

ARCH V3312**SPECIAL TOPICS: ARCHITECTURE, NATURE AND TECHNOLOGY**

Monday and Wednesday 1:10Pm – 3:00Pm / Location: Diana Center LL104

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Ron Herron, *Walking City* (1964); Agnes Denes, *“Wheat Field – A Confrontation”* (1982); Image from *Ecological Urbanism* (2010).**ARCHITECTURE, NATURE AND TECHNOLOGY**

There is no sense of nature, of human subjectivity, of the body (nor are there even concepts of sustainability and ecology) that can be thought of outside of, or separable from, ever more technologized societies and social relations. – Damian White and Chris Wilbert¹

More than half of the world’s population now lives in cities and this number continues to grow. Through technological means, we have expanded the site, reach and pace of human habitation. At the same time, we have seen profound transformations in the natural cycles and structures around us. Think, for instance, of recent super-storms (Sandy in 2012 or the 2011 earthquake and tsunami in Japan); or irreversible changes in vegetation; or extreme weather patterns. The rapid urbanization and corresponding environmental transformation – if not crisis – point to the need to rethink the physical footprint of our society. As tensions between development and available resources escalate, we must re-examine our assumptions and attitudes towards both nature and technology.

This seminar maps changing relationships between nature and technology or, in a wider sense, nature and culture. We will look at architecture and urbanism as sites that explore the contested yet constructed boundaries between nature and culture and trace the genealogy of recent ideas emphasizing environmental awareness and responsibility. We will address current conditions and future possibilities through the double framework of nature and technology and ask, what is the role of architecture? Can we respond as designers?

HAZARDOUS CONCEPTS

The history of Western thought reveals diverse attitudes towards nature, as well as diverse ideas of nature. While attitudes range from the romantic to the imperial, ideas of nature include: Nature as Divine Order; Nature as organic; Nature as the Great Machine; or Nature as the Biosphere. Seeking to describe “nature’s economy,”² these models are constructed and mediated by a myriad of cultural, philosophical, political and social factors.

Similarly, technology is a complex term. A relatively new word, it gained popular usage in the early part of the twentieth century. In the form of tools or instruments, technology provides the ability to explore, discover, quantify and understand

¹ See *Technonatures*, ed. By Damian White and Chris Wilbert, 6.

² Concept dates back to 18th C Swedish botanist Carl Linnaeus. See Donald Worster, *Nature’s Economy*.

nature. Yet it also enables the transformation of the wilderness and the creation of human settlements, and thus negotiates the boundary between city / country, or urban / rural. Like nature, technology is a reflection of cultural and social values. It denotes not only specific objects (tools, mechanisms, etc) but also larger ideas— such as processes of innovation, progress and modernization. In the words of historian Leo Marx, technology is a “hazardous concept”³ precisely because it is endowed with agency and historical determinism and therefore appears to subsume human decisions and intentions.

Extending Marx’s definition, we can say that both nature and technology are “hazardous concepts” – at once disarmingly obvious yet veiled, changing and charged in their implications. We will explore the conceptual ramifications of these terms and treat nature and technology as mutually-dependent and entangled.

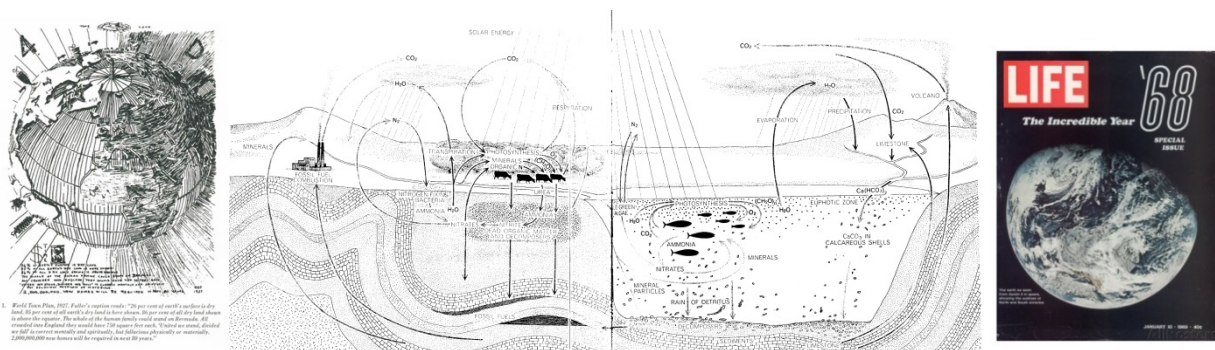
TECNO-NATURES⁴

Though environmental concerns are not new to architectural discourse, calls for an urgent disciplinary realignment have intensified. Yet there remains a void in both ideas and consensus. The concept of “green,” sustainability and LEED have offered only myopic solutions and are still quite removed from daily architectural practice. Despite no lack of imagination, sustainability remains a concept limited in scope and deals primarily with the single building.

In this seminar we will go beyond the architectural object and look at larger scales – and ideas – of human development and habitation. Focusing on the latter half on the twentieth century, we will study architectural and urban interventions in relation to technological, ecological, cultural, political, social networks and events. We will follow the provocation that the co-joining of nature and technology will open up new ways of thinking about the present and the future.

The period following World War II heralded a period of unmatched technological advancement, as well as optimism and exuberance. The development of the atomic bomb (dropped over Hiroshima in 1945) expanded man’s reach into the depths and limits of nature and showed both the promises and dangers of technology. It also, ironically, gave birth to the Age of Ecology. Later events such as the 1979 oil crisis and the 1989 Chernobyl nuclear accident, or the exponential environmental contamination in China and other rapidly developing economies have brought into sharper focus the relationship between technological development and the natural environment.

We will study past and current theories, projects and projections and explore their implications on the architectural discipline as a whole.



Buckminster Fuller, World Town Plan (1927); “The Biosphere,” Illustration by Evelyn Hutcheson (1972); Cover of *Life Magazine*, 1968, showing first view of the earth.

³ Leo Marx, “Technology: The Emergence of a Hazardous Concept,” 577.

⁴ See *Technonatures*, ed. By Damian White and Chris Wilbert.

CLASS FORMAT:

This class will combine a research-based seminar and a hands-on workshop. On Mondays, we will meet in a seminar format. On Wednesdays, we will meet in a studio format. As in a seminar, students are expected to present their research to other students, complete readings, and contribute to group discussion. As in a studio, students are expected to produce works of original research and analysis, and receive feedback through desk crits, pin-ups and reviews.

In the seminar, we will study primary and secondary texts, as well as projects. Topics will include: the notion of the wilderness; the machine aesthetic; technological utopias; urban networks; and ecologies, among others. We will also have several in-class guest speakers. In the workshop, we will undertake active research projects and develop critical ways of synthesizing, representing, and communicating multi-dimensional information. We will focus and expand on graphic techniques using the Adobe Suite programs, among others.

The assignments will be as follows:

- Project 1: Hybrids: A Contemporary Archive
 - Bi-weekly blog and (brief) presentation, documenting current intersections between nature and technology
 - Blog entries will critique contemporary images, language, and/or clichés relating to nature / technology
- Project 2: Utopia or Oblivion
 - Research project into utopias, technologies and environments of the 1960s; to be presented as visual narrative and short paper
- Project 3: What If?
 - Final project will be an analytical and explorative investigation into contemporary sites and technologies;
 - Final product will be graphic board (poster) and video/podcast.

COURSE REQUIREMENTS:

Readings and Assignments: You are required to complete the assigned readings and projects, in advance of each class session. All readings and information will be posted on Courseworks. (Refer to the Syllabus section on Courseworks for access to pdf of the readings). Each assignment will outline requirements for submission and deadlines. With the exception of prior approval due to extenuating circumstances, no late assignments will be accepted without a late penalty (1 letter grade drop per each 24 hrs).

Attendance: Attendance is mandatory at all scheduled classes. Please be on time, as late arrivals will be disruptive. The only excused absences are those for reasons of documented health or crisis issues and must be approved in advance. Unexcused absences, late arrivals, or early departures from class will reduce your course grade. Students with excessive unexcused absences will see a reduction in their final grade (one third letter grade for each unexcused absence, starting with the third one). Please let me know ahead of time if you know you will have to miss class.

Class Participation: Thoughtful class participation is essential. If you are not comfortable with speaking in class, please come to see me and discuss others ways to contribute.

GRADING:

Attendance / Class Participation	15 %
Project 1	10 %
Project 2	30 %
Project 3 / Final Project	45 %

LEARNING OBJECTIVES:

1. Visually communicate architectural concepts and research using discipline-specific techniques
2. Work independently and in collaborative groups on design research projects
3. Verbally and visually communicate architectural concepts in multiple media formats
4. Understand historical and theoretical context for the course material
5. Utilize multimedia techniques, at an advanced level, to present research and a final project on a concise thesis

OFFICE HOURS: Monday, 3:15pm-4:00pm (Diana 500H), by appointment

COURSE OUTLINE AND SCHEDULE:

Week 01: Introduction

- Wed Jan 21 Introduction
Required Readings: - Beth Gardiner, "We Are All Climate-Change Idiots"
- Mark Jarzombek, "Sustainability: Fuzzy Systems and Wicked Problems"

Week 02: Technology

- Mon Jan 26 Discussion Technology, Modernization, Innovation
Required Readings: - Leo Marx, "Technology: The Emergence of a Hazardous Concept"
- Marshall Berman, "Goethe's Faust: The Tragedy of Development," 37-41; 60-86.
- Bruno Latour, "Love Your Monsters"
Further reading: - Patrick Geddes, "Paleotechnic and Neotechnic"
- Wed Jan 28 Work session Introduce Project 1, Project 2

Week 03: Nature

- Mon Feb 2 Discussion Nature, Wilderness, Modernization
Required Readings: - William Cronon, "The Trouble with Wilderness: Or, Getting Back to the Wrong Nature"
- Timothy Morton, "Natural History Lessons" in "Introduction," *Ecology Without Nature* (pp. 14-21)
- Donald Worster, "Healing the Planet," from *Nature's Economy* (pp. 342-387)
Further reading: - Ariane Lourie Harrison, "Charting Posthuman Territory" in *Architectural Theories of the Environment*
- Wed Feb 4 Guest speaker *Ariane Lourie Harrison*

** Saturday, February 9th – 1pm to 7pm: *SKL Water Symposium*, organized by the Architectural League and The Cooper Union Institute for Sustainable Design.

Week 04: Ecology

- Mon Feb 09 Discussion Ecology; eco-sophy; environmentalism
Required Readings: - Barry Commoner, "The Ecosphere" in *The Closing Circle*
- John McHale, "The Ecological Context" and "Ecological Redesign" in *The Ecological Context*
- Moshen Mostafavi, "Why Ecological Urbanism? Why Now?" in *Ecological Urbanism Reader*
Further reading: - Felix Guattari, *The Three Ecologies*
- Damian White and Chris Wilbert, "Introduction," *Technonatures*
- Wed Feb 11 Work session Project 2

Week 05: Machines

Mon Feb 16	Discussion	Tabula Rasa; Machine aesthetic; Spaceship earth; systems; grid vs. spine
	Required Readings:	- Le Corbusier, "The City of Tomorrow and Its Planning" - Buckminster Fuller, <i>Operating Manual for Spaceship Earth</i> , 7-63 - Banham, Reyner. "Functionalism and Technology"
	Further reading:	- Frank Lloyd Wright, <i>The Disappearing City</i> , excerpt - Ludwig Hilberseimer, <i>Nature of Cities</i> , excerpt (pp. 257-286)
Wed Feb 18	Guest speaker	<i>Jannette Kim</i>

Week 06: Machines, Hybrids, Cyborgs

Mon Feb 23	Discussion:	Human/non-human; robots; cyborgs; cybernetics; information
	Required Readings:	- Manuel De Landa, <i>War in the Age of Intelligent Machines</i> , excerpt - Catherine Ingraham, "Introduction," <i>Architecture, Animal, Human: The Asymmetrical Condition</i> - Norbert Wiener, "Information, Language, Society" in <i>Cybernetics, or Control and Communication in the Animal and the Machine</i>
	Further reading:	- Donna Haraway, "A Cyborg Manifesto" - Bruno Latour, "Crisis" and "Relativism" in <i>We have Never Been Modern</i>
Wed Feb 25	Work session	Project 2

Week 07: Project 2 due

Mon Mar 02	Project 2:	Presentations
Wed Mar 04	Project 2:	Presentations; Introduce Project 3

Week 08: Networks

Mon Mar 09	Discussion:	Networks; information
	Required Readings:	- Manuel Castell, "Space of Flows, Space of Places: Materials for a Theory of Urbanism in the Information Age" - Gilles Deleuze, "Postscript on the Societies of Control"
	Further reading:	- Erik Swyngedouw, "Circulations and Metabolisms" - Manuel De Landa, "The Nonlinear Development of Cities"
Wed Mar 11	Guest speaker	<i>Lydia Kallipoliti</i>

Week 09: No class

Spring Break

Week 10: Urban Flows

- Mon Mar 23 Discussion: Water; urban waste; transportation; physical / digital infrastructure
Required Readings: - Andrew Blum, *Tubes*, *excerpt*
- Matthew Gandy, "Water , Space and Power" in *Concrete and Clay*
- Reyner Banham, *Los Angeles: The Architecture of Four Ecologies*, *excerpt*
Further reading: - Mathew Gandy, "New York" in *Recycling and the Politics of Urban Waste*
- Wed Mar 25 Film Screening *Forgotten Spaces* by Alan Sekula

Week 11: Land / Density

- Mon Mar 30 Discussion Lawns; parks; land; territory; density; suburbia
Required Readings: - Rem Koolhaas, "Parc de la Villette" in S,M,L,XL
- George Teyssot, "The American Lawn: Surface of Everyday Life"
- "5KL: Land / Land, Climate, and Culture," conversation between Rebecca Solnit and Cassim Shepard (video)
Further reading: - Ian McHarg, *Design with Nature* , *excerpt*
- Charles Waldheim, "Landscape as Urbanism" in *The Landscape Urbanism Reader*
- Wed Apr 01 Work session Project 3

Week 12: Science, Policy, Politics

- Mon Apr 06 Discussion Science and policy; political ecology
Required Readings: - Greg Asner, "Ecology from the air" (TED talk)
- G. Evelyn Hutchinson, "The Biosphere"
- Bruno Latour, "Why Political Ecology Has to Let Go of Nature"
Further reading: - Copenhagen Accord, Draft Decision
- The *Economist's* "Climate Science, A Sensitive Matter"
- Mason Inman, "Carbon Is Forever"
- Wed Apr 08 Works session Project 3

Week 13: Activism / Ethics

- Mon Apr 13 Discussion Activism; ethics; climate change; climate justice; social justice
Required Readings: - Rachel Carson, *Silent Spring*, *excerpt*
- Bill McKibben. *The End of Nature*, *excerpt*
- Naomi Klein, "Capitalism vs. the Climate"
Further reading: - Naomi Klein, "How Science is Telling Us All to Revolt"
- Ulrich Beck, "Social Inequality and Climate Change"
- Wed Apr 15 Work session Project 3

Week 14: The Future

Mon Apr 20 Discussion Future scenarios; apocalypse; eco-cities; design
Required Readings: - Mitchell Joachim, "Envisioning Ecological Cities"
- Melissa Lane, "Sustainable Citizenship"
- Donella Meadows, *The Limits to Growth*, excerpt
Further reading: - John McHale, *The Future of the Future*, excerpt
- Gus Speth, "A Vision of America the Possible"
- Eric Swyngedow, "Apocalypse Forever? Post-political Populism and the Spectre of Climate Change."

Wed Apr 22 Work session Project 3

Week 15: Work session

Mon Apr 27 Work session Project 3

Wed Apr 29 Work session Project 3

Week 16: Conclusions

Mon May 04 Presentations

** Note: Dates and readings may be adjusted. Stay tuned for announcements in class.

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OTHER RESOURCES:

The Architectural League of New York. The 5000lb Life Programming. <http://archleague.org/2013/11/the-5kl-reader/>

The Breakthrough Institute: <http://www.thebreakthrough.org>

Rebuild by Design: <http://www.rebuildbydesign.org/>

World Bank Data, Climate Change: <http://data.worldbank.org/topic/climate-change>

Yale Environment 360: <http://e360.yale.edu/>