; Carver, Steve

### Supplemental (not required) Textbooks:

*Designing Better Maps: A Guide for GIS Users*

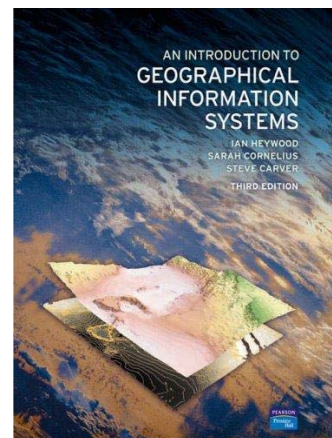
by Cynthia A. Brewer

*Concepts and Techniques of Geographic Information Systems*. 2nd ed. Prentice Hall Series in Geographic Information Science (2007)

by C.P. Lo; and Yeung Albert K.W

ISBN: 013149502

*GIS Tutorial: Getting to Know ArcGIS Desktop*. 2nd ed., Updated for ArcGIS 10. ESRI Press (2010).



by Tim Ormsby, Eileen J. Napoleon, Robert Burke, and Carolyn Groessl  
ISBN: 9781589482609 [www.esri.com/esripress](http://www.esri.com/esripress)

**Required Software:** *ArcGIS 10 and Extensions*

This software is installed on eDesktop for GIS, which you have access to 24/7. This course has an expectation that all students will have access to a web-connected (Broadband/High Speed) computer capable of running Windows 98 (or greater), Internet Explorer (Version 5.0 or greater), and UWF's GIS terminal server (software fee assessed).

Also, each student may receive a free copy of ESRI's ArcGIS 10 student version software for use on a personal computer upon written/email request; it is a fully-functioning version and will expire one year after installation. Please note that ArcGIS software only runs on Windows 2000, XP, Vista, or Windows 7. In order to run ArcGIS in Windows on an Intel-based Mac, virtualization software is needed such as Apple's BootCamp, SWSOft's Parallels, or VMware Fusion. It is HIGHLY recommended that your personal computer have at least 2 GB of RAM installed, since ArcGIS is a very memory intensive application. Ideally, more than 2 GB of RAM (if your computer supports it) is recommended. You are responsible for installing and maintaining your software on a personal computer and for properly following ESRI's installation instructions. UWF technical support is not provided for ArcGIS software installed on your machine.

**Recommended Hardware, Portable Media and Supplementary Software**

A USB Flash Drive with at least 2 GB of capacity and/or a rewriteable CD-ROM or DVD is strongly recommended for saving work saved to your Home (from eDesktop for GIS) drive and transferring it to your personal computer. To take full advantage of the course resources, each student should have access to a computer with an Internet connection and have access to the following software: Microsoft Internet Explorer (or Firefox), Adobe Acrobat Reader (available for free at [www.adobe.com](http://www.adobe.com)), Microsoft Word, Microsoft Excel, and Microsoft Powerpoint (Microsoft items available on eDesktop for GIS).

**Fundamentals for Success in this Course**

I will make every effort to help you succeed in this course so that you can use GIS confidently and successfully in your future career endeavors. Naturally, it is your responsibility to complete all assignments and to take advantage of the many learning opportunities this semester. Your final grade will reflect your overall commitment to learning; higher grades correlate with student efforts that exceed expectations. Here are some tips to help you succeed this semester:

★**Maintain a fast pace:** This will be a fast-moving and technologically advanced course, but concepts and instructions will be explained as clearly as possible. If you are coming into this course thinking that online study is a way to "click your way to four credits" then you will be in for a rude awakening. Be prepared to spend a significant amount of time completing this course. Students in previous sessions of this course reported spending between 8 and 10 hours on the typical lesson. A few reported spending a bit more time for challenging lessons. The key

to success is self-motivation and perseverance. Set some special work hours every week and stick to them. Learning at home requires much greater dedication than learning on campus. This course allows you great flexibility as long as you meet the inflexible deadlines. You can begin working as soon as the first lesson is posted. Each week you must do enough work to complete one lesson. The amount of time needed to complete a lesson will vary depending upon the length of the lesson, your reading speed, and your writing ability. If a student wishes to evaluate his or her readiness for this course at the outset, please see me as soon as possible.

★**Computer competencies:** Competence with the Windows XP operating system is expected, including the storing, copying and management of multiple data types; managing multiple windows and applications; and techniques for saving work frequently. Familiarity with data entry, sorting, editing and report generation using Microsoft Excel is also expected.

★**Enjoyment of Learning:** A strong motivation to learn, explore and have fun with computer applications is essential. This course will require a significant amount of independent work and relies heavily on student initiative.

★**Seek Help Effectively:** Since GIS practitioners are problem-solvers at their core, it is important that you adopt a problem-solving mindset in this course. Asking for assistance this semester is encouraged and signals to me that you are engaged in your work, motivated by excellence and effectively challenged by the assignments. Asking for help will never be perceived as a liability in my class. However, when seeking assistance, it is important for you to (1) clearly communicate the problem and (2) demonstrate that you have attempted to solve the problem on your own and are ready to clearly articulate your attempts. ArcGIS Help is quite extensive – I strongly encourage you to seek help here first for related questions. I am very happy to help you with your work during office hours or via email. If we work together via email, it is vital that you send me as much information as possible to help diagnose the problem, including your name. It is **not** sufficient to write to me and vaguely state, “I can’t get this to work” and expect useful assistance without also including relevant screen captures and a description of the solution steps you’ve tried. In general, I will be very responsive to queries that meet these criteria and much less so for “lazy queries”, which I probably will not have time to address. This approach mirrors professional practice since supervisors expect valued employees to be proactive in solving problems.

★**Focus and Respect:** Two basic components of this course need to be addressed in regards to focus and respect, eDesktop for GIS and course discussion board or email.

eDesktop for GIS - I fully understand the temptations and distractions we all face today with email, web sites, Twitter, Facebook and IMs vying for our attention, but eDesktop for GIS may not be used for getting other work or e-mail done. Out of respect for everyone in a focused learning environment and to ensure no infringements of our software licenses, reserve eDesktop for GIS use for educational and course related purposes. The number of students accessing the server (no matter the activity) directly affects the amount of server bandwidth and processing power allotted to each student. Limiting non-course related activities on GIS

servers will benefit all. Unlike an in-person classroom, our courses are presented entirely on-line.

Course Discussion Board and Email – Staying on topic in our course discussion forums will enable classmates and instructors to find information needed quickly. In order to get the most out of this experience, it is important to use the Internet and email responsibly. Respectful communication with others is indispensable. A dedicated PDF explaining netiquette is included with orientation materials to help ensure students are aware of how the written word can be perceived differently as well as how to ensure your written message is communicated without ambiguity or disrespect. My personal advice is to write as if you are speaking to the intended audience in-person. When heated or frustrated, wait until you've calmed down before creating a post or email.

★**Professional Conduct:** I conduct this course in a manner that mirrors professional practice in order to help you develop valuable workplace skills.

We all need to be in agreement that the following standards will apply:

#### **Instructor Responsibilities**

- ★To create a physically and intellectually safe and stimulating environment for learning
- ★To assist students as much as possible with their individual and collective learning goals
- ★To help resolve conflicts that hinder learning by answering student questions clearly and promptly, or to research answers and reply to the student as soon as possible
- ★To treat students with respect and kindness, using encouragement and humor to foster learning
- ★To arrive prepared and organized, with clear learning objectives and a schedule for each class period
- ★To evaluate and grade student work fairly and accurately while providing constructive feedback

#### **Student Responsibilities**

- ★To attend each class session and to arrive punctually, bringing all needed materials
- ★To treat other students and the instructor with absolute respect, supporting fellow students whenever possible with their learning objectives, and minimizing distractions in class
- ★To complete all assignments on time and professionally according to requirements listed in this syllabus
- ★To fully read and understand all aspects of this syllabus and to carry out the requirements therein
- ★To actively and consistently participate in class discussions and question-and-answer sessions
- ★To demonstrate self-reliance and self-direction in setting and completing learning objectives
- ★To accept responsibility for working collaboratively in the learning process

## **Module/Lesson Availability and Due Dates**

All lessons will be posted at least one week prior to the due date and you may begin working on a lesson as soon as it is posted. New lessons in this course will **open every Sunday** with associated deliverables/assignments **due on the following Tuesday before 11:59 p.m.** unless otherwise noted in the course schedule.

*Special Note:* Because students in this course are from multiple time zones it is impossible to honor the time table of each different zone. The schedule will apply to the **U.S. Central Time zone (for Pensacola, FL)** regardless of the time zone you live in/work from. It is up to you to figure out the time difference for your specific location. If you plan to be away from your studies at any time or while on vacation, it is your responsibility to work ahead and be certain that you meet the posted deadlines.

## **Course Schedule**

The course schedule outlines the approach we will take this semester, but please bear in mind that specific details are subject to change with reasonable notice. I will communicate changes via email or in class discussion forums. The course schedule will be the FIRST place instructors update any due date changes. Google docs (with UWF gmail account) allow instructors to access the course schedule as the following spreadsheet/link from anywhere.

<https://spreadsheets.google.com/a/uwf.edu/pub?key=0AoApVuLcbKvddEpHRmdGUlhGZkVvOWxqZ19BTzZpUHc&hl=en&single=true&gid=0&output=html>

## **Completing Assignments on Time and Professionally**

Assignments are due at the date and time specified in the course schedule. A Late Dropbox has been created for this course. Items posted to the late dropbox will receive an automatic C letter grade for up to 5 days after the original due date. This means that the highest grade possible is a C. I realize that life happens. If a student expects not to be able to complete an assignment on time, it is important for the student to contact me at least 24 hours prior to the due date and. The student must also provide a date and time by which the late assignment will be submitted. If a student does not communicate an anticipated late assignment within this time frame or if the late assignment is not received on the date promised, the assignment will receive a grade of zero. Sorry, no exceptions to these policies will be granted, in fairness to the majority of students who submit their assignments on time.

Since this course focuses on the development of professional skills, the presentation of submitted materials will be considered as part of the assignment's grade. All assignments must include the student's name, date, assignment name and other items as directed by the instructor. Neatness, clarity and organization do count. Assignments not meeting these fundamental practices of professional presentation will generally receive a one-half to one-point deduction in the grade.

## **Grading/Evaluation:**

**Orientation: 5%**

**Participation: 5%**

**Quizzes: 35%**

**Weekly Laboratory Exercises: 35%**

**Final Project: 20%**

## **Grading Scale**

A 4.0 94-100%

A- 3.7 90-93%

B+ 3.3 87-89%

B 3.0 83-86%

B- 2.7 80-82%

C+ 2.3 77-79%

C 2.0 73-76%

C- 1.7 70-72%

D+ 1.3 67-69%

D 1.0 60-66%

F 0.0 0-59%

## **Orientation**

An extensive orientation (including a quiz) has been provided for you to become acquainted with the online learning environment and course components and requirements. Completing the orientation is important to your success in this class, which is why it is included as a graded item. Please be sure to complete all tasks outlined in the course content under "Orientation Materials" to receive full credit. With the beginning of the first lecture and lab, students will be prompted to agree they have studied and have completed all orientation tasks before proceeding. This way, instructors will be assured that students are all on the same page going forward.

## **Participation in Class**

Student participation in class discussions is a vital component of this course and students should make every attempt to actively participate in discussions. In cases where a student does not visit the course site on a regular basis, doesn't spend a significant amount of time viewing course materials or does not actively participate in discussions, this will impact the final course grade.

The participation component of this class will be assessed through graded discussion posts and weekly blog posts. There will be at least two occasions where I will assign a graded discussion post. The required post may be a written summary pertaining to additional readings or written results from a weekly project. Posts must be well written using proper grammar, spelling, etc.

Each lab includes a participation percentage for posting to your blog, which will count towards the final “Weekly Laboratory Exercise” grade. Though, keeping an updated blog will certainly help your final “Participation” grade.

### **Course Lecture and Quizzes**

Each weekly set of readings will include an associated quiz testing mastery of the material.

Quizzes are administered in the eLearning course website. Quizzes can be taken at any time before the Tuesday due date of each Module (see course assignment schedule for specific dates). To access quizzes, log on to eLearning, select “Introduction to GIS” under Spring 2011 then find and select the [Quizzes](#) link. From here, a list of quizzes will appear (past, present, and future). Click on the appropriate quiz and select START. Make sure you are prepared before taking the quiz.

Quizzes are timed based on length, so make note before you begin and notice the running clock.

Tips: You should take your quizzes on a reliable, freshly restarted computer with only one window open. This will minimize the possibility of computer crashes or freeze-ups during the quiz. After your quiz is complete, you may view results by going to the Quizzes link once again and selecting the appropriate quiz under the “Past Quizzes” section. Your grade will automatically be posted to the Grades link in most instances (hand-grading by your instructor may be necessary at times).

### **Weekly Quiz problems will be handled in the following ways:**

- You forget a quiz or are out-of-town: You can take the make-up quiz on April 26th.
- Your quiz is unsuccessful because of a computer problem or human error: You can take the make-up on April 26th.
- You exceed the time limit on a quiz: One minute of overtime is not penalized because the clock on the eLearning server starts before the quiz loads on your computer. One point will be deducted from your score for each additional overtime minute.
- Two or more of your quizzes are missed or unsuccessful: You can take a make-up quiz to replace the first quiz score. Other missed or unsuccessful quizzes will receive a score of zero.

### **Weekly Laboratory Exercises**

Laboratory exercises are designed to help you become familiar with ArcGIS 10 Desktop tools, functions and basic analysis capabilities in order to solve real-world problems. Any background information, resources or related case-studies will be provided within the lab or as a separate document. Important information including related topics, where to find data and deliverables required for grade will be included at the top of every lab exercise. A custom rubric outlining how instructors will grade your submission has been created for each exercise and will be included within the course content as a separate PDF link listed just below the link to lab instructions. **Note:** It’s recommended that you complete lecture materials and assignments before attempting lab, but not all lecture and lab topics will mash-up. Do not expect lab assignments to directly correspond with lecture materials.

The Weekly Project drop box closes on the appropriate **due date at 11:59pm central time**. Weekly Project problems will be handled in the following ways:

- You are out-of-town: If you are out of town for work related reasons, you will need to email the Instructor at least 5 days in advance. Without prior notice, all late work will be penalized. All other reasons for missing the drop box deadline must meet the University's requirements for excused absences.

[http://www.thezonelive.com/zone/02\\_SchoolStructure/FL\\_UniversityofWestFlorida/handbook.pdf](http://www.thezonelive.com/zone/02_SchoolStructure/FL_UniversityofWestFlorida/handbook.pdf)

- Your weekly project is late: A late dropbox has been provided for you. You have 5 days after the due date to receive credit – a letter grade of C being the highest grade possible. These submitted items will not be graded weekly, but will be graded as soon as possible.
- Your weekly project is late due to computer problems: We provide many different avenues in order to address any technical issues that you may have when completing your assignments. The sooner you make the Instructor and GA aware of any computer issues, the sooner we can assist you in resolving them. Weekly projects accepted without penalty due to computer related issues will be left up to the discretion of the Instructor.

### **Final Project**

The final project for this course puts you in the seat of a GIS analyst – working for a consulting firm hired by Florida Power and Light (FPL), an energy company. We'll pretend FPL has hired your consulting firm to assist with right-of-way acquisition for the proposed Bobwhite-Manatee transmission line route crossing Manatee and Sarasota county lines in Florida.

Bobwhite-Manatee Transmission Line Project is an actual FPL project being completed for Manatee and Sarasota counties. The survey and right-of-way acquisition phase of the project was completed in 2009, which is the portion we will focus on for the project in this class. Our class project takes a scaled down, guided and somewhat generalized approach to FPL project which is divided into three basic phases – week 1: background phase, week 2: GIS analysis phase and week 3: presentation phase.

The basic objectives for the project are to define:

- Homes within proximity of the transmission line
- Schools within proximity of the transmission line
- Imposition of the transmission line on communities, land owners or parcels, and environmentally sensitive lands.
- Length of the transmission line (related to engineering/cost).

The final output will consist of a map book/power point presentation accompanied by written or oral narration. I may require specific maps, graphs, or final calculations, but it is up to students to present and explain outputs/conclusions in a way that a lay (untrained) audience will understand. Students are expected to incorporate lessons and techniques learned

throughout the course to create professional quality maps and outputs. A google map site may be included as part of the final requirements (detailed instructions will be provided).

The final project will summarize all the material that you will have been exposed to during the semester to include: the project/presentation and a 20 question exam derived from course lecture material and laboratory concepts. Expect detailed information when the project material is scheduled to open. This project is a great introduction to more complex assignments that you will assigned during the certificate program. I will be providing some assistance with this project. This will be turned into the Final Project drop box and your blog by **April 26, 2011 by 11:59 p.m.** Students must agree to check email through Friday, the 29<sup>th</sup> to receive instructor confirmation of successful retrieval (in case of any problems with accessing deliverables).

### **Approach to Grading for Assignments and Final Course Grade**

I understand that grades are important to students on both a personal and professional level. They are a measure of your achievements in class and your progress towards meeting the course learning objectives. I also understand that there tends to be a great deal of “grade anxiety” in a university setting. The best way that I can help students with these matters is to be as clear as possible about grading criteria through use of weekly rubrics and weightings in this syllabus, so that you can plan accordingly. Please understand that I am a very thoughtful, careful, thorough and fair grader of student assignments and it is a responsibility that neither I nor GAs grading your work takes lightly. You are encouraged to review your graded assignments with me at any time to discuss my comments and suggestions for improvement.

I’ve been called a “tough grader”, and it’s true! High grades must be *earned* and all grades reflect my estimation of a student’s effort - just as our efforts in a professional work environment are judged accordingly and considered by supervisors for promotions and pay raises. For example, I reserve a grade of “A” only for exceptional work, as a way of honoring students who go “above and beyond” when completing course assignments. After all, the strict definition of an “A” grade is “exceptional” - not “average” or even “above average”. The guidelines in this section should help explain general grading criteria but, as your instructor, I reserve the right to use my professional discretion at all times, taking into account a student’s entire approach to the course: participation and alertness in class, consistent timely submissions of assignments, demonstrated and repeated willingness to assist other students with in-class assignments, and other factors. If you have any questions about this approach, you are more than welcome to talk with me privately.

**A-, A and A+:** For assignments that clearly demonstrate **excellence**, workplace-quality professional presentation and obvious dedication to meeting course learning objectives, I reserve grades of A- and A. I very rarely issue an A+ grade unless student work exceeds my expectations on any and all levels. Put another way, you should not expect to receive an “automatic A” simply by completing assignments; these grades are set aside for students who go the extra mile. If you receive a grade in the A’s, it is my way of indicating that I am aware and

proud of your extra effort. In instances where the work product is not of exceptional quality but the student has clearly demonstrated commitment in terms of extra time spent and/or seeking help with the assignment, earning a grade of A- is a strong possibility.

**B-, B and B+:** If work is **above average** in quality, thoroughness and presentation, I tend to issue a grade of B-, B or B+. I interpret these grades to mean “much better than ‘just good’”; in such instances the student has demonstrated more of a commitment to quality work than an assignment graded with a C. If you receive a grade in the B’s, you can be assured that your work was of very good quality and that I am pleased with your progress.

**C-, C and C+:** If student work is **sufficient and acceptable**, I issue a grade of C or C+ because these grades are reserved for work of average quality. I do not view a C or C+ as a terrible grade; it is an acknowledgment of average and acceptable effort, but that you could have done better.

**D and F:** I certainly hope not to issue any such grades this semester, but will do so for student work that is **sub-par on all levels** (D’s) or demonstrates the **barest of minimal effort** (F).  
Zero For assignments that are not submitted on the due dates listed in this syllabus and/or assignments which do not adhere to the late-submission policy described herein.

This scheme will not be followed strictly since upward adjustment of the final grade will be made if performance on one activity is an outlier (e.g. exceptionally low) or if the pattern of scores shows a significant improvement. If such adjustments are made, they usually result in about a half-letter grade improvement. Students are encouraged to meet privately with instructors early in the semester to discuss expectations.

### **Grading Criteria – All Assignments**

The narrative below describes the main attributes of A, B, C, D and F work. These are general criteria for written student work and I will make necessary adjustments considering that GIS work typically takes the form of maps and other graphics. Still, the general sentiment of these criteria will be applied to all student work this semester including laboratory assignments and especially to your final project report.

**"A" Report:** The principal characteristic of the "A" report is its rich content and the seamless integration of high quality supporting illustrations – maps, drawings, photographs, sketches – with the text. The information delivered is such that the reader feels significantly taught by the author, sentence after sentence, paragraph after paragraph.

The "A" report is also marked by stylistic finesse: the opening paragraph is engaging; the transitions are artful; the phrasing is light, fresh, and highly specific; the sentence structure is varied; the tone enhances the purposes of the essay. Finally, the "A" report is carefully organized and developed. The author organizes the report so that it addresses the topic thoroughly. The report imparts a feeling of wholeness and clarity – it integrates the course

readings, the lectures, the thoughts of the writer, as well as findings and interpretations derived from the systematic observation of the study area. This report leaves the reader feeling bright, thoroughly satisfied, and eager to reread the piece.

**"B" Report:** This report is significantly more than competent. Besides being almost free of mechanical errors, the "B" report delivers information that is substantial in both quantity and interest-value. Its specific points address the topic in question and are logically organized. It is well developed, and unified around a clear principle that is stated early in the essay. The opening paragraph draws the reader in; the closing paragraph is both conclusive and thematically related to the opening. The transitions between sections/paragraphs are for the most part smooth; the sentence structures are varied and pleasing. Illustrations – maps, drawings, photographs, sketches – are abundant, carefully prepared, and clearly expand on the concepts presented in the text. This report also integrates the citations, course readings, as well as the thoughts of the writer and conclusions derived from field observations, although perhaps not as thoroughly as the A report. The distinction of the "B" report is typically much more than concise and precise than that found in the "C" report. Occasionally, it even shows distinctiveness – i.e., finesse and memorability. On the whole, the "B" report makes the reading experience a pleasurable one, for it offers substantial information with few distractions.

**"C" Report:** This report is generally competent. It meets the assignment, has few mechanical errors, and is reasonably well organized and developed. The actual information it delivers, however, seems thin and unsubstantiated by the literature. One reason for that impression is that the ideas are typically cast in the form of vague generalities. These generalities prompt the confused reader to ask marginally: "in every case?," "exactly how?," "why?," "according to whom?." Stylistically, the "C" report has other shortcomings as well: the opening paragraph does little to draw the reader in; the final paragraph offers only a perfunctory wrap-up; the transitions between paragraphs are often bumpy; the sentences besides being a bit choppy, tend to follow unclear logic; and the diction is occasionally marred by unconscious repetition, redundancy, and imprecision. The "C" report gets the job done, but it lacks intellectual rigor and hence does not address the topic in an in-depth format. It lacks care in the presentation and integration of graphic material.

**"D" Report:** Its treatment and development of the subject are rudimentary. While organization is present, it is neither clear nor effective. Sentences are frequently awkward, ambiguous, and marred by serious mechanical errors. Evidence is either misrepresented or not used at all, or it is scanty (showing little study of the readings, course readings, lectures or field observation). The whole report gives the impression of having been produced carelessly. Illustrations lack care and precision, and detract from the overall integrity of the report.

**"F" Report:** Its treatment of the subject is superficial, its theme lacks discernible organization. Stylistically, it is wanting. There is no evidence of reading, reflection, or of integration of the materials of the class and the field observations. The ideas, the organization, and style fall far below what is acceptable graduate level writing. It is often seriously incomplete and shows no evidence of familiarity with the course material, the assignment instructions, or the study area.

### **Grading Criteria – Project Presentations**

The criteria below describe the main attributes of A, B and C presentations and will be applied to the presentation for your final project (in April); It is not anticipated that grades of D or F will be given.

**A:** Cohesive, avoids jargon, accurate, professionally presented, entertaining, demonstrates exceptional organization

**B:** Cohesive, some jargon, accurate, reasonably professional presentation, demonstrates reasonable organization

**C:** Not cohesive, jargon in speech, accuracy questionable, boring, disorganized

*(The preceding two sections of this syllabus were adapted in part from Ric Kos' handout on "GradingCriteria," San José State University, Department of Urban and Regional Planning, 2010)*

### **University Expectations for Academic Conduct/Plagiarism Policy:**

Academic Conduct Policy: ([Web Format](#)) | ([PDF Format](#)) | ([RTF Format](#))

Plagiarism Policy: ([Word Format](#)) | ([PDF Format](#)) | ([RTF Format](#))

Student Handbook: ([PDF Format](#))

Students with special needs who require specific examination-related or other course-related accommodations should contact Barbara Fitzpatrick, Director of Disabled Student Services (DSS), [dss@uwf.edu](mailto:dss@uwf.edu), (850) 474-2387. DSS will provide the student with a letter for the instructor that will specify any recommended accommodations.

### **Odds and Ends**

#### **Adds/Drops**

The student is responsible for understanding the policies and procedures about add/drops, academic renewal, withdrawal, etc. found at <http://uwf.edu/uwfmain/calendar/>

#### **Incomplete Grade**

An incomplete grade will only be assigned for a documented, serious, non-academic reason.

#### **Students Adding the Class after the First Day of Class**

Students who add the class after the first day of class are responsible for completing all work in the course on the same schedule as students who were registered from the first day of the semester

#### **Level of Effort**

This course requires approximately 10 hours of work per week. Students should expect to spend slightly more time per week for long-term projects such as the final course project.