

ARCH 410 / 510 Fall 2018: 8:00-9:50am Tues in 405A LA & Thurs in 283M LA
10462 /10545, 4 credits - **meets Advanced Technology requirement**
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BIOMIMICRY & PARAMETRIC DESIGN

forms, processes and systems for performance

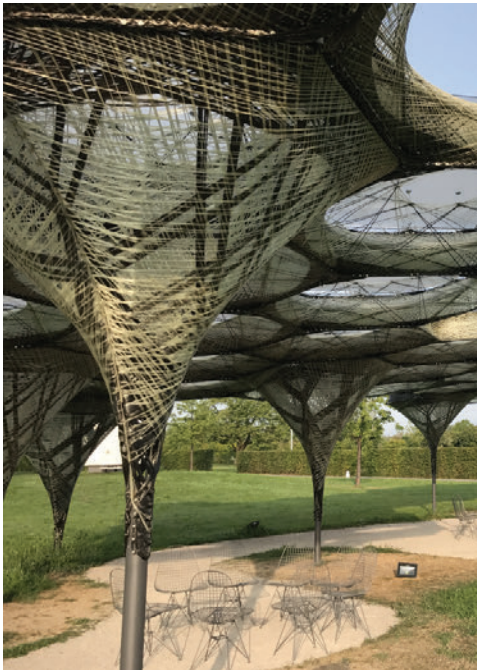


photo credits: Institute for Computational Design and Construction, University of Stuttgart, Akio Hizume, ASU 2009 Solar Decathlon House

How do weeds thrive and multiply through rain, sleet, hail, and drought? Well-adapted to a wide range of temperature and moisture, they have mechanisms to sow seeds and send out roots that survive chopping to sprout new plants. A location's topography, soils and microclimate create a particular kind of environment where certain plants and animals can thrive. By examining the how a local organism's structures, processes and systems mediate environmental challenges, and abstracting underlying principles, we can discover new possibilities for environmental design.

This class will examine how natural organisms can be models for environmental design using Biomimicry 3.8 principles and morphogenetic parametric design. Students will study how designers have used natural models to generate building systems and environmen-

tally responsive constructions. Students will examine how exterior skins work as environmental mediators, how to simulate efficient natural structures and how growth processes generate form.

Rhinoceros & Grasshopper software will be used to model natural forms, articulate relationships and processes and assess building performance. Students may address the Biomimicry Design Challenge on climate change or create a physical installation.

Class sessions will include presentations, hands-on software sessions, and discussions of readings and homework. Grad students will present about a design process they find inspiring.

Pre-requisites: core studios, ARCH 4/591, ARCH 4/592 or permission of the instructor. Students must have a computer with Rhino running on Windows.

blogs.uoregon.edu/bioform