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URP6271: Customizing Planning Information Systems

Syllabus

Faculty Contact Information

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Office Hours: E-mail for appointment

Course Website

[https://lss.at.ufl.edu/ \(https://lss.at.ufl.edu/\)](https://lss.at.ufl.edu/)

Course Communications

Your instructor is always available by email, and you can expect a response to emails within 24 hours. The instructor is also available for phone calls or live chat by appointment. Please contact the instructor by email to arrange a call or chat.

Required Materials

Text

The text is a guide for experienced users of ArcGIS Desktop to get started with Python scripting without needing previous programming experience. Experience with other scripting or programming languages is helpful but not required.

Zandbergen, P. (2013). *Python scripting for ArcGIS*. Redlands, California 92373-8100: ESRI Press.

SOFTWARE

ArcGIS Desktop 10.1 - Advanced - Student Version

Getting a copy of Student ArcGIS software is a 2-Step process:

1. Fill out the following form: http://www.geoplan.ufl.edu/software/student_license.php
(http://www.geoplan.ufl.edu/software/student_license.php)
2. After the above form is submitted, you will receive instructions via email on how to acquire the software. Please note: the software is delivered as a downloadable iso file, not a physical DVD.

Pythonwin

For this class you will be testing and writing scripts using a python code editor. You will be provided with the scripts and instructional videos to practice with.

Go to: [Python for Windows extensions](#)
(<http://sourceforge.net/projects/pywin32/files/pywin32/Build%202018/>) and click [pywin32-218.win32-py2.7.exe](#) (<http://sourceforge.net/projects/pywin32/files/pywin32/Build%202018/pywin32-218.win32-py2.7.exe/download>) to install the software.

Note: Students should install the software as soon as possible, so that we may resolve any installation issues and they will be ready for class.

Web Resources

- [ESRI ArcGIS \(Introducing ArcCatalog\) \(https://urponline.dcp.ufl.edu/URP6271/documents/13342.ppt\)](https://urponline.dcp.ufl.edu/URP6271/documents/13342.ppt)
- [ESRI ArcGIS \(Introducing ArcMap\) \(http://video.esri.com/watch/66/arcgis-for-developers-an-introduction\)](http://video.esri.com/watch/66/arcgis-for-developers-an-introduction)

UF Libraries and Labs (links and web addresses to facilitate your access)

- University of Florida (library homepage): <http://www.uflib.ufl.edu> (<http://www.uflib.ufl.edu>)
- University of Florida Architecture & Fine Arts Library: <http://www.uflib.ufl.edu/afa/> (<http://www.uflib.ufl.edu/afa/>)
- University of Florida (Course Reserves): <https://ares.uflib.ufl.edu> (<https://ares.uflib.ufl.edu>)
- Library Tools and Mobile Apps (smart phones, RSS feeds, etc.): <http://www.uflib.ufl.edu/tools> (<http://www.uflib.ufl.edu/tools>)
- University of Florida (Architecture CIRCA computer lab)

Prerequisite Knowledge and Skills

The course requires prior basic knowledge of GIS which students will need to have previously acquired by taking the introductory GIS courses offered by the URP or other departments on campus. Previous programming experience is preferred but not required. At present, the course will teach Python to develop custom GIS tools using ArcGIS. Basic working knowledge of ArcGIS is required.

Course Description

Advanced work in planning and analysis customizing the use of large databases. Emphasizes development monitoring systems and information systems in planning.

Themes

The integration of programming with the use of GIS software for problem solving will be emphasized throughout the course. Some sessions will be dedicated to the customization of Graphical User Interface (GUI) to tailor the use of GIS to specific user needs. Students will learn how to automate common manual GIS operations, create dialogs to develop custom GIS tools.

Course Objectives

The objective of the course is to give students a basic understanding of the concepts and techniques for solving planning problems more efficiently through automation and customization of Planning Information Systems. The course will focus on planning applications development using computer programming and Geographic Information Systems (GIS) technology. Students will be exposed to a number of fundamental concepts of programming including typical programming operations such as logical expressions, conditional processing, repetitive actions, and table and file manipulations.

At the conclusion of this course, you should be able to:

- Automate and customize GIS to solve planning problems.
- Develop planning applications using computer programming and GIS technology.
- Perform typical programming operations such as logical expressions, conditional processing, repetitive actions, and table and file manipulations.

URP Student Learning Outcomes

Discover advanced planning information systems and empower planning professionals by applying new techniques to existing technologies.

Teaching Philosophy

To illustrate concepts and equip students with working knowledge and practical skills, the course uses the most widespread and modern GIS software available as well as its application development tools. The course requires prior basic knowledge of GIS which students will need to have previously acquired by taking the introductory GIS courses offered by the URP or other departments on campus.

Previous programming experience is preferred but not required. At present, the course will teach Python to develop custom GIS tools using ArcGIS. Basic working knowledge of ArcGIS is required.

Instructional Methods

The concepts and techniques will be covered in lectures and hands-on class exercises. Students will practice the acquired knowledge through computer programming assignments that include homework and a final project, which focuses on the development of a complete application program.

The course objectives will be achieved through lectures, assignments, and a final class project. Evaluation and grading for the course will apply to each homework and the final project based on given weights. See schedule for more information.

Course Participation and Discussion Boards

While face-to-face attendance is not required, students need to make use of the various tools in Sakai to develop a learning community. The discussion board is an area where students can communicate with the instructor and classmates regarding a variety of topics.

Make-up Work

No late work will be accepted. Computer problems that arise during submission will not be accepted as an excuse for late work. All work must be completed and submitted by the designated time in Sakai or you will not receive credit for the assignment.

In the event that you have technical difficulties with e-Learning, please contact the UF Help Desk. If your technical difficulties will cause you to miss a due date, you MUST report the problem to the help desk. Include the ticket number and an explanation of the issue based on a consult with the help desk in an e-mail to the instructor to explain the late assignment/quiz/test.

The course faculty reserves the right to accept or decline tickets from the UF Help Desk based on individual circumstances.

Course Communication

All communication with course faculty will take place within Sakai. All e-mails will be sent and received within Sakai. You should NOT be e-mailing the course instructors outside of the system. Any e-mails received outside of Sakai will not receive a response.

*To prevent an e-mail from being sent outside of the Sakai system DO NOT check the box within the option "Send Cc: Send a copy of this message to recipients' e-mail address(es)."

Student Support Services

As a student in a distance learning course or program, you have access to the same student support services that on campus students have. For course content questions contact your instructor.

For any technical issues you encounter with your course please contact the UF Computing Help Desk at 342-392-HELP (4357), select option 2. For Help Desk hours visit: [Information Technology-UF Computing Help Desk \(http://helpdesk.ufl.edu\)](http://helpdesk.ufl.edu).

Other resources are available at [Student Services|Distance Learning \(http://www.distance.ufl.edu/student-services\)](http://www.distance.ufl.edu/student-services).

University Policies

University policies on such matters as add/drop, incomplete, academic probation, termination of enrollment, reinstatement, and other expectations or procedures can be found in the [graduate student handbook \(http://graduateschool.ufl.edu/student-life-and-support/student-handbook\)](http://graduateschool.ufl.edu/student-life-and-support/student-handbook) and at the [Dean of Students](#)

[website \(http://www.dso.ufl.edu/\)](http://www.dso.ufl.edu/).

University Policy on Academic Misconduct

Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the [UF Student Honor Code \(https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/\)](https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/).

Netiquette: Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all e-mail messages, threaded discussions and chats. Course communication should be civilized and respectful to everyone. The means of communication provided to you through e-Learning (e-mail, discussion posts, course questions, and chats) are at your full disposal to use in a respectful manner.

Abuse of this system and its tools through disruptive conduct, harassment, or overall disruption of course activity will not be tolerated. Conduct that is deemed to be in violation with University rules and regulations or the Code of Student Conduct will result in a report to the dean of students.

Refer to the [Netiquette Guide for Online Courses \(http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf\)](http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf) for more information.

Student Honor Code

In adopting this Honor Code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the University community. Students who enroll at the University commit to holding themselves and their peers to the high standard of honor required by the Honor Code. Any individual who becomes aware of a violation of the Honor Code is bound by honor to take corrective action.

Student and faculty support are crucial to the success of the Honor Code. The quality of a University of Florida education is dependent upon the community acceptance and enforcement of the [Honor Code \(http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/\)](http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/).

The Honor Pledge

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code.

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

Special Accommodations

Students requesting disability-related academic accommodations must first register with the [Disability Resource Center \(http://www.dso.ufl.edu/drc/\)](http://www.dso.ufl.edu/drc/).

The Disability Resource Center will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

Complaints

Should you have any complaints with your experience in this course please visit [Student Complaints \(http://www.distance.ufl.edu/student-complaints\)](http://www.distance.ufl.edu/student-complaints).

Grading Policies

Assignment	Weights
Assignment 1	7%
Assignment 2	13%
Assignment 3	18%
Assignment 4	22%
Final Project	40%
Total:	100%

Grading Scheme

Letter Grade	Percentage	Grade Points
A	93-100%	4.00
A-	90-92%	3.67
B+	88-89%	3.33
B	83-87%	3.00
B-	80-82%	2.67
C+	78-79%	2.33
C	73-77%	2.00
C-	70-72%	1.67
D+	68-69%	1.33
D	58-67%	1.00
D-	55-57%	0.67
E	Below 55%	0.00

For greater detail, see the Grades section of the [Graduate Catalog for the University of Florida](http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907&hl=grade&returnto=search#grades) (<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907&hl=grade&returnto=search#grades>). It also contains the policies and procedures, course descriptions, colleges, departments, and program information for UF.

You can also review [ISIS](http://www.isis.ufl.edu/minusgrades.html) (<http://www.isis.ufl.edu/minusgrades.html>) regarding frequently asked questions about minus grades.

Course Outline

Module	Topics Covered	Items Due
Module 1	Model Builder	
Module 2	Python Introduction	Assignment 1
Module 3	More Python	
Module 4	Functions and exceptions	Assignment 2
Module 5	Arcpy introduction	
Module 6	More Arcpy	Assignment 3
Module 7	Custom Tools	
Module 8	Rasters	Assignment 4 Final Project