Ecological Issues in Sustainability & the Built Environment

DCP 6205 - 3 Credit Hours
Hybrid Online/Live Course
E-Learning Course website can be found at:
http://elearning.ufl.edu/

Instructors
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Rural road near the University of Florida

Course Description

This is the second part of a two-part course. The goal of the first course (fall semester) was to learn about 1) landscape ecology and conservation principles, as they relate to understanding the broader functions of natural systems, landscapes, and potential impacts from human activities, and 2) identifying and analyzing the natural and human characteristics of a site, and identifying opportunities and constraints for land use and development to mitigate human impacts. These topics form a critical foundation for sustainable site planning and design choices that incorporate an understanding of ecosystem processes and suitability.

In this second course (spring semester), the direct and indirect impacts of the built environment on terrestrial and aquatic ecosystems and landscapes are examined in more detail. Cutting edge approaches to planning, design, governance, and management that can be used to reduce negative impacts from human activities and restore ecological health at the regional, metropolitan, neighborhood, and site scales are also presented.

Course Purpose

To engage in sustainable design, individuals must understand the complex relationships between human activities and the natural environment, resulting impacts, and methods for making sustainable land use decisions. This course serves as an introduction to the many facets of this complex reality.

Learning Objectives

By the end of the fall and spring courses students will:

- Be familiar with principles of healthy ecosystems and the benefits they provide people.
- Recognize the types and mechanisms of direct and indirect impacts of the built environment on terrestrial and aquatic ecosystems. (Direct impacts are those occurring due to land and water use.)
- Understand how to analyze a site or region to identify ecologically and socially compatible development strategies.
- Become familiar with development, governance, and management practices from site to regional scales that protect and enhance ecosystems.

Course Structure

This is an 8-week hybrid course. The Canvas course site will contain all course materials and grades. Content delivery and faculty interaction with students will occur through pre-recorded presentations, a faculty and student visit to Singapore and Groningen, The Netherlands, and real-time technology-enabled discussion sessions. Instructors will present course topics in three modules (see schedule below). Each module will have a reading list and one learning assessment. The assessment for each module will be due approximately one week following completion of the module. See the Canvas Assignments page for individual assessment due dates.

Textbook and Readings

The required textbook is:

- *Environmental Land Use Planning and Management*, John Randolph, Island Press, 2012.
- Other required readings will be provided via the Canvas course site as needed.

Course Policies

Attendance

Students are encouraged to participate in all live lecture and discussion sessions, even though these are recorded for subsequent viewing.

Assignments

Students are expected to complete all assignments by the posted due dates. If no prior arrangement is made with an instructor for a late submittal, each assignment will be reduced by a letter grade for each 24-hour period it is late. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Communication

In addition to the weekly discussion sessions, you can post questions and comments to each individual instructor or to the class via the Canvas message system (go to the "Inbox" link on the top right corner of the screen), or by directly emailing any of the course instructors.

Office Hours for Instructors

Instructors are available via email throughout the span of the course, and should a Skype or telephone conversation be needed these can be arranged by contacting the instructors via email.

Grading Policies

The weighting of module assessment grades to determine the final grade is:

Module 1: Course Introduction, Ecological Considerations & Urban Form, Adaptive Ecosystem Management, & Regional Governance	25%
Module 2: Neighborhood and Site Design	50%
Module 3: Case Studies	25%

Grades will be based on assignment submissions, evidence that you have viewed the on-line presentations, done the assigned reading, participated in discussion sessions, and worked to understand and synthesize the material. We expect that all students should be able to accomplish a "B" grade, but

will mark lower when a student does not show adequate understanding. “A” grades require exceptional quality, depth, synthesis of ideas, or creativity. Final letter grades will convert from numeric grade as follows:

Grade		Grade Points
A	>92.5	4.0
A-	90.0 -92.4	3.67
B+	87.5-89.9	3.33
B	82.5-87.4	3.0
B-	80.0-82.4	2.67
C+	77.5-79.9	2.33
C	72.5-77.4	2.0
C-	70.0-72.4	1.67
D+	67.5-69.9	1.33
D	62.5-67.4	1.0
D-	60.0-62.4	0.67
E	<60.0	0.0

UF Policies

University Policy on Accommodating Students with Disabilities: Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

Academic Honesty: UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor 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.’” The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Communication Courtesy: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.
http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf

Online Course Evaluation: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when

they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Getting Help

For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:
Learning-support@ufl.edu
(352) 392-HELP - select option 2
https://lss.at.ufl.edu/help.shtml

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.
Other resources are available at http://www.distance.ufl.edu/getting-help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

Schedule

Module 1: Course Introduction, Ecological Considerations & Urban Form, Adaptive Ecosystem Management, and Regional Governance

Dates	TOPIC	READING(S)/ASSIGNMENT
Week 1 Jan 30 – Feb 5	Key lessons from Eco Aspects I (Volk) Topics to be covered in Eco Aspects II (Volk & Steiner)	• No assigned readings
	Land use planning for sustainability Direct, indirect and cumulative environmental impacts (Steiner)	• *Environmental Land Use Planning and Management* Chapter 1: Environmental Management for Sustainability pp 6 – 10 • Chapter 2: Skim • Chapter 3: C*omprehensive and Strategic Land Use Planning for Sustainability* • Center for Environmental Excellence by AASHT0 Environmental Issues – Indirect Effects/Cumulative Impacts http://www.environment.transportation.org/environmental_issues/indirect_effects/

Dates	TOPIC	READING(S)/ASSIGNMENT
Week 2 Feb 6 - 12	**Regional Systems**	
	Review of natural systems & their interaction with land use decision making (Volk)	• *Environmental Land Use Planning and Management* Chapter 15: Land Conservation for Sustainability
	Review of watersheds, landscapes, and suitability, urban containment & greenbelts (Volk)	• *Environmental Land Use Planning and Management* Chapter 7: Water and Land Use: Stream Flow, Flooding and Runoff Pollution
	Science and management objectives for landscapes (Volk)	• *Environmental Land Use Planning and Management* Chapter 14: Integration Methods and Synthesis Metrics • *Environmental Land Use Planning and Management* Chapter 19: Integrative Management of Ecosystems and Watersheds • Adaptive co-management for social-ecological complexity, *Frontiers in Ecology and the Environment*, Armitage et al. 2009
Due Feb 13	ASSIGNMENT 1	Identify a region to be used for analysis during the course of the semester. This region should include the site that you used for analysis in the fall, but a different region can be chosen based on your research project or interests if desired. Provide a 2-3 page paper where you discuss the existing urban development patterns as well as three significant environmental features associated with this region, and how these environmental features relate and interact with the urban environment. Also provide a map of the watersheds of your region, and explain approximately what percent of the watershed is in urban use, agricultural use and natural/semi-natural habitat. Citations should be provided for all sources used in appropriate APA format.

Week 3 Feb 13 – 19	Land use decision making in different forms of governmental organization (US federal, state, local, Western Europe, Singapore, China), Private property rights (Steiner)	• *Environmental Land Use Planning and Management* Chapter 18: Regional, State, and Federal Management of Growth and the Environment
	Coordination of land use change, infrastructure design and development (Steiner)	• Steiner, R. and A. Fischman. (2012). "Does Land Use And Transportation Coordination Really Make A Difference In Creating Livable Communities?" Chapter 12 in F. Wagner, R. Caves and E. Noll (eds.), Community Livability: Issues and Approaches to Sustaining the Well-Being of People and Communities, New York: Routledge Press. (on Canvas)
	Local and Regional Governance & Stakeholder involvement and capacity building (Steiner)	• *Environmental Land Use Planning and Management* Chapter 4: Collaborative Environmental Planning and Learning for Sustainability
	Public realm: Transportation systems and open space (Steiner)	• No assigned reading

Week 4: Spring Break: February 20 – 26

Module 2: Neighborhood and Site Design

Week 5 Feb 27 – March 5 (Singapore)	**Urban Ecology and Green Space**	
	Urban ecology and urban green space (Volk)	• No assigned reading

Week 6 March 6 –12 (Singapore/ Groningen)	**Urban Systems/ Neighborhood Design**	
	Smart growth/new urbanism/traditional neighborhood development Redevelopment, infill, & adaptive reuse (Steiner)	• *Environmental Land Use Planning and Management* Chapter 16: Design with Nature for People: Sustainable, Livable, and Smart Growth Communities • *Environmental Land Use Planning and Management* Chapter 17: Community Smart Growth Management • Congress of the New Urbanism. Charter. http://www.cnu.org/charter

		• Smart Growth Network. Smart Growth Online.http://www.smartgrowth.org/engine/index.php/issues/ • Smart Growth Network. This is Smart Growthhttp://www.epa.gov/dced/pdf/2009_11_tisg.pdf
	Neighborhood design & transportation TOD – Density, Diversity & Street Design Design for biking and walking Complete streets Neighborhood traffic calming (Steiner)	• Cervero, R. (2004). *Transit-oriented development in the United States: experiences, challenges, and prospects (Vol. 102).* Transportation Research Board. Retrieved from: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_102.pdf Chapters 1-4, and 6-8. • Smart Growth America. (2015). Complete Streets: A to Z. Retrieved from: http://www.smartgrowthamerica.org/complete-streets/a-to-z • City of New York (2010). Active Design Guidelines: Promoting Physical Activity and Health in Design. Retrieved from: http://herg.gatech.edu/Files/Projects/Active%20living/NY%20City%20Active%20living/ADG_NYC_guidelines.pdf Chapters 1 and 2.

Due Mar 20	ASSIGNMENT 2	Prepare a powerpoint presentation that in 10 slides compares and contrasts two sustainable water projects (one from Singapore and one from The Netherlands). Be sure to include the following information for each project: 1) Project Purpose 2) Project Size 3) Phase of Project Implementation 4) Successes and Failures Similarly, prepare an additional powerpoint presentation that in 10 slides compares and contrasts two transportation projects (one from Singapore and one from The Netherlands) that either results in 1) a reduction in the release of GHGs expended for transportation, 2) enhances the quality and character of urban life, or 3) increases mobility for users. Again be sure to include the same four categories of information as for the water projects. Be sure to use one slide each to summarize the lessons learned from the evaluation of the water projects and the transportation projects.

		Use the notes feature at the bottom of each powerpoint slide to explain in detail the message to be communicated with each slide. A final slide with citations in APA format for all sources used should be provided at the end of each presentation. Citations should also be provided in the notes section for each slide as appropriate.
Week 7 March 13 – 19	**Site Design and Development**	
	Stormwater management strategies and low impact development, landscape applications, and performance comparisons (Volk)	*Required Readings:* • *Environmental Land Use Planning and Management Chapter 8: Stormwater Management and Watershed Restoration* • *Acomb. The Madera Case Study: LID vs. Conventional Site Design, Land Development Magazine, fall 2009, pp.* *Readings to quickly review:* • *United States Environmental Protection Agency (US EPA), Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices, EPA 841-F-07-006, 2007. See www.epa.gov* • *US EPA, Green Infrastructure Case Studies, EPA 841-F-10-004, 2010. See www.epa.org* • *Rooftops to Rivers: Green Strategies for Controlling Stormwater and Combined Sewer Overflows, 2006. See www.nrdc.org*
	Site clearing, grading and drainage, erosion control, tree preservation, invasive exotic control, landscape management (Volk)	• No assigned readings
Due Mar 27	ASSIGNMENT 3	Identify a publically accessible site within the region you defined in Assignment 1 (unless otherwise approved, this should be the same site that you used for the site analysis module in the Eco Issues 1 course). Provide both a graphic and written submission that identifies sustainable site design and development strategies that may be applied to your site to reduce development/land use impacts. Details to be provided via assignment handout.

Module 3: Case Studies

Date	TOPIC	READING(S)/ASSIGNMENT
Week 8 Mar 20 – 26	Case study project example: Matanzas River Watershed (Volk), City of Gainesville Downtown Redevelopment (Steiner)	• No assigned reading
Due Apr 3	ASSIGNMENT 4	Prepare two case study powerpoint presentations. Each presentation should analyze an example of a sustainable practice from your region that responds directly to one or more of the ecological issues to which you've been introduced in this course. Clearly define the relevant ecological issue or issues and how the practice you've identified will minimize negative ecological impacts or improve ecological health. Case study 1 is to be at neighborhood/site/metro scale and Case study 2 is to be at the regional scale. Use the notes feature at the bottom of each powerpoint slide to explain in detail the message to be communicated with each slide. A final slide with citations in APA format for all sources used should be provided at the end of each presentation. Citations should also be provided in the notes section for each slide as appropriate.

Disclaimer

This syllabus represents our current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

About the Instructors

Prof. Michael Volk

Michael Volk is a Florida registered Landscape Architect, partner at Volk Design Consultants, LLC, and Research Assistant Professor in the UF Center for Landscape Conservation Planning, Department of Landscape Architecture. He has a Masters Degree in Landscape Architecture from the University of Florida and a degree in Architecture from the Frank Lloyd Wright School of Architecture. Michael has professional experience in planning and project management, specializing in work with historic and waterfront communities. His work with the Center for Landscape Conservation Planning includes work on regional conservation planning and research projects, including several current projects assessing sea level rise impacts on imperiled species and habitats in Florida.

Dr. Ruth Steiner

Dr. Ruth L. Steiner is a professor and director of the Center for Health and the Built Environment in the Department of Urban and Regional Planning at the University of Florida and an affiliate faculty in the School of Natural Resources and Environment and the University of Florida Transportation Institute (UFTI). Her research focuses on the interactions between transportation, and land use, with a particular focus on planning for all modes of transportation including transit, bicycling and walking. She is co-author of *Energy Efficiency and Human Activity: Global Trends and Prospects* (Cambridge University Press, 1992) and author of over sixty book chapters, journal articles, reviews and research reports. Previously, she worked as a computer programmer and systems analyst at a major regional bank in Milwaukee, as a policy analyst for the Public Service Board in Vermont, and as a research associate at Lawrence Berkeley National Laboratory. She received her B.A. in History from Lawrence University in Appleton, Wisconsin, a Master of Business Administration from the University of Wisconsin in Milwaukee and a Masters of City Planning and a Ph. D. from the University of California at Berkeley.