EAS 590A: Ecological Site Design (2 credits)
Winter 2023
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GSI: Theodore Vuchinich, vuchinit@umich.edu

SYLLABUS

Course Time:
MWF 2:00-4:30pm
Office Hours By Appt.

Course Description:

This course introduces you to the many environmental functions in an urban landscape that must support the needs of both human and non-human species, including mobility, real estate development, social, cultural, health and environmental benefits. While preserving and protecting intact ecosystems and sustainably using the landscape’s natural systems more sustainably are the first lessons for ecological designers, the next lesson is that environmental processes affect every site, whether it looks “natural” or is entirely paved. As an ecological designer, your work should interpret and use these processes to deliver ecosystem services, including the provision of human wellbeing. This course also offers a perspective on how landscape aesthetics can support environmental functions, human wellbeing, and ultimately, the long-term survival and stewardship of these very functions. Key messages to consider this term should be:

- What environmental and ecological processes function in places that do not look “natural” in any obvious way?
- Does making landscapes look more natural by design necessarily enhance their ecosystem services?
- Why does the appearance of landscape matter?
- What does it mean to make a landscape look more “natural?”
- Why would I make a landscape look more natural if not to protect or enhance ecosystem services?
- How do human perceptions and beliefs about landscapes impact their long term maintenance and longevity?
- What are the relationships between urban sites and larger ecosystems?
- How do issues of equity in human society interact with ecological design?
- What are the design implications of a changing climate for both ecosystem functions and the wellbeing and survival of human and non-human species?

Throughout the course, we will discuss and practice iterative design processes that allow you to integrate environmental, functional, and aesthetic characteristics in your own design proposals.

Our site for this course is located in the city of Detroit in the Lake Erie Watershed, on a brownfield site in a developed community that has recently been listed in the 100-year Floodplain. It will
consider the opportunities to integrate habitat and ecosystem services in an urban context, and to explore adaptation at a site scale to changing precipitation and climate patterns.

Scholarly literature is the foundation of course content, and discussion of the reading sets is an essential part of the course. Your particular skillset as an ecological designer is not in becoming a scientific researcher, but in distilling the spatial implications of this research to bear on your site.

You will work in teams to research and analyze the ecological context of the site, and complete two individual exercises that build on that body of work to develop a design proposal. Each exercise will be complimented by required readings, from which you’ll identify take home messages and spatial insights for design practice. All readings should be downloaded from the U of M library unless otherwise noted. All readings should be completed before their scheduled discussion day.

The design exercises are cumulative. Each will address the same site which is currently a cleared site, approximately 11 acres in the former Fox and Conner Creek watersheds that drain into the Detroit River in the Jefferson Chalmers neighborhood in Detroit. In addition to visiting the site, you can use Google Earth, USGS, and other GIS information to help you understand the site’s immediate context and how the site fits into its topographic and watershed context. Please visit the site only in its public perimeter, from which it is quite visible. In class, we’ll discuss the ecological design implications of the site’s development, land cover, land use, floodplain, and watershed context.

Course Objectives:

1. Demonstrate knowledge of evidence-based design process by producing site inventory, site analysis, design concept, and master planning

2. Develop spatial insights from research to advance biodiversity, enhance urban hydrology, and support human habitation and wellbeing through a site-scaled design proposal

3. Apply graphical and spatial thinking and representation to convey design ideas in 2D, 3D, and perspective

4. Understand how to analyze an urban site’s ecological functions and develop design proposals at an appropriate scale to support those functions

5. Refine form-making and space-making skills to transform an abstract design idea into a concrete 3-dimensional spatial form, conveyed in a 2D master plan and supporting diagrams and drawings

Class Expectations:

Lectures and Graphics Modules: Critical course information will be delivered through lectures to advance your skills as an ecological designer and provide additional direction for your studio project. These courses will typically be delivered via Zoom to allow them to be recorded and captioned so that students may go back to review the content. There will be two Graphics Modules that will go deeper into digital design tools that you can use to advance your project and visual communication skills. These will also be delivered on Zoom so that students can follow along using software
applications on their own computers. The time after a lecture or module will be for individual work time or follow up questions with the instructor and GSI.

*Studio Work Days:* During these sessions, students are anticipated to be working independently on their projects and in conversation with peers, instructor and GSI about their design progress. Each student will have one-on-one desk critiques for every design exercise. You will schedule a 10 to 15-minute time block for your individual studio critiques in advance. You are responsible for presenting design ideas in the form of drawings, diagrams, and models for discussion during the studio critiques and **must bring new work to share at each session.**

*Pin Ups and Reviews:* During these sessions, students will share work for conversation and feedback from peers, GSI, instructors and sometimes guest reviewers. Work will be due before the class session, and students should come prepared to present. These sessions will provide a combination of individual and group feedback. Students should anticipate integrating feedback from pin up sessions into their iterative design process. The order of presentations for final reviews will be created in a schedule in advance of the session. Students are expected to attend reviews and pin ups even when they are not scheduled to present their own work; learning from peers is an essential component of studio education.
Course Schedule:

**Module 1: Landscape Ecology, Urban Ecology, and Biodiversity – from region to city site**

**Week 1:** Wednesday, Jan 4: [ZOOM] Course introduction. Discuss Reading Responses.
Lecture 1: Site Introduction + Ecological Design Process


**READING RESPONSE 1 DUE**


**Week 2:** Monday, Jan 9: Studio work day/Group crits

Wednesday, Jan 11: Studio work day/Group crits

Friday, Jan 13: [ZOOM] Graphics Module 1: Digital workflows + Ways of working

**Week 3:** Monday, Jan 16: **NO CLASS – MARTIN LUTHER KING JR DAY**

Wednesday, Jan 18: Studio work day/Group crits

Friday, Jan 20: **PIN UP: DESIGN EXERCISE 1 DUE**

**Module 2: Urban watersheds, stormwater, and climate change**

**Week 4:** Monday, Jan 23: [ZOOM] Lecture 3: Urban Hydrology/Stormwater management Distribute assignment 2.

Wednesday, Jan 25: [ZOOM] Graphics module 2: Illustrator + Drawing at Scale

**READING RESPONSE 2 DUE**


**Friday, Jan 27:** Studio work day /Desk crits

**Week 5:** Monday, Jan 30: Studio work day /Desk crits
Wednesday, Feb 1: Studio work day/Desk crits
Friday, Feb 3: Studio work day/PEER crits

Week 6: Monday, Feb 6: Studio work day/Desk crits

Wednesday, Feb 8: PIN UP: DESIGN EXERCISE 2 DUE
Distribute assignment 3.

**Cultural sustainability: Using aesthetic experience and active mobility to promote sustainability**

Friday, Feb 10: [ZOOM] Lecture 4: Aesthetic Experience + Multifunctional Ecology

**READING RESPONSE 3 DUE**


Week 7: Monday, Feb 13 Studio work day/Desk crits

Wednesday, Feb 15: Studio work day/Desk crits

Friday, Feb 17: Studio work day/Desk crits

Week 8: Monday, Feb 20 Studio work day/Desk crits

Wednesday, Feb 22: FINAL REVIEW: DESIGN EXERCISE 3 DUE

Friday, Feb 24: FINAL REVIEW: Design Exercise 3

**Experiencing Stress and Seeking Help:**

Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, mental health, alcohol or other drugs, identities, finances, etc. If you are experiencing concerns, seeking help is a courageous thing to do for yourself and those who care about you. If the source of your stressors is academic, please contact me so that we can find solutions together. For personal concerns, U-M offers many resources, some of which are listed at Resources for Student Well-being on the Well-being for U-M Students website. You can also search for additional resources on that website.

**Academic Integrity and Policy:**

Integrity in research and scholarship is a fundamental value of the University of Michigan. It is the responsibility of all students to conduct research and scholarly activities in an ethical manner at all times. An indispensable part of graduate education is for students to become knowledgeable about the responsible conduct of research and scholarship appropriate to their discipline or field of study.
Students are responsible for understanding and observing the graduate school’s academic and professional integrity policy.

Students are also expected to understand and maintain standards of integrity and professional conduct endorsed by their program that are particular to their field of study and research. Students are referred to Rackham Academic and Professional Integrity Policy that may be found at the website: https://rackham.umich.edu/academic-policies/section8/

**Americans with Disabilities Act (ADA) Policy Statement:**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services by visiting https://ssd.umich.edu/

**Professionalism, Respect and a Positive Learning Environment:**

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments and written communications to others should be factual, constructive, and free from harassing statements. You are encouraged to agree or disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, gender, age, culture, religion, politics and sexual orientation. If you experience any such harassment during this course, please contact your instructor immediately.

Students in this course are also responsible for being familiar with the Universities student rules and policies: https://spg.umich.edu/.

**SEAS Land Acknowledgement:**

The School for Environment and Sustainability acknowledges the university’s origins through an 1817 land transfer from the Anishinaabek, the Three Fires People: the Odawa, Ojibwe, and Bodewadami as well as Meskwahkiashina (Fox), Peoria and Wyandot. We further acknowledge that our university stands, like almost all property in the United States, on lands obtained, generally in unconscionable ways, from indigenous peoples. In addition, our research on environmental science and sustainability has benefited and continues to benefit from access to land originally gained through the exploitation of others. Knowing where we live and work does not change the past, but understanding and acknowledging the history, culture, and impacts of colonial practices is an important step towards the creation of an equitable and sustainable future.

**Course Grades:**

Design Exercise 1: 13
Design Exercise 2: 25
Design Exercise 3: 45
Reading Responses: 17
Students are expected to produce new work (drawings, diagrams, renderings, other three dimensional representations) weekly for discussion at desk crits and may affect your grade by as much as one full grade level. Late work will receive a reduced grade.

Suggested reference books:

*Site Analysis*, 2013. JA LaGro.