

University of Oregon – School of Architecture and Allied Arts – Department of Architecture  
ARCH 407/507 Fall 2015  
Wed 9:00am-11:50am, 279 Lawrence Hall, 3 credits

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Office Hours: Mon 12-12:50pm, Fri 11:45-12:45pm in  
477C LA

## THRIVING THROUGH MAKING

### Terminal Studio Preparation Course



image by Erik Hegre, UO Architecture

This Fall term course helps prepare students for their Winter-Spring Terminal Design Studio by developing the project focus, fostering understanding of the site and developing digital craft skills. Within the course framework, students will define a focus for inquiry and tune the building program accordingly. Each student should cultivate productive work habits that feed the creative spirit using both rigorous investigation and speculative invention.

The premise of the studio is that income inequality can best be addressed by education as empowerment, that creative production can help people thrive. Individual efforts will be unified by examining possible relationships between making, learning and architecture through the lenses of craft and digital technology.

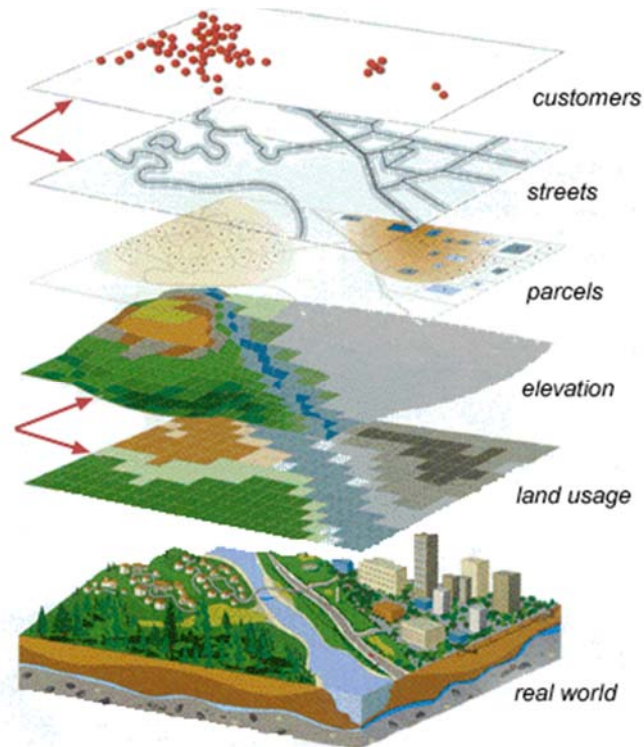
The studio will investigate models for apprenticeship, training, and education that help the underprivileged become productive contributors to society. The studio seeks to understand how new hybrid buildings could function as both workplace and learning space, how on-the-job apprentice training could lead to life-long learning. Can we create tailored buildings that can adapt weather economic changes and unexpected conditions?

The setting for this project is Portland, Oregon's Inner Eastside Industrial Area, which has transformed over the years from an agricultural trading area to manufacturing to its current mix of industrial, restaurant, design and makerspaces. So while it officially is the last central area for low-rent industries, it has been gentrifying with surrounding real-estate pressure. The September 2015 opening of the TriMet Orange Line MAX light rail stations will catalyze additional development in this area.

Looking at Portland Eco-district innovations, TriMet planning and Eastside urban planning will help us understand how individual building sites could contribute to a larger vision that integrates natural and social/culture systems. Students will 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.

Designing buildings that enrich natural ecosystems requires examining the natural history of a place. 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 inquiry, site and program; then framing a conceptual approach by studying relevant ideas and precedent projects. The project 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 conceptual 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 this studio, we are interested in the building’s role in the community and its relationship to nature. How can the project foster a healthy relationship between Portland residents, ecosystems and architecture? How can we make a place where people thrive among plants and natural creatures?

## Process

The assignments lead the student through a creation of a project booklet. Through research, reflection, creation and revision, students will find ways to focus the investigation and sharpen the project 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

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 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.

**Online Sharing:** <http://blogs.uoregon.edu/arch586s16cheng/>

Students will contribute to the course 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. 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 Form](#)" to indicate privacy preferences.

### 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.

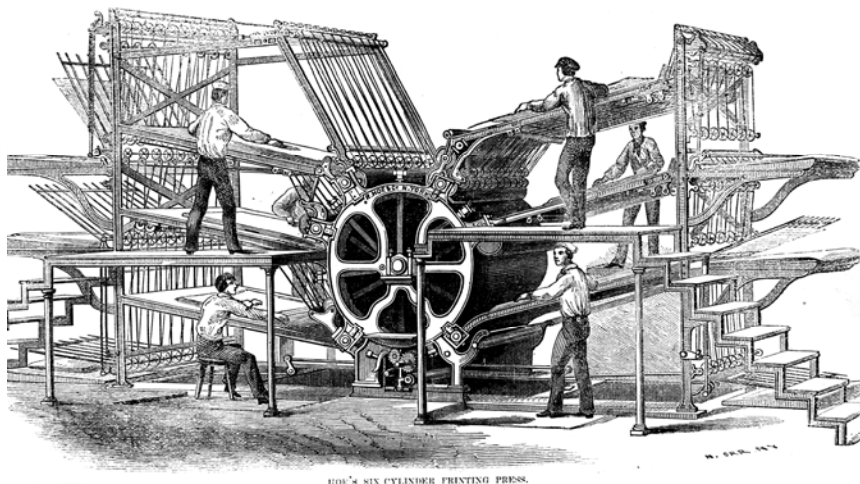
### Requirements

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.



100'S SIX CYLINDER PRINTING PRESS.

# LEARNING MATRIX

\*\*Order depends on schedule of woodshop sessions & trip to Portland

Topic	Assignment	Learning Objectives	Products
Purpose	1A Project Statement	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?
Purpose	1B Precedent study: Compare educational models, write up analytic case study.	<ul style="list-style-type: none"> <li>- Connect pedagogy to spatial environment</li> <li>- Understand key spatial relationships</li> <li>- Understand pragmatic constraints</li> </ul>	<ul style="list-style-type: none"> <li>- Identify major design considerations, challenges &amp; decisions</li> <li>- Describe successful design strategies, workflow &amp; results</li> <li>- Diagram forces &amp; relationships (urban context, space-to-space, natural : artificial)</li> </ul>
Digital Fabrication	2. Sculptural Metaphor: experiment with cutting carving, casting, 3D printing...	Develop parametric design skills Understand possibilities of emerging fabrication technologies	Conceptual artifacts representing the relationship of either nature & building, the nurturing role of your building, or site conditions
Research	3. Sharing knowledge	Understand how this study fits into a larger context of architectural research and built work	<ul style="list-style-type: none"> <li>- <u>Annotated Bibliography</u>: Organized short descriptions of key books, articles and online resources. Includes relevant theory, building type precedents, local maps &amp; regulations.</li> <li>- <u>Visual Notes</u>: Sketchbook of annotated sketches</li> <li>- <u>Image Database</u> (Evernote or Flickr)</li> </ul>
Place	4. Site Mapping**	Learning about Portland planning context, Understand how recording techniques shape place perception	<ul style="list-style-type: none"> <li>- Visual notes</li> <li>- Analytical diagrams describing crucial site forces and tensions</li> <li>- Compilation of essential site data</li> <li>- Create base model</li> </ul>
Craft	5. Wood Joinery**	<ul style="list-style-type: none"> <li>- Consider history &amp; theory of Craft and Technology</li> <li>- Understand learning through doing</li> </ul>	<ul style="list-style-type: none"> <li>- Create a glued joint &amp; an unglued joint</li> <li>- Create a base, tray or shelf to present the sculptural metaphor</li> </ul>
Purpose	6. Programming: Contribute to a building program brief.	Understand design possibilities within a client needs.	<ul style="list-style-type: none"> <li>- <u>Client / stakeholder description</u> (values, needs, aspirations)</li> <li>- <u>Matrix</u> of Activity, Space sizes, Furnishings &amp; Equipment, Environmental character &amp; requirements</li> <li>- <u>Activity Graphics</u>: Time sequences &amp; Spatial relationship</li> <li>- <u>Dimensional Fit</u>: Verify overall program size to site</li> </ul>
Synthesis	7. Summarize the term's work		Booklet explaining purpose, program, site and digital craft experiments

## SCHEDULE (Subject to Change)

WEEK   DATE	TOPICS   IN CLASS ACTIVITY	REVIEWS
<b>1</b> W 9/30	<b>OVERVIEW</b>   Learning Spaces Introductory talk   composite drawing   Sharing <b>Assign 1 Precedent Study</b>	
<b>2</b> W 10/7	<b>PARAMETRIC THINKING</b> GH training <b>Assign 2 Sculptural Metaphor</b>	<b>1 Precedent Study due</b>
<b>3</b> W 10/14	<b>BIOMIMICRY &amp; DIGITAL FORM</b> GH training <b>Assign 3 Sharing Knowledge</b>	<b>2A Metaphor 1 due</b>
<b>4</b> W 10/21	<b>PORTLAND PLANNING</b> GH training <b>Assign 4 Place Mapping</b>	<b>2B Metaphor 2, 3 Sharing Knowledge due</b>
<b>5</b> W 10/28	<b>SITUATED TECHNOLOGY</b> Digital analysis <b>Assign 5 Wood Joints</b>	<b>4 Place Mapping due</b>
<b>6</b> W 10/4	<b>CRAFT &amp; TECHNOLOGY</b> <b>Assign 6 Base for Sculptural Metaphor</b>	<b>5 Wood Joints due</b>
<b>7</b> W 11/11	<b>CREATIVE BUILDINGS</b> <b>Assign 7 Programming</b>	<b>6 Base for Sculptural Metaphor due</b>
<b>8</b> W 11/18	<b>DESIGN WITH NATURE</b> <b>Assign 8 Summary</b>	<b>7 Programming due</b>
<b>9</b> W 11/25	<b>BOOKLET DEVELOPMENT</b> Small Group Conferences	<b>8 Draft Booklet &amp; Site models due</b>
<b>10</b> W 12/2	<b>REVIEW WEEK</b> No Class, Small Group Conferences	
<b>11</b> F 12/11	<b>SUMMARY</b> FINAL PRESENTATION ?? in Portland ?? (Scheduled date may be amended through consensus)	<b>8 Summary Booklet due</b>

Assignment 1:

## Precedent Analysis

Hand-in: Wed. Oct. 7

*T. S. Eliot has observed that 'comparison and analysis are the chief tools of the critic' pointing out that for the author, the creative act is composed of critical labour, 'the labour of sifting, combining, constructing, expressing, correcting, testing: this frightful toil is as much critical as creative.' He goes on to point out 'that some creative writers are superior to others because their critical faculty is superior.'*

-- Geoffrey H. Baker, Design Strategies in Architecture

### I. PROJECT STATEMENT v.01

Summarize aspirations for your project in a 200 word statement. Identify major design considerations, challenges & decisions to be made. Create or find an image you have made and put it on an 8.5" x 11" vertical sheet together with the statement. Save as PDF.

### II. PRECEDENT STUDY

For three exemplar social and architectural precedents, read about the organization's purpose, and dissect how the building's site design and internal organization support this purpose. Examine how systems such as spatial order, structural hierarchy, pedestrian circulation, water flow, indoor-outdoor connections, etc. support the mission, social organization and ecological agenda.

Can you find the view which reveals the most about each characteristic? Which ideas are enhanced by the abstraction of flat 2D graphics and which are best shown with 3D forms? Create at least diagrams which use lineweight, color, and value to emphasize the key aspects of the design. Present your own graphics with a few photos, color-coded plans and ~150 words that describe ideas relevant to the project. >> Note all sources, giving photo credits in situ. <<

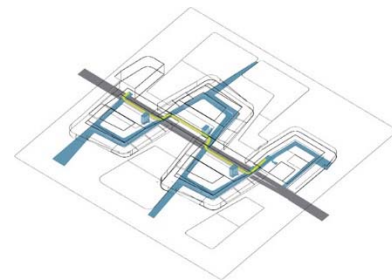
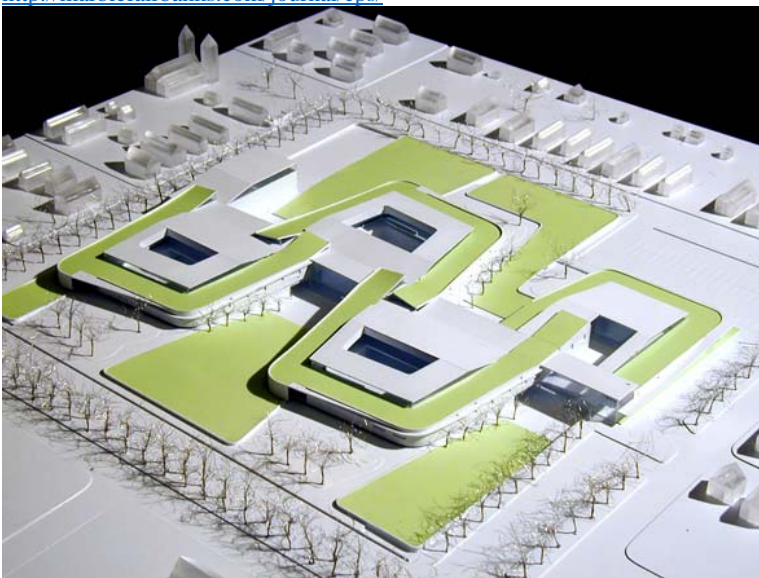
Arrange on 8.5" x 11" vertical sheets, minimum one per example.

SUBMIT: Save parts I & II as a single optimized PDF (Document menu > Insert Pages) called 4-507f15.duckid.as1.pdf and upload to the Course Folder in a student\_work folder.

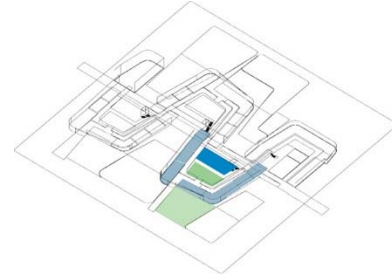
Print out color hardcopy scaled to fit onto 11"x17" vertical sheets, bring to class.

Marble/Fairbank scheme for Chicago Public Schools

<http://marblefairbanks.com/journal/cps/>



*Circulation Weave*



*Small School Identity*

## CONSIDERATIONS:

### ACTIVITY SUPPORT

- Pedagogy, activities and space needs and adjacencies
- Circulation and other patterns of movement
- Time (incl. overlapping activity functions)
- Key dimensions

### SITE:

- The relationship of the building to site (incl. natural and formal landscape strategies)
- Key site features and boundary conditions
- Response to site (incl. climate, views, daylight, and so on)

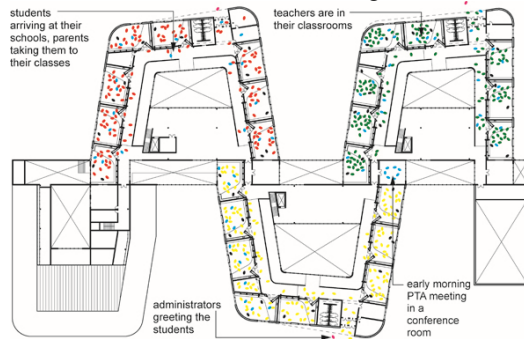
### ORDER

- Spatial order (incl. the primary and secondary organizing forms/elements)
- Relationship between inside and outside (and/or the blurring of these boundaries)
- Structure and its expression and/or suppression
- Exterior and interior expression (closed and open forms, materials used, etc) and how this relates to building functions and the character of the site

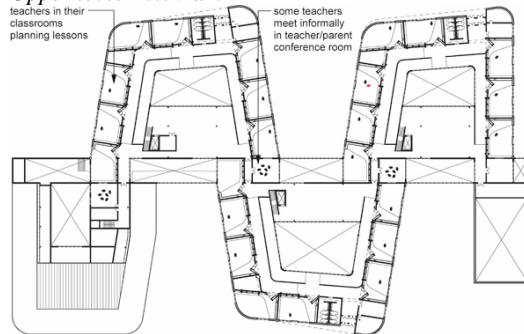
### READINGS:

- Design Share: Nair-Fielding website with articles and award-winning case studies. Past, present and future schools of all levels and disciplines: [www.designshare.com](http://www.designshare.com)
- Dudek, Mark, [Architecture of Schools: The New Learning Environments](#), (preview on Google Books) [LB3219.G7 D83 2000](#)
- Laseau, Paul. *Graphic Thinking for Architects and Designers*. Chapter 6, Analysis, pp. 81-96 <http://books.google.com/books?id=KRCyqDjYSIAC>
- Organisation for Economic Co-operation and Development, [21st century learning environments](#), AAA RES [LB3209 .T93 2006](#)
- Yee, Roger, ed. [Educational environments](#), volumes 1, 2 & 3, AAA [LB3205 .E38 2007](#)

### Marble/Fairbank scheme for Chicago Public Schools



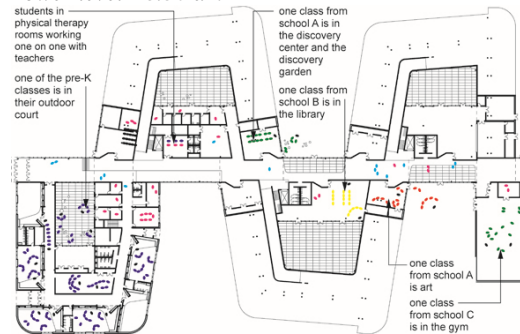
#### Upper level - 8:30 am



#### Upper level - 3:30 pm



#### Lower level - 8:30 am



#### Lower level - 3:30 pm

## FINDING PURPOSE

### In-class Exercises

#### Game: Composite Picture

Think of situations where you were really excited to learn.

Work together to develop a picture of an ideal learning space: each person gets 30 seconds, then has to pass the paper to the next person. Envision actual places and take notes describing one vivid place. Try to completely fill the page in 20 minutes. It doesn't have to be a traditional school. It can be outdoors, a museum, a workshop, etc.

>> Be ready to describe a specific place, lesson, assignment or project that worked well for you.

#### Survey

Discuss this, Turn in the answers to the instructor

1. What I really want to work on learning this year is ....
2. I have a strong background in ....
3. I know how to \_\_\_\_\_ really well because .... (describe how you learned it)
4. I know how to use \_\_\_\_\_ software because .... (describe how you learned it)
5. My favorite place in Eugene is \_\_\_\_\_ (explain

#### Start a blog

<http://blogs.uoregon.edu/> Find one example of an inspiring learning space. Post a link to it on the course blog, <http://blogs.uoregon.edu/arch586s16> and explain what aspects inspire you.