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PROJECT 1: A light sculpture: One of three projects for the semester

***DUE DATE: TBA***

The goal of the of the semester is to develop an understanding of how Geometry relates to Concept and to a lesser extent Space Planning. In addition can architecture learn from nature and be used to “repair the world”. The semester will use geometric models and drawing exercises that will build in complexity as the semester goes on, to develop an enriched understanding of how form can create meaning in its bending and transforming of light through the manipulation of mass.

* *Developing methods of design exploration and establishing a disciplined design process*
* *Understanding the relationship between Concept, Geometry, and the Planning/Organization of Space*
* *Develop an understanding of architectural concepts regarding material and structure*
* *Develop a way to analyze and abstract the “natural” world into form*

Brief:

1. This first part/third of the semester will be to design a Light Sculpture for the Western Sunset and the Pacific Ocean at Fort Funston in San Francisco.
2. Note that the second part of the semester will be to create a viewing platform
3. and then an environmental interpretive and learning center with the addition of a dog park and dog friendly café.

While designing the light sculpture and then the viewing platform, keep the final part of the semester in mind. The purpose of this first project is to explore the relationship of form to site. We will visit Fort Funston and develop a sketch book of the area in terms of flora and fauna, foliage and form of the cliffs, stands of trees etc. We will also develop a full analysis of specific natural phenomenon chosen by each student and develop structural models and drawings that interpret these natural phenomena.

The light sculpture will be required to both excavate at least 40’ into the site as well as rise above the site by 40’. The model should use basswood, plastic (do NOT use balsa wood in this class) chipboard, parchment or other materials. Use at least 7 different geometric elements to create the light sculpture (to help create complexity in regard to how light is projected and filtered) Note that the missile batteries along the California coast both lower down into the earth and rise above. This first assignment, however, will not have “program” per say.

The purpose of this first project is to introduce and explore the ways in which space is generated and construction is manifested within the context of an adaptive or morphogenic ecology.

*In* [*developmental biology*](https://en.wikipedia.org/wiki/Developmental_biology)*, a* ***morphogenetic field*** *is a group of* [*cells*](https://en.wikipedia.org/wiki/Cell_%28biology%29) *able to respond to discrete, localized* [*biochemical*](https://en.wikipedia.org/wiki/Biochemical) *signals leading to the* [*development of specific morphological structures*](https://en.wikipedia.org/wiki/Morphogenesis) *or* [*organs*](https://en.wikipedia.org/wiki/Organ_%28anatomy%29)*.*[*[1]*](https://en.wikipedia.org/wiki/Morphogenetic_field#cite_note-MBOC-1)[*[2]*](https://en.wikipedia.org/wiki/Morphogenetic_field#cite_note-2) *The* [*spatial*](https://en.wiktionary.org/wiki/spatial) *and* [*temporal*](https://en.wiktionary.org/wiki/temporal) *extent of the embryonic fields are dynamic, and within the field is a collection of interacting cells out of which a particular organ is formed.*[*[3]*](https://en.wikipedia.org/wiki/Morphogenetic_field#cite_note-Gilbert_1996-3) *As a group, the cells within a given morphogenetic field are constrained: thus, cells in a limb field will become a limb tissue, those in a* [*cardiac*](https://en.wikipedia.org/wiki/Cardiac) *field will become heart tissue.*[*[4]*](https://en.wikipedia.org/wiki/Morphogenetic_field#cite_note-Gilbert_2003-4) *However, specific cellular programming of individual cells in a field is flexible: an individual cell in a cardiac field can be redirected via cell-to-cell signaling to replace specific damaged or missing cells.*[*[*](https://en.wikipedia.org/wiki/Morphogenetic_field#cite_note-Gilbert_2003-4)

*How does the sculpture react to the sky?*

*How does it react to the west, the east , the north and the south*

*How does it react to its “impact crater” ?*

*How does it react to the people that will use it?*

Designing the light sculpture will be used as the conceptual origin for this semester’s investigations. You will each create a ‘light sculpture’, as a way to explore site and interact with natural light. Through your interpretation of its spatial configuration and material possibilities, your light sculpture will open an incredibly rich and dense space that references many spatial qualities, geometry, structure, and reaction to site to be utilized in your final design project (later on this term). In summary, the light sculpture’ will double as a device model to generate ideas for your subsequent project in this course.

In the first week *(see syllabus and instructor for due dates)*, you will analyze the natural phenomenon evident at Fort Funston and, yes, the Pacific Ocean, on both a macro and micro scale depending on your discussions with the instructor (Dave Kesler) and your research in local ecologies. You will create several iterations of Light Sculpture the beginning with one beginning approximately 12”x12”x12” in scale. Each iteration will define an underlying order.

Drawings – the same for all three projects

1. 4 sections minimum – longitude and latitude
2. Elevations – at least 4
3. 2 plans minimum – Site plan, Floor plans
4. 4-6 black and white photos (one sheet) of model
5. At least 4 perspectives developed from photos of models and digitally as you are able
6. Presentations should be on Photoshop and designed as part of the overall critique in keeping with the concept
7. Concept Sheet telling the story of your work in visual and written form beautifully presented

Benchmarks: (Tuesdays are group review and work days- progress will count towards final grade; Thursdays are typically class work days (bring materials both days)

Week 1- introduction and begin gather materials; (go to the library and internet and research morphogenic phenomenon- 3 examples to be studied) – basically learning to abstract changing natural systems and, yes, virtually all natural systems change over time.

Week 2- Due minimum of 1 abstractions of natural phenomenon in both model form and drawing form- critique of concepts and drawings

Week 3- Further critique and analysis and re-design- due second iteration

Week 4- Due 3rd iteration – further focus on the site placement

Week 5-Presentations in plan and sections in pencil, charcoal, ink, or digitally generated

**Presentation Deliverables:**

1. Site plan with morphogenic patterning of light sculpture scaled up and down to describe densities
2. Floor plans
3. Elevations
4. 12”x12” model
5. Site analysis
6. Watercolor work – perspectives and analysis of site phenomenon

**Project 2**

Week 6 – Introduction and Development of ramping and viewing platform

1. The ramp must be code compliant and grow from the site mapping

Week 7- new models that hopefully will evolve the light sculpture or in some way learn from the light sculpture

Week 8 – Elevations and section developments

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**Week 9- Mid-term presentation**

Week 10 – Introduction to the Ecological Learning Center project

Week 11 – First sketch review – concept development – Adaptive Ecological/Bio-mimesis

Week 12- Concept development – in model form and sketch form

Week 13- First translation models from Concept Addaption/ideas to form

Week 14- development of sections and elevations – Model developments

Week 15 – glazing systems and enclosure systems

Week 16 -further critique and presentation techniques and expectations

Week 17- Final critiques and improvements of entire presentation and production sequence

Week 18- Presentation

After successful completion of this course, students will be able to:

* Outcome 1: Create architectural solutions to set of project requirements
* Outcome 2: Evaluate a proposed architectural solution against project requirements
* Outcome 3: Analyze and communicate design process visually, orally, in writing, and models (hand and digital)
* Outcome 4: Use a 2D and 3D architectonic language that responds to site, program, materials and structure
* Outcome 5: Understand how architects create sets of functional and expressive spaces

Project 3 Ecological Learning Center and Museum – Program – 12,000 square feet total – 30 SF per person for exhibit areas- see table

1. Lobby entry
   1. At least double height in space
   2. Allow for reception counter
   3. Waiting area
   4. Coat room
   5. Bookstore
   6. Bathrooms
2. Exhibit area
3. Wall exhibit
4. Floating fixture exhibit
5. Outdoor exhibit
6. Childrens play area and exhibit
7. Café
8. Indoor and outdoor seating
9. Kitchen
10. Music area
11. Internet café
12. Farmers market area
13. Working farm (fruit grove, herbs, berries) -outside landscape area
14. Library and seed library
15. Ecohouse tour (the museum itself)
16. Climate Action exhibit and meeting rooms
17. Lecture Room