

School of Architecture | College of Architecture | Georgia Institute of Technology

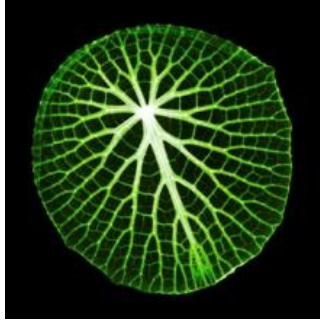
## ARCH 4227/4227 : Architecture & Ecology

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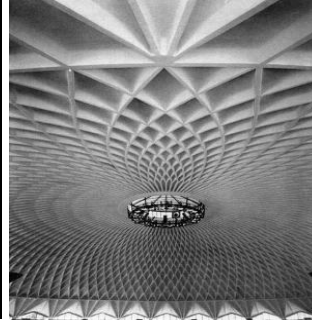
Summer 2012 | Monday-Thursday 1:30-3:20 CoA West Rm. 260 | 3 credit hours



human traces in nature  
Aristippus recounted by Vitruvius



giant Amazon water lily  
a biomimetic design inspiration for



the Palazzetto della Sport  
Pier Luigi Nervi, Rome, 1956-60



SOFT Blimp Bumper Bus  
Mitchell Joachim / Terreform, 2011

**course objectives & student learning outcomes** | This course provides an introduction to ecological design theory, research, and practice in architecture, including related writings, criticism, and analyses of buildings and projects. Its goal is to help students gain an interdisciplinary understanding of the dynamic interactions between the natural and built environments, and the diverse and often-overlooked ways that ecological architecture can and should operate on them—ones of exceptional importance and design opportunity. Many different kinds of ideas and scales of practice are considered, drawing from many fields of expertise, including the instructor's own in the areas of social and ecosystem theories and their applications in architectural practice. Throughout the course our central question is: how can our understanding of nature and architecture as open, interconnected and co-evolving systems lead to better research, design, and building approaches for producing more environmentally-just and -performative outcomes for our planet?

Students develop a range of *knowledge, skills, and experience* during the course:

- *ability* at case study research investigating/communicating implications of key works of ecological architecture
- *understanding* of the related ideas of ecology & architecture, their historical construction & embedded values
- *understanding* of dynamic interactions between natural & built environments and their implications for design
- *understanding* of key global paradigms of ecological architecture—their arguments, values/ethics & impacts
- *understanding* of eco-design research methods and *ability* constructing/communicating new lines of research

**course procedure & organization** | The course is structured as a seminar with lectures by the instructor and guests followed by presentations of readings by seminar members and follow-up discussions. *Part I* explores the ideas and models of ecology and architecture and ways they have been historically-constructed as a function of dominant societal beliefs and values of *nature* and *culture* embedded in them. *Part II* examines the nature of the interactions between natural and built environments and how design practices operate and impact within them and could in the future (e.g. *sustainable* vs. *regenerative design*). *Part III* engages the lessons of key global paradigms of ecological architecture and shifts between their theories and practices—traditional, 'green', and more radical technologies—through case study research. *Part IV* investigates ecological architecture as a range of other emerging types of interdisciplinary research practice including quantitative- and qualitative-performance types (e.g. spatial/GIS, biomicry, etc.). *Part V* involves seminar members constructing and communicating speculative, interdisciplinary lines of ecological architecture research resulting in proposals of new environmental design principles & applications.

**course requirements** | Students are expected to attend class regularly, read assigned materials, prepare assigned presentations, and participate actively in class discussions. Grades are weighted as follows: attendance/participation/reading presentation (25%), midterm exam (25%), case study research/Powerpoint presentation (25%); line of future ecological architectural research paper/presentation (25%).

**course readings** | There is no required textbook for the course. Pdfs of the required readings are provided by the instructor on the course T-Square site. An extensive bibliography and list of useful websites and recommended supplemental readings are also provided.