Department: 12 Design

Course title: BIOMIMICRY AND “NATURAL” DESIGN PROCESSES

Hours per week (SWS): 4

Number of ECTS credits: 6

Course objective:
- Develop observational skills in drawing, photography, and modeling
- Are introduced to basic premises of Biomimicry
- Complete research exercises and transfer them into practical contemporary examples of Biomimicry in the fields of science, medicine, architecture, and technology
- Conduct observational research during field-trip walks which is applied to drawings, brainstorming and problem formulation
- Develop proposals for biologically modeled functions/structures in contemporary manufacturing/building, etc.
- Present final presentations combining their research and development into a product/process proposal

Prerequisites: none

Recommended reading:
- The Biomimicry Institute- Biomimicry.org
- Benyus, Janine M.: Biomimicry-Innovation Inspired By Nature
- Harman, Jay: The Shark’s Paintbrush:Biomimicry and Human Innovation
- Heidegger, Martin: Being and Time
- Miller, Sara Cedar: Central Park, An American Masterpiece
- Oelschlaeger, Max: The Idea of Wilderness, From Prehistory to the Age of Ecology
- Shepard, Paul: Nature and Madness

Teaching methods: Lecture, Weekly Readings and Class Discussion, Student Presentations, and Group Projects

Assessment methods: Weekly student assignments (visual and written), research, class presentations, final project

Language of instruction: English

Name of lecturer: Matthew Burnet (Fellow of Department 09)

Email: burnettm@canton.edu

Course content:

Biomimicry

1. Nature as model. Biomimicry is a science that studies nature’s models and then takes inspiration from these designs and processes to solve human problems (for example: Velcro was modeled on Burdock)

2. Nature as measure. Biomimicry uses an ecological standard to judge the “rightness” of innovations. After 3.8 billion years of evolution, nature has learned “what works” “what is appropriate” and “what lasts.”

3. Nature as mentor. Biomimicry is a way of viewing and valuing nature. It is a way of focusing not on what we can extract from nature but what we can learn from it. (Benyus, 1998)

In this course students will be introduced to the perspectives of Biomimicry as a design approach. From demonstrations and field excursions, students will develop sketches and concepts drawn from natural structures and processes. Following research of historical and contemporary examples of Biomimicry, the course will conclude with each student developing potential products and applications from their observations and research.

Remarks:
Matthew Burnet is a Fellow of Department 09 during SS 2017