

URP 4273
Section 41D5
Survey Of Planning Information Systems (3 Credits)
Summer B 2017

- Instructor:** Stanley Latimer
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- Office Periods:** Monday, Tuesday, Wednesday: 2:00PM-3:00PM; Or By Appointment
- Class Periods:** Monday, Tuesday, Wednesday, 3rd & 4th Periods (11:00 AM - 1:45 PM)
- Classroom:** 423 ARCH
- Prerequisites:** None (knowledge of Windows Operating Systems, Excel, etc. is useful, but not required.)
- Material and Supply Fee:** \$0
- Textbook:** *ArcGIS 9, Getting Started With ArcGIS*, ESRI Press, 2004 (Optional)
ArcGIS 9, Using ArcGIS Spatial Analyst, ESRI Press 2004 (Optional)
Both texts will be made available in .PDF format on the class website and will also be on reserve at the Architecture & Fine Arts Library.
- Readings:** As assigned, from course text, ESRI Virtual Campus and selected materials.
- Attendance:** Mandatory, on time.
- Grading:**
- | | |
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| Homework Assignments | 30% |
| Project 1 | 15% |
| Project 2 | 15% |
| Midterm Examination | 20% |
| Final Examination | 20% |

Exercises are optional, however if all Exercises are submitted and receive full credit a total of two (2) points will be added to the final grade.

Grades are determined only by points earned on exams, quizzes, and other assignments given during the semester. There is no opportunity other than what is explicitly stated in this syllabus to earn points, that is, no special assignments nor additional work beyond that given other students.

Final grades will be calculated as follows:

A = 94 or above	C = 74 - 76
A- = 90 - 93	C- = 70 - 73

B+ = 87 - 89	D+ = 67 - 69
B = 84 - 86	D = 64 - 66
B- = 80 - 83	D- = 60 - 63
C+ = 77 - 79	E = < 60

Course Objectives:

Survey of Planning Information Systems is intended to introduce students to the concepts, principles, and the reality of using Geographic Information Systems (GIS). This powerful technology provides planners with a very effective tool for capture, analysis, and display of spatial data that is crucial to the planning process. The course is theoretical and practical (i.e., very hands-on), addressing both the structure of geographic information systems and their use for spatial analysis and data management.

Course Learning Outcomes:

Upon successful completion of the course, students will be able to:

- Define a Geographic Information System (GIS), and identify the different "system" components that make up a GIS.
- Identify and access sources for GIS data including the Florida Geographic Data Library.
- Discuss the history of GIS, and how it has evolved into the technology we use today.
- Explain and interpret how GIS is used in real world spatial analysis.
- Recognize and explain the two models for representing spatial data: vector and raster.
- Recognize the common GIS data formats: coverages, shapefiles, and geodatabases.
- Name each ArcGIS application (ArcMap, ArcCatalog, and ArcToolbox), and explain the general use of each.
- Discuss how factors such as scale, resolution, and accuracy can impact GIS analysis and how accurately the location and shape of map features can be depicted for a given map scale.
- Explain the concept of coordinate systems and projections and how these factors allow mapping distortion to be minimized in the area of interest.
- Define projection and coordinate system information for feature datasets, as well as convert coordinates between different systems and formats.
- Use and apply basic functionality of ArcMap including selection by attributes, selection by location, map display using data view or layout view, understanding the table of contents, data frames, and layers, changing the symbology of a layer and setting bookmarks.
- Identify and discuss the components of a table.
- Add items to tables.
- Compare and contrast joining and relating tables, and apply the appropriate use for each method.
- Describe and complete the editing process in ArcMap including use of the Editor toolbar for creating and editing features and attributes.
- Create new shapefiles in ArcCatalog, and then add features and attribute data with editing in ArcMap.
- Make use of the "Add XY Data" tool to add GPS data to a map.
- Describe the geocoding process for assigning location (points) to addresses.
- Setup and create a geodatabase in ArcCatalog.
- Utilize Network Analyst to solve common network problems.
- Describe and apply methods to create a buffer around selected points, lines, or area features for proximity analysis.

- Identify ways that buffers can be used with overlay tools, such as Clip, to identify and clip features from other GIS layers which fall within the buffer areas.
- Describe and use the various overlay tools.
- Describe how the tools overlay different layers of features to create new information identifying the spatial relationships between the inputs.
- Identify the steps required to plan, implement, and carry through to completion a successful vector GIS analysis project.
- Contrast raster and vector, and be able to identify the appropriate use of each GIS data model for analysis.
- Identify two types of raster data, discrete and continuous, and discuss how each is used to represent raster cell values.
- Describe the uses of the Distance and Density tools, and what is represented by the rasters resulting from each of these functions.
- Identify and discuss the appropriate uses of the Inverse Distance Weighted and Spline Interpolation methods for creating a prediction surface from sampled point values.
- Identify and discuss the operation and use of each of the surface analysis tools.
- Contrast local, neighborhood, and zonal statistics functions.
- Identify appropriate uses of local, neighborhood, and zonal statistics for analysis.
- Identify and discuss the reasons for reclassifying raster data and how to use the Reclassify tool.
- Discuss the use of the Raster Calculator.
- Convert vector data to raster data.
- List and complete the steps required to plan, implement, and carry through to completion a successful raster GIS analysis project

Course Topics: *(subject to change, See Course Website for more information and updates)*

- Course Introduction, Introduction to GIS concepts
- Overview of ArcGIS, Spatial Data Formats, File Structure, Database Management, Map Projections
- Introduction to ArcCatalog; Introduction to ArcMap, working with selection Tools
- Introduction to ArcToolBox; Working with Tables
- Editing and Creating Data; working GPS data; Geocoding
- Spatial Modeling and Introduction to Geodatabases; Network Analyst
- Proximity Analysis, Buffers, Overlay Analysis, Problem Solving with Vector GIS
- Overlay Analysis; Project 1
- Introduction to Raster Data and Analysis
- Mapping Distance; Mapping Density
- Interpolating to Raster
- Performing Surface Analysis; Calculating Cell, Neighborhood, & Zonal Statistics
- Reclassifying Data; Using the Raster Calculator; Converting Data: Project 2

Required Materials

The GIS software we will be using for this class is ArcGIS 10.X. The ArcGIS software is available on UFApps (<http://info.apps.ufl.edu/>). UFApps provides access to software applications from any computing device--laptops, tablets, desktops, and smartphones--from any location, at any time.

In order to access UFApps and ArcGIS you will need to install Citrix Receiver which is available from the UFApps website.

- Open your browser and navigate to <http://info.apps.ufl.edu/>
- Scroll down to the First Time Use Questions section and
 - click on Access UFApps from a PC if you are using a PC,
 - click on Access UFApps from a Mac if using a Mac.
- The instructions will guide you through installing Citrix Receiver and logging in to UFApps.

Laptop Computer Requirement:

Students are required to own a laptop computer that meets or exceeds the specifications below.

Hardware requirements

	Advanced, Basic, Standard
CPU Speed	2.2 GHz minimum ; Hyper-threading (HHT) or Multi-core recommended
Processor	Intel Pentium 4, Intel Core Duo, or Xeon Processors; SSE2 minimum Run this Microsoft utility from your Windows command prompt to check your processor. See Dual or dual-core support policy .
Memory/RAM	2 GB minimum
Display properties	24-bit color depth
Screen resolution	1024 x 768 recommended minimum at normal size (96 dpi)
Swap space	Determined by the operating system; 500 MB minimum.
Disk space	2.4 GB In addition, up to 50 MB of disk space may be needed in the Windows System directory (typically, C:\Windows\System32). You can view the disk space requirement for each of the 10.1 components in the Setup program.
Video/Graphics adaptor	64 MB RAM minimum, 256 MB RAM or higher recommended. NVIDIA, ATI, and Intel chipsets supported. 24-bit capable graphics accelerator OpenGL version 2.0 runtime minimum is required, and Shader Model 3.0 or higher is recommended.

	Be sure to use the latest available driver.
Internet Access	High Speed Internet Connection Highly Recommended

Students with Disabilities:

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Honesty Policy:

Students are responsible for reading and abiding by the University's honesty policy regarding cheating and use of copyrighted materials. Please refer to the Student Honor Code: (<http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php>).

Classroom Demeanor:

Please turn off cell phones and other mobile communication devices before entering the classroom. Students in the classroom are expected to be courteous of other students in the class and conduct themselves in a way that will not interfere with the learning process of other students. Avoid talking or any behavior during class that can be distracting to other students. UF rules prohibit having food or drinks in classrooms. If you are chewing gum make sure you have enough for everyone.

UF Counseling Services:

The following offices can be of assistance to solve personal problems, career selection problems or problems relating to deficiencies in academic skills.

1. Counseling and Wellness Center, (352) 392-1575, personal and career counseling;
2. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.