Urban Ecological Systems

The services of novel ecosystems
LARC 60602 & UD 65632

Instructor	Reid Coffman	Office	Monday 10-11am, or by appt.
Location	Cleveland Class room	E-mail	rcoffma4@kent.edu
Times	W 8:45-11:45 am	Phone	405-443-6497

Description

This course investigates how novel ecosystems can provide environmental benefits for urban societies. It combines the design and science disciplines to address urban conditions. Fundamentals from the fields of ecology and design are used to inform the conceptualization of design proposals embedded with ecologically oriented hypotheses. A focus of the course is the conceptualization of urban infrastructure projects which deliver an ecological return on investment through the coupling and bundling of ecological services.

Guiding Questions

- Why should we design 'nature' in the city?
- How a can we estimate the contribution of 'urban nature'?
- How can we represent and communicate those contributions across disciplines?

Goals

1| You will develop a working knowledge the of *ecosystem services theory* through the creation of proposals improving the ecological productivity, biological diversity, regulation of water and nutrients in urban sites.
2| You will develop skills of identifying, communicating, and quantifying the inputs, outputs, and feedbacks of contrived ecological systems through diagraming, collage, and calculation.
3| You will learn to optimize for an ecological return on investment by selecting for compatible ecological functions through the methods of coupling, bundling and stacking.
4| You will advance your knowledge of ecological theory, concepts, and terminology.

Qualifications

All students must have CAED graduate status and be proficient in 2-3D visual representation, graphic communication and the design process.

Requirements

Class attendance and completion of all assignments, projects and exams is required. It is expected that you will expand on the class material for the completion of work. The course will have weekly tasks, six major assignments, one term assignments and three exams. Each of the major assignments will require a combination of individual and team work with peers.

- Module 1: Identify our current and impending socio-environmental problems.
- Module 2: Calculating Ecological Services in microcosm

- 101 The Fundamentals of Ecology - present a fundamental ecological concept to your peers. Reading and Presentation

Term Projects:

Participate in the separating and recombination of site elements to provided intentional ecological services. The student team will use assessment, literature review, and design proposal to engage coupling and bundling the following flows and effects.

  - Calculating energy flows
  - Calculating the hydrology flows
  - Calculating the nutrient flows
  - Calculating biological diversity flows.
  - Calculating human health and wellness effects

Three Study locations

- Small Commercial (Happy Dog)
- Civic Park (Canal Basin Park)
- Large Industrial (CIIC)

Products

- P1: Poster: Develop from foundational analysis, a site graphic and schematic proposal for offering discrete services using site issues, calculators and peer reviewed literature on urban ecological performance.
- P2: Paper: Author a technically oriented design proposal paper that conveys the details of your schematic proposal.
- P3 : Video: Author a synoptic video that educates and illustrates how ecosystem services can be returned to the urban condition, using your proposal as an example.

Coordination efforts

The class will coordinate with various external groups including Landscape Architecture Foundation (LAF) Performance Series, Cleveland Metroparks, Northeast Ohio Regional Sewer District (NEORSD) and the Ohio & US EPA. Also, the course will coordinate when applicable with Novel Ecology Design Lab (NEDLAB), Robotics Lab and CAED materials lab through on-going projects .

Resources

Course folders in Dropbox (email invitation will be provided by instructor).

Required Text

Ecology: Theory and Application Peter Stiling 4th edition. 2002 Prentice Hall Publishing
Projective Ecologies C. Reed & Nina-Marie Lister 2014 Harvard Press,
The Professional Design Guide to Green Roofs K. Dakin, L.L. Benjamin and M. Pantiel 2013 Timber Press

Recommended

Living Systems: Innovative Materials and Technologies for Landscape Architecture L. Margolis and A. Robinson 2007 Birkhauser

Websites

Millennium Ecosystem Assessment http://www.millenniumassessment.org/en/index.html
Landscape Performance Series http://landscapeperformance.org/

ASLA Sustainable Landscapes http://www.asla.org/sustainablelandscapes/index.html
Sustainable Site Initiative http://www.sustainablesites.org/
Center for Low Impact Development http://www.lid-stormwater.net/
Landscape Machines Laboratory http://landscapemachines.com/about/

Web based Documents
Re-Imaging A More Sustainable Cleveland
https://docs.google.com/file/d/0B9gEzUmYRccJMTZkMGMwNDAtZDVjOS00NGVlLWJjMDgtZDFiNWZiNTlkOWRh/edit?hl=en_US&pli=1

Evaluation
Overall, students will be evaluated on the quality of information provided within their work and their professionalism within the course. Each assignment will possess its discrete criteria.

Module 1	5%
Module 2	10%
P1: Poster	20%
P2: Paper	20%
P3: Video	20%
101 Fundamentals	10%
Presentation/Review	10%
Professionalism	5%

Class meetings
University scheduled meeting time includes lectures, seminars, group and individual meetings - these times may be augmented with additional lectures, and field trips.

Building Hours
Students are required to comply with the university established building hours of operation.

Building and Equipment Maintenance
Students are required to maintain the studio and class areas in conformance with fire safety, health regulations and codes and to maintain a "professional working environment". These requirements include: not overloading electrical circuits, not accumulating waste materials and not blocking exit access pathways. It is critical that doors not be propped open circumventing the security system established for your safety.

School Policy
As a reminder, the classrooms, studio, offices and hallways are non-smoking areas and the use of radios/TV/CD/DVD, etc…at any time is discouraged and permitted only at the faculty's discretion and only when using headphones. Clarify the use of the above with the individual studio faculty. *Refrigerators, microwaves, coffeemakers, personal lounge furniture (couches etc…) are not allowed in the studio. Alcohol and drugs are strictly prohibited in studios. See studio policy.*

Computer System Policies, Rules and Responsibilities

See CAED website. The CAED does not condone or support the use of unlicensed/illegal software.

Course Accessibility

In accordance with University policy, Regarding Students with Disabilities (Revised 6/01/07) University policy 3342-3-01.3 requires that students with disabilities be provided reasonable accommodations to ensure their equal access to course content. If you have a documented disability and require accommodations, please contact the instructor at the beginning of the semester to make arrangements for necessary classroom adjustments. Please note, you must first verify your eligibility for these through Student Accessibility Services (contact 330-672-3391 or visit www.kent.edu/sas for more information on registration procedures).

Course Schedule (see attached)