

Course Syllabus

URP6905 - 3D Geospatial Urban Modeling and Visualization

Faculty Contact Information

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Office Location: ARCH 454

Course Website

<https://lss.at.ufl.edu/> (Links to an external site.)

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.

Course Descriptions

The objective of this course is to teach students a variety of methods and techniques to interactively model and visualize physical urban environments in two, three, and four dimensions through a hands-on approach using computer software. Students will acquire the skills to rapidly construct 3D models of urban settings in order to conduct analysis, generate conceptual plans and designs, and prepare high-quality renderings and presentations. The primary objective of the course aims to prepare students to be more effective in graphically communicating concepts and ideas pertaining to the planning and design of cities.

The course will be divided into two parts: (1) general instruction of methods and techniques for developing the skills to create high-quality 3-dimensional models and presentations, and (2) a final project. The first part of the semester will engage students in a hands-on approach by developing a broad range of technical skills using a variety of software packages including, ESRI ArcGIS and SketchUp.

The skills acquired during this portion of the semester will then be utilized in a final project, whereby students will be required to propose an intervention strategy for redeveloping an urban setting and apply/extend the acquired skills.

Course Objectives

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

- Acquire the skills to rapidly construct 3D models of urban settings in order to conduct analysis, generate conceptual plans and designs, and prepare high-quality renderings and presentations.
- Graphically communicate concepts and ideas pertaining to the planning and design of cities.
- Propose an intervention strategy for redeveloping an urban setting and apply/extend the acquired skills.

Required Materials

- There are no required textbooks for this course. The course will host multiple videos and tutorials from the instructor regarding the material.

Recommended References and Resources

References

1. Law, M., & Collins, A. (2013). Getting to know ArcGIS for desktop. Redlands, Calif: ESRI Press.
2. Kennedy, M. D. (2013). Introducing geographic information systems with ArcGIS: A workbook approach to learning GIS Wiley. (e-Book can be found at : <http://cms.uflib.ufl.edu/> (Links to an external site.))
3. Kennedy, H. (2010). Introduction to 3D data: Modeling with ArcGIS 3D analyst and google earth. Hoboken: Wiley-Blackwell. (e-Book can be found at : <http://cms.uflib.ufl.edu/> (Links to an external site.)) (Links to an external site.))
4. Tal, D. (2009). Google SketchUp for site design: A guide to modeling site plans, terrain, and architecture. Hoboken, N.J: John Wiley & Sons.

5. Chopra, A. (2010), Google SketchUp 8 for dummies. US: Wiley Pub. (e-Book can be found at: <http://cms.uflib.ufl.edu/> (Links to an external site.) (Links to an external site.))
6. Carmona, M. (2003). Public places, urban spaces: The dimensions of urban design. Oxford: Architectural Press.

[Web Resources](#) (Links to an external site.)

[Computer and Software Resources](#) (Links to an external site.)

Course Outline

Module	Topics Covered	Items Due
Module 3: Integration of GIS & non-GIS 3D Modeling & Visualization - Part I	Limitation of GIS 3D visualization Export GIS 3D model (collada) / Import collada into SketchUp Visualization in SksetchUp: Essential tool (drawing, selection, move, copy)	
Module 4: Advanced Modeling and Model Organization	Advanced tool: offset, scale, rotate, multiple copy Organizing model: Component, group, layer	Assignment 1 due
Module 5: Modeling with Textures and Advanced Model Presentation	Texture (color, material) / introduction Rendering Export 2D static image, 3D animation, visual simulation (before/after) Tips for presentation	Assignment 2 due
Module 6: Integration of GIS & non-GIS 3D Modeling & Visualization - Part II	Export SketchUp 3D model (collada) / import collada into GIS 3D database Other options for visualizing 3D data in GIS	Assignment 3 due

Module	Topics Covered	Items Due
	3D analyst in GIS	
Module 7: Emerging Technologies	Introduction to other options to model and present 3D models Emerging technologies: CityEngine	Assignment 4 due Assignment 5 due
Module 8: Final Project	<p>Part 1: Brief summary of initial analysis</p> <p>Part 2: Model existing conditions of the project area Including buildings, blocks, landscape features</p> <p>Part 3: Design strategy for proposed changes to the project area Development of a set of goals and objectives using learned modeling technique</p> <p>Part 4: Organizing and summarizing part1-3 works (including feedback) Preparing both existing and proposed models Providing conclusions and recommendations</p>	<p>Final Project Part 1 due</p> <p>Final Project Part 2 due</p> <p>Final Project Part 3 due</p> <p>Final Project Presentation due</p>
Module 1: Fundamentals of 3D modeling	The significance of 3D modeling in contemporary urban planning and design 3D modeling overview (by project scale, audience...)	
Module 2: Introduction to GIS 3D Modeling and Visualization	Basic GIS data types and storage 3D GIS modeling and attribution 3D visualization in GIS	

Make-up Work

For assignments that are submitted late, there will be a 10-point deduction for each day during the first 3 days after the due date. The assignments will not be accepted 4 days late, and a grade of 0 will be issued.

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 Help Desk. Include the ticket number and an explanation of the issue based on a consult with 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 Technology

This course requires ArcGIS. If you do not already have it, you can get it [here](#) (Links to an external site.).

In addition to ArcGIS, you will also need [SketchUp Make 2015](#) (Links to an external site.).

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 Help Desk. Include the ticket number and an explanation of the issue based on consult with 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 Communications

All communication with course faculty will take place within Sakai. (Select the "Instructor Role" from the address book.) 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](#) (Links to an external site.).

Other resources are available at [Student Services|Distance Learning](#) (Links to an external site.).

Universities 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](#) (Links to an external site.) and at the [Dean of Students website](#) (Links to an external site.).

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](#) (Links to an external site.).

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](#) (Links to an external site.) 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](#) (Links to an external site.).

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](#) (Links to an external site.).

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](#) (Links to an external site.) to submit a complaint.

Course Grade

Assignment	Points Possible	Percent of Grade
Assignments: 130pts each	650	65%
Final Project: Part 1: 75pts Part 2: 75pts Part 3: 75pts Part 4: 125pts	350	35%
Total:	1000	100%

Grading Scheme

Letter Grade	Percentage	Grade Points
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E	Below 55%	0.00
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

For greater detail, see the Grades section of the [Graduate Catalog for the University of Florida](#) (Links to an external site.). It also contains the policies and procedures, course descriptions, colleges, departments, and program information for UF.

You can also review [ISIS](#) (Links to an external site.) regarding frequently asked questions about minus grades.