Course Description

*Lectures, laboratory exercises and field trips introduce basic knowledge of incorporating ecological factors in urban design and interaction of landscape science with the human environment.*

The majority of humans now live in cities and that proportion is growing. As a result, the experience of the world and its ecological systems has changed significantly for most people, and the influence of human settlements on the natural environment has increased dramatically. Both of these consequences — the changed human experience of the world and our influence on it — depend on the design of cities at every scale. Design choices that are made at regional, municipal, local, and site scales affect the everyday experience for all species. The purpose of this course is to explore the ways in which the natural world interacts with cities, regions, and sites, and in turn how designs at these scales can incorporate the natural world into the urban environment in a way that maximizes environmental protection and enhances the human experience.

The course will concentrate on both the history and theory of urban ecological design and on the computing tools currently available to undertake quantitative (and usually spatial) analysis of the effects of alternative urban designs. In this sense, the course is situated both within landscape ecology and urban ecology and also in the applied disciplines of planning and architecture, and therefore is part of the newly identified domain of “geodesign.”

Students in this course will undertake exercises to develop understanding of the course content, explore new tools inspired by curiosity, develop writing skills, and share the results with the world. That is, at least in part, students will be doing work that will be posted immediately to the Internet, in the form of writing, re-writing, and editing well-referenced and well-researched entries on the free encyclopedia Wikipedia. For a topic of such importance and full of innovation, an undergraduate learning experience can also contribute to the public good!
Learning Objectives
By the end of this course, students should be able to:

- Explain basic landscape ecology concepts linking natural and human systems;
- Articulate key terms and basic concepts of environmental performance in human-dominated landscapes;
- Access sources of primary scientific literature on environmental effects of urban design;
- Use environmental performance concepts to critically review and propose landscape designs in cities;
- Evaluate the available software tools and conceptual models available to provide feedback on alternative proposed urban designs;
- Communicate clearly to a general audience on a technical topic;
- Evaluate the quality and appropriateness of difference sources of technical information; and
- Work smoothly in a collaborative environment.

Recommended Preparation
All students with an interest in the topic are welcome in the class. It has no prerequisites. A background in Geographic Information Systems (GIS) would be helpful but is not required.

Required Readings

Description of Assignments
The course will require accessing and studying course materials before the class meeting time, then taking short quizzes and discussion of material during class. We will have two written assignments involving writing for the online encyclopedia Wikipedia. Each student will be responsible for exploring and developing an in-class demonstration of a software tool associated with incorporating ecological factors into design.

Weekly Reading Assessments and Discussion
Research on retention of reading material indicates that new information enters long-term memory fastest and most efficiently when the material is tested quickly and often. We will therefore have short quizzes on the reading material each week at the start of class, followed by discussions about the assigned materials.

Individual Writing Assignment
With the advent of the Internet, coursework no longer has to be useful only to the person learning the material. Rather it can become part of educating a wider audience about topics of broad interest. Therefore, the writing assignments will involve learning how to construct Wikipedia articles that meet the standards of verifiability and neutral point of view. The individual Wikipedia writing assignment is to write an article on a topic covered in the class that is not already adequately covered in Wikipedia.

Individual Tool Demonstration Assignment
Many tools, most of which are to some degree digital, are available to help designers and planners better integrate ecological information. For logistical reasons, we will concentrate on those tools that are low-cost or open source. Each student will be responsible for picking one of the many tools available, learning
its capabilities, and leading an in-class demonstration of the tool in which other students gain hands-on experience with the tool.

**Final Paper**
All students will write a term paper that demonstrates research and writing skills by reviewing and synthesizing current research on a topic pertaining to ecological factors in design. Topics might include: biomimicry, advances in urban forestry, emerging stormwater management techniques, performance of constructed wetlands, regional reviews of green infrastructure (e.g., Southeast Asia, Mediterranean), and sea level rise adaptation.

**Course Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topics/Readings</th>
<th>Deliverables</th>
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| 1    | 1/12   | Landscape and Environmental Planning: Roots and Shoots Marsh, Chapter 0, 1       | Start Wikipedia student orientation  
Sign up on course page                                                          |
| 2    | 1/19   | Landscape Form, Slope and Aspect Marsh, Chapter 3, 4                             | Complete Wikipedia orientation                                               |
| 3    | 1/26   | Soils and Wastewater Disposal Marsh, Chapter 5, 6                                | Quiz  
Leave Wikipedia comment on a page relevant to course  
List possible article topics on your user page                                    |
| 4    | 2/2    | Groundwater Marsh, Chapter 7                                                    | Quiz  
Add new info to a course-related Wikipedia page                                  |
| 5    | 2/9    | Stormwater Marsh, Chapter 8                                                      | Quiz  
Select project topic  
Post bibliography on talk page  
Presentation: iTree Hydro; EPA Stormwater Calculator                             |
| 6    | 2/16   | Watersheds Marsh Chapter 9 Watch Kongjian Yu lecture,                             | Quiz  
3-4 paragraph summary of article in sandbox  
Presentation: iTree Canopy                                                        |
| 7    | 2/23   | Streamflow, and Floods Marsh, Chapter 10,                                         | Quiz  
Publish and expand article  
Presentation: HEC suite                                                            |
| 8    | 3/1    | Water Quality Marsh, Chapter 11                                                  | Quiz  
Expand article and select peer edit articles                                      |
| 9    | 3/8    | South LA Wetlands Park Field Trip                                                | Leave comments on talk page for peer edit articles  
Copy-edit peer edit articles  
Presentation:                                                                          |
| 10   | 3/22   | Soil Erosion/BMPs 12, 13                                                         | Quiz  
Make article revisions based on feedback  
Presentation: Marxan/Zonation                                                     |
| 11   | 3/29   | Riparian Landscapes Chapter 14  
Coastal Zone Management Chapter 15                                                 | Quiz  
Finalize individual article  
Presentation: GeoPlanner                                                            |
Grading
Grades will be assigned according to performance on the assessments as follows:

Weekly quizzes (30%) (lowest quiz score will be dropped)
Wikipedia article (15%)
Software demonstration (10%)
Final Paper (25%)
Final Exam (20%)

Letter grading
A  93.0–100 %
A– 90.0–92.9 %
B+ 87.0–89.9 %
B  83.0–86.9 %
B– 80.0–82.9 %
C+ 77.0–79.9 %
C  73.0–76.9 %
C– 70.0–72.9 %
D+ 67.0–69.9 %
D  60.0–66.9 %
F  <600 %

Pass/Fail grading
Pass:  ≥73.0 %
Fail:  <73.0 %

Assignment Submission Policy
All assignments will be submitted digitally and will be due according to the instructions provided for submission. Late work will be subject to a 10-point penalty per day.

Attendance Policy
The School of Architecture’s general attendance policy is to allow a student to miss the equivalent of one week of class sessions (three classes if the course meets three times/week, etc.) without directly affecting the student’s grade and ability to complete the course. If additional absences are required for a personal illness/family emergency, pre- approved academic reason/religious observance, the situation should be discussed and evaluated with the faculty member and appropriate Chair on a case-by-case basis. For each
absence over that allowed number, the student’s letter grade will be lowered 1/3 of a letter grade (e.g., A to A–).

Any student not in class within the first 10 minutes is considered tardy, and any student absent (in any form including sleep, technological distraction, or by leaving mid class for a long break) for more than 1/3 of the class time can be considered fully absent. If arriving late, a student must be respectful of a class in session and do everything possible to minimize the disruption caused by a late arrival. It is always the student’s responsibility to seek means (if possible) to make up work missed due to absences, not the instructor’s, although such recourse is not always an option due to the nature of the material covered.

Being absent on the day a project, quiz, paper or exam is due can lead to an “F” for that project, quiz, paper or exam or portfolio (unless the faculty concedes the reason is due to an excusable absence for personal illness/family emergency/religious observance). A mid term or final review is to be treated the same as a final exam as outlined and expected by the University.

**Statement on Academic Conduct and Support Systems**

**Academic Conduct**

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](http://policy.usc.edu/scampus-part-b). Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, [http://policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

**Support Systems**

**Student Counseling Services (SCS) – (213) 740-7711 – 24/7 on call**
Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention. [engemannshc.usc.edu/counseling](http://engemannshc.usc.edu/counseling)

**National Suicide Prevention Lifeline – 1 (800) 273-8255**
Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week. [www.suicidepreventionlifeline.org](http://www.suicidepreventionlifeline.org)

**Relationship and Sexual Violence Prevention Services (RSVP) – (213) 740-4900 – 24/7 on call**
Free and confidential therapy services, workshops, and training for situations related to gender-based harm. [engemannshc.usc.edu/rsvp](http://engemannshc.usc.edu/rsvp)

**Sexual Assault Resource Center**
For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website: [sarc.usc.edu](http://sarc.usc.edu)

**Office of Equity and Diversity (OED)/Title IX Compliance – (213) 740-5086**
Works with faculty, staff, visitors, applicants, and students around issues of protected class. [equity.usc.edu](http://equity.usc.edu)

**Bias Assessment Response and Support**
Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response. studentaffairs.usc.edu/bias-assessment-response-support

The Office of Disability Services and Programs
Provides certification for students with disabilities and helps arrange relevant accommodations. dsp.usc.edu

Student Support and Advocacy – (213) 821-4710
Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic. studentaffairs.usc.edu/ssa

Diversity at USC
Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students. diversity.usc.edu

USC Emergency Information
Provides safety and other updates, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible. emergency.usc.edu

USC Department of Public Safety – UPC: (213) 740-4321 – HSC: (323) 442-1000 – 24-hour emergency or to report a crime.
Provides overall safety to USC community. dps.usc.edu