

BioSynergies: Bringing the EcoDistrict vision to life

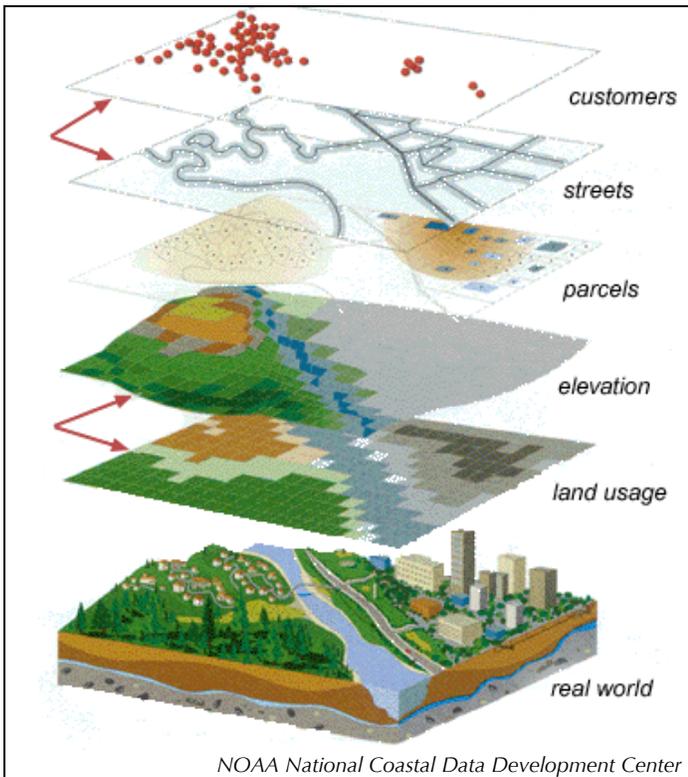
Prof. Nancy Cheng <nywc@uoregon.edu> Office hours Wed 10-12noon 458 White Stag Block

This course coaches students in finding a focus for inquiry and defining an architectural design problem to address that focus. Each student needs to find a question or series of related questions that can sustain his or her interest, that might be addressed through a series of projects over many years. The goal is to identify a life passion within the spectrum of environmental design possibilities and find productive ways of working that feed the creative spirit. Each student should cultivate productive work habits that include rigorous investigation and speculative invention.

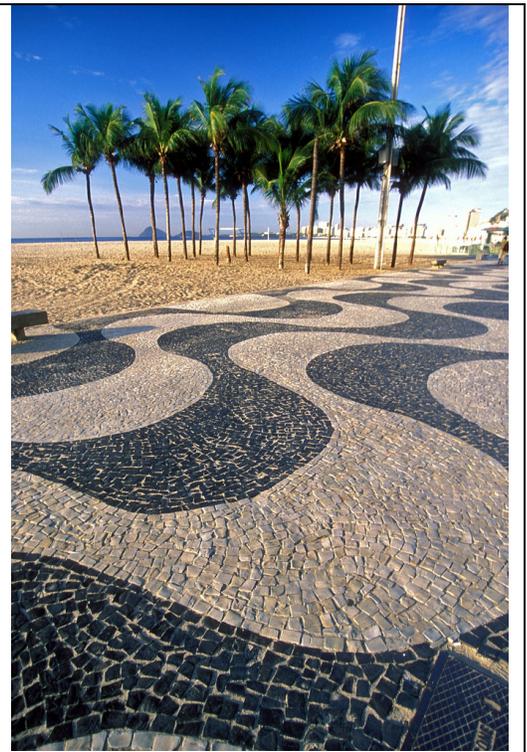
Individual efforts will be unified by examining possible relationships between Nature and Architecture through the lenses of Ecodistricts and Biomimicry. Together we will learn how the emerging concept of Ecodistricts is being developed in Portland pilot neighborhoods by PoSI, PSU and many professional partners. Looking at urban renewal plans and neighborhood analyses will help us understand how individual building sites could contribute to the Ecodistrict vision that integrates natural and social/culture systems. Students working within the same area can share site research and documentation. Students working on adjacent lots can directly address reciprocity between building sites and implementation of district-level utilities, habitat, transit, social support, etc. Students may opt for sites located outside of Portland that have similar urban sustainability plans though they will require more independent legwork.

The BioSynergies focus means looking at the building's role in the EcoDistrict in terms of its relationship to nature. Every location possesses unique geological formations, indigenous materials, adapted species and spatial conditions that give cues to a thoughtful design. We will consider how Biomimicry concepts could lead to more robust and innovative design solutions. We can gain insight for designing resilient communities and responsive structures by examining how natural organisms adapt or recover from disruptions, using aspects like feedback loops, low-energy processes and waste as nutrients. We can see underlying principles for efficient structures by looking at how physical and chemical processes have generated the structure of shells, bones and geological formations. Applying critical thinking about how natural processes and biological mechanisms can inspire design solution from the scale of city and neighborhood down to the building, room and architectural details.

To set the stage for the Winter-Spring design investigation, the Fall term will be spent defining the design problem in terms of the question to be investigated, then framing the conceptual approach by studying relevant ideas and precedent projects. The thesis statement should take a position about the question and explain the design method, that is, how the site and program will be approached to test that position.



NOAA National Coastal Data Development Center



Burle-Marx's Copacabana beach, photo by Laszlo Ilyes

The theoretical framework comes from asking, “What do others think of this? How have they approached the question?” For example, Ian McHarg’s scientific approach allows the design to fall out of graphical analysis. He showed that by overlaying diagrammatic maps of slope, soil drainage, recreational value, etc., the ideal location for a highway could be found. In contrast, Roberto Burle-Marx’s approach imposes an artistic vision: he draws his paths with a pencil, sculpting the landscape and painting it with flowers and paving patterns. They both might generate an “organic” path, but of completely different character due to the differences in approach.

In this pre-design phase, we need to conceptually define the essential site character and architectural character of the project so that it addresses the question at hand. For the BioSynergies focus, we are particularly interested in the building’s role in the city and its relationship to nature. How can the project foster a healthy relationship between ecosystems and architecture? Where can we repair habitat and where should we complement it with urban human habitat?

Process

The assignments lead the student through a step-by-step creation of the thesis booklet components, with iterative refinement of the major components, especially the thesis statement. Through research, reflection and creation, students will reveal ways to focus the investigation and sharpen the wording of the thesis statement. We will support individual investigations with readings that clarify what is in common agreement and show how different viewpoints lead to varied research and design approaches. Each individual will generate an annotated reference list of key sources, and identifying experts for further study and acknowledging sources. Shared readings will frame the investigation and create a common vocabulary about the relationship of nature and built form.

Class periods will be used to present ideas, review student work, discuss readings, and develop research and design process skills.

Collaboration

Like Ecodistricts, the studio is based on the idea that together we can do more than we can do separately. Through short collaborative research and design exercises, we will develop a collaborative learning culture that is a microcosm for the Ecodistrict community we wish to encourage. We will look at how to foster innovation

and create group that matures through its interactions, that is resilient to unexpected challenges through marshaling social capital

Expected Behavior

- Come prepared: Students are expected to take responsibility for their own learning.
- Foster a learning community: Respect others, learning from different backgrounds, opinions & talents. Contribute to class discussions, activities and resources.
- Communicate: Learn by asking questions. Check in advance if you need to be absent. E-mail or phone instructor, come by office hours. All students are required to have two conferences with an instructor.

Requirements

Activity	Undergrad Hours	Graduate Hours	Notes
Contact hours	30	32	class time + conferences
Information gathering	7	10	library, online, on-site and phone research
Reading	18	22	
Writing	16	21	
Drawing / Mapping / Modeling / Material Studies	14	18	graphic mapping & sculptural assignments
Collaborating	5	5	.5 hours a week (blog comments & discussion)
Presentation + Preparation		12	Graduate students will present a special topic
Total hours	~90	~120	

Attendance is required. Students missing two sessions will need to write an extra 2 page paper. Students who miss three sessions without valid health issues or academic reasons will be in danger of not passing.

Assessment

Students will receive developmental feedback from peers and instructors via blog posts comments. Undergraduates need to have at least two private conferences during office hours: one by the end of week 5 and one by the end of week 10, Graduate students should have four private conferences. The course may be taken Pass/No Pass.

Online Sharing : <http://aaablogs.uoregon.edu/biosynergies2012>

Students will be required to keep an online blog for reflective learning, archiving and sharing. Students will record what has been learned, how this work relates to the core mission and how it contributes towards objectives. In Fall Term, every student will have at least 10 posts on their blog for Winter term including three external lecture posts and a final summary. Writing about progress, challenges, questions and next steps complements creative work and provides an opportunity to develop a professional network for feedback.

Students may opt to have their work private between student, instructor and external mentors. All students need to fill out a "Consent for Disclosure of Education Record Course Blog Participation Form" to indicate privacy preferences.

THESIS PREP CURRICULUM MAP

ASSIGNMENT	SKILLS	KNOWLEDGE	COMPONENT ARTIFACTS
Thesis Statement	A1 Communication Skills A2 Design Thinking Skills A11 Applied Research	Understand Design as inquiry	Articulate a cogent problem definition and argument in 300-500 words <u>Inquiry Definition</u> : What is being investigated? Why is it important? <u>Conceptual framework</u> : How will the subject be approached? <u>Site and program</u> : How does it fit the inquiry?
References	Critical thinking A5 Investigative skills A9 Historical & Global Culture	Understand how this study fits into a larger context of architectural research and built work	- <u>Annotated Bibliography</u> : Organized short descriptions of key books, articles and online resources. Includes relevant theory, building type precedents, local maps & regulations. - <u>Visual Notes</u> : Sketchbook of annotated sketches - <u>Image Database</u> (Evernote or Flickr)
Artistic Site Interpretation	A3 Visual Communication: techniques for studying & representing design concepts	- See how artistic means can give emotional impact - Understand constraints and affordances of physical artifacts and virtual models	3D conceptual site context model(s) showing relationship of natural and man-made systems.
Site Mapping & Documentation	Diagramming A8 Ordering Systems	Understand how place-recording and mapping techniques shape place perception	-10 analytical diagrams describing crucial site forces and tensions - Compilation of essential site data (i.e. maps,
Program	A5 Investigative skills such as Web research & interviewing C2 Human Behavior C3 Client Role	Understand the depth of design possibilities within a client needs.	- <u>Client / stakeholder description</u> (values, needs, aspirations) - <u>Matrix</u> of Activity, Space sizes, Furnishings & Equipment, Environmental character & requirements - <u>Activity Graphics</u> : Time sequences & Spatial relationship - <u>Dimensional Fit</u> : Verify overall program size to site
Precedent Studies	Find, describe, analyze & interpret relevant building design information A7 Use of Precedents	- Understand pragmatic constraints for a proposed building type - Understand key spatial relationships	- Identify major design considerations, challenges & decisions - Describe successful design strategies, workflow & results - Diagram forces & relationships (urban context, space-to-space, natural : artificial)

SCHEDULE (revised 12/16/11 to reflect guests, field trips and schedule changes)

1 Introduction to EcoDistricts Sept 27

Develop familiarity with Ecodistrict concepts, processes and pilot districts.

Guests Naomi Cole, Portland Sustainability Institute (POSI), Colleen Gifford, Gateway Ecodistrict Steering Committee and Craig Briscoe, ZGF

READING: The Ecodistricts' Framework and E. Selzer et. al.'s Making Ecodistricts: Executive Summary pp. 1-5 and Ch. 1 Civic Ecology, pp. 6-60

Optional: Little Thesis, vol.1 issue 2: MIT students puzzle over what is an architectural thesis:
http://littlethesis.mit.edu/wp-content/uploads/2010/10/Little-thesis_Volume-1_Issue-2.pdf

Optional: Yale School of Architecture, Retrospecta 2009-2010. Design projects w/ statements.

HWK: Reflective Online Journal: 300-500 words + 1 image about your natural organism and how you could imagine it could shape your thesis project.
AND Visit potential sites.

2 Understanding Place Oct 4

Consider site possibilities, become familiar with site information sources.

Guest Mark Raggett on City of Portland Urban Design resources (including the Portland plan and the South Waterfront sustainable design guidelines)

READING: R. Trancik's Finding Lost Space, Ch. 4 & 6 provide an accessible illustrated grounding in urban theory and design process.

- Meinig, D.W., "The Beholding Eye. Ten versions of the Same Landscape."

- City of Portland Urban Design Studio <http://www.portlandonline.com/bps/index.cfm?c=43729>

HWK: Sculptural Exploration: Visit Potential Sites, create Site Interpretation or Biomimetic study. Show the relationship between natural and constructed systems. Include a one-paragraph summary explaining the concept.

Wed Oct 5 noon : Sera Architects on Ecodistricts, Resource Flows & Civic Ecology

3 Biomimicry Oct 11

FIELD TRIP to Ankrom Moison Associated Architects, South Waterfront and transit mall. Meet at 9am AMAA 6720 SW Macadam Avenue,

Use natural forces, forms or mechanisms as a generator for design ideas.

READING: M. Hensel's Emergent Technologies & Design
Joseph Lim's Bio-Structural,

HWK: Thesis Statement

What is being investigated?

Why is it important?

Conceptual framework: How will the subject be approached?

Explain fit of site and program to inquiry

4 Site: Critical Analysis Oct 18

Collect & organize place information: Base Maps, code information.

READING: Ian McHarg's Design w Nature, Sea & Survival pp. 7-18, A Step Forward (p. 31-42).

HWK: Site Analysis: Compare two methods: What factors are mapped? How are relationships between factors shown? What about the graphic language is clarifies, what is confusing?
Condense your understanding of the factual site constraints into 6 analytical diagrams.

5 Conferences Oct 25

No class - independent conferences. Turn in assignment, attend summit, read independently.

HWK: Shared Research Bibliography: develop an annotated collection of at least 10 respected, relevant sources with ideas, conflicts, images to support your position.

Wed Oct 26 to Friday Oct 28: Ecodistrict Summit at PSU's Smith Center

Friday Oct 28 to Sunday Oct 30: PUARL Symposium

Monday Oct 31 to Wed Nov 2: Advanced Research in Urban Studies / PUARL Doctoral Symposium

6 Program Nov 1

[9am Becca Cavell THA Architecture, 733 SW Oak Street, Suite 100, 10:30 Jenny Marx at Lloyd Ctr MAX]
Develop the potential of your site by combining biomimicry inspiration with location-specific stakeholder interests.

READING: Kathryn Anthony's Programming by Design & Henry Sanoff's Assessment Methods
<http://www4.ncsu.edu/~sanoff/schooldesign> and program examples

HWK: Programming Interview clients or their proxy stand-ins to define client values, goals, facts, needs and ideas. Document activity over time (sequence) and place (map). Organize program information into succinct graphics and matrices.

7 Booklet as Declaration Nov 8

Guest: Michael McCulloch, Architect and Urban Designer for the Rose Quarter.

READING: MVRDV MetaCity/Datatown, Rotterdam: MVRDV/010 Publishers, 1999.
<http://books.google.com/books?id=I-DICsZctYgC&dq=HT166.M47.1999>

HWK: Booklet. Five-page proposal + Refined Sculptural Exploration. Develop program documentation & background narrative.

8 Science Fair Nov 15

READING: Spurr, Anne Whiston. The Language of Landscapes, Ch. 3.
<http://books.google.com/books?id=pRyh6iVkJ8C&>

HWK: Booklet draft: Statement, Bibliography, Site Analysis, Program

9 Refinement Nov 22

Guest: Mike Houck of Urban Greenspaces Inc., author of Wild in the City.

HWK: Revise Booklet and Sculptural Exploration

10 No class - schedule Individual Conferences

11 Review Dec 6

Final booklet submitted to potential mentors

Revised booklet. Coherent argument w/ narrative arc of what, why & how

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Homework Assignment 1: Start a blog

Due: Tues Oct 4, start of class.

Create your online journal using initial thoughts about your natural inspiration. Write ~ 300 words and include an image. Discuss how you will focus your query and how your favorite site and program relate to it. You may find it useful to use this Research Framework to plan your actions.

- 1) Questions : What do you want to discover?
- 2) Goals and Objectives: What is your longterm goal or general intention? Can you break the goal into concrete achievable steps?
- 3) Outcomes : What do you hope to accomplish for each objective?
- 4) Indicators : How will you know if you have succeeded? What will the measures be?

ACTION PLAN:

Critical Decisions at this point?

Next Steps : timeline?

TECH DETAILS: Students need to start a blog on the <http://aaablogs.uoregon.edu> system or similar Wordpress, Weebly or Blogger system and send the URL or RSS feed to Abraham Rodriguez <abrahamr@uoregon.edu> . A training session and support hours will be scheduled according to student availability. You may choose to put a password on your blogposts.