

GCL 127 • University of Illinois, Urbana-Champaign  
Fall 2015 • MW 2-3:20 PM  
Instructor: Dr. Jennifer Burns  
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## **Design Across the Disciplines: Historical and Philosophical Perspectives**

"In many ways, the environmental crisis is a design crisis. It is a consequence of how things are made, buildings are constructed, and landscapes are used. Design manifests culture, and culture rests firmly on the foundation of what we believe to be true about the world. Our present forms of agriculture, architecture, engineering, and industry are derived from design epistemologies incompatible with nature's own."

—Sim van der Ryn, *Ecological Design, Tenth Anniversary Edition* (2007)

"...Environmental crisis is a broadly cultural issue, not the property of a single discipline....For technological breakthroughs, legislative reforms, and paper covenants about environmental welfare to take effect, or even to be generated in the first place, requires a climate of transformed environmental values, perception, and will. To that end, the power of story, image, and artistic performance and the resources of aesthetics, ethics, and cultural theory are crucial."

—Lawrence Buell, *The Future of Environmental Criticism* (2005)

### **DESCRIPTION.**

Implicit in the way we have cultivated our fields, built our homes, disposed of our trash and planned our highways is a philosophical view of the human being who stands separate from and in control of our environment. Some trace this philosophy to Genesis 1:26-28, where human dominion over the earth and all its living creatures is asserted. Instead our philosophical history will begin in the 18<sup>th</sup> century, when the scientific attempt to understand and control nature becomes directly harnessed to widespread technological and industrial development, and the romantic view of nature as pastoral escape is given its modern articulation. We will critically examine the ideas of early thinkers such as Goethe, Thoreau, John Muir, John Wesley Powell, and Aldo Leopold, subsequently turning to more contemporary voices such as Val Plumwood, Masanobu Fukuoka, and Vandana Shiva.

The emerging philosophy of sustainable growth not only reconceives the relationship between humans and environment, but provides a comprehensive framework that can be used to orient and guide choices from how we grow our food and obtain fresh water to how we build, live, socialize and make a place for the next generation. In this interactive, experiential class we will consider sustainability as a set of philosophical principles that can be used to guide practice across a number of design disciplines, including agriculture, architecture, product design and urban planning. Although the fields we consider are diverse, the class remains focused upon the core framework of systems thinking, which we define as the ability to perceive our environment as a set of interconnected, recursive systems. While the class is conceptually challenging in that it asks students to comprehend human values as they are embedded in products and plans, it provides many opportunities to wrestle with these ideas in specific, tangible forms through a series of field visits in our local area to see sustainable agriculture, design, building and infrastructure in action. Each class session will involve students in a combination of learning activities, group discussions, and team projects that will be collected in an e-portfolio so that students can track the development of their understanding across the semester. Throughout the course, instructor and students will work to synthesize these diverse experiences into a philosophical framework that can guide successful design practice in a number of fields.

#### STUDENT LEARNING OUTCOMES.

- *Intellectual Reasoning and Inter/Disciplinary Knowledge:* Grand Challenge Learning is inevitably interdisciplinary, not only because the challenges facing humanity are considered within a variety of disciplinary viewpoints, but more importantly because people in all disciplines and walks of life will be needed to address these challenges successfully. We will employ the philosophy of sustainability as a unifying framework that allows students to analyze problems critically and creatively across multiple design domains, from agriculture to urban planning, and to integrate these diverse domains into a coherent, multi-layered vision of sustainable design.
- *Global Consciousness:* Grand Challenge Learning questions are necessarily global, addressing issues that impact humans at every level of scale, from the local and regional all the way up to the planetary. Participation in this course will enable students to perceive sustainability challenges present at all of these levels. and to consider the level at which their projects will intervene.
- *Creative Inquiry and Discovery:* In this class, both teacher and students are inquirers, working to discover significant patterns in our surrounding environment and to create design practices that will work with those patterns instead of

against them. Students should not expect to be presented with pre-existing knowledge but rather to take an active role in constructing the systems and models that the course will generate.

- *Systems Perception*: In the sustainability framework we will be exploring in this class, humans and environments do not stand separate from each other; rather, our fates are tightly interlinked. Our species' imagined autonomy has led us to make significant environmental changes without awareness that solutions in one location may create problems in another. Students will construct visual/textual models of this interconnected web.

#### REQUIRED TEXTS.

All course readings will be available in .pdf format through our Library e-reserves.

#### REQUIREMENTS + RELATIVE WEIGHT OF COURSE ASSIGNMENTS

- *Participation* is the heart and soul of this experiential course. In addition to our off-site trips, every class session will contain participatory activities and group conversations. All students must attend each class with readings and assignments prepared, ready to contribute to our group efforts to understand and envision sustainable design. If you are unable to attend a specific class session, you must email the instructor ahead of time so the group is notified that you will not be present.
- *Reflection Paper*. After each trip, students will be asked to write a 2-3 page double-spaced paper, choosing a concept from the course readings and showing how it was confirmed and/or challenged, extended and/or undermined, by the field experience. As part of this assignment, you will read and comment on the papers of 3 other students through the peer review system in Scholar.
- *Final Project*. Students will work in teams of 4 to write, storyboard, produce and edit a Public Service Announcement of 30 seconds. Each team will choose an appropriate subject in consultation with the instructor.

Participation	35% (includes 10 1-page papers)
Reflection Paper (4 total)	10% each (includes 3 peer reviews)
Public Service Announcement	25%

#### PUBLIC SERVICE ANNOUNCEMENT (30 SECOND FILM)

- *Research*. Choose a specific, narrow topic related to sustainability. Your group will decide upon an appropriate topic over several sessions with input from the instructor, and you will research the current state of knowledge on this topic, which will be turned in. (5%)

- *Script*. 30 Second PSA. Aim for 5 to 7 concise, direct facts presented in support of a final message. Audience: college students and university community. Your script will be turned in. (5%)
- *Storyboard*. Each fact that you present will need to be dramatized visually. What is the audience seeing? All of this gets planned before production in a storyboard. (5%)
- *Production*. Not graded.
- *Editing*. Not graded, but you will screen your rough cut for the class in order to get responses, feedback, and constructive criticism.
- *Final Cut*. (10%)

#### GRADING POLICIES + PROCEDURES.

Grades are assigned numerically throughout the semester, and translated to a letter grade at the end of the course, using the scale listed here.

A+	97-100	C+	77-79
A	93-96	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	65-66
B-	80-82	F	64 or below

#### COURSE POLICIES & PROCEDURES.

1. To insure that disability-related concerns are properly addressed from the beginning of semester, students with disabilities who require assistance to participate in this class as asked to speak with me as soon as possible, either after the first class session or by appointment. For more information on accommodations, please see: <http://www.disability.illinois.edu/academic-support/accommodations>.

2. Plagiarism is the representation of another person's ideas, work, or words as your own. It carries severe penalties, ranging from automatic failure of an assignment to automatic failure of the course. It is prohibited by the Illinois Student Code ([http://studentcode.illinois.edu/article1\\_part4\\_1-401.html](http://studentcode.illinois.edu/article1_part4_1-401.html)), which you are responsible for reading and understanding. If you have any questions about these rules or about how to apply them appropriately in your work, please ask the instructor immediately. For a thoughtful and detailed discussion of what plagiarism is and how to avoid it, please read: <http://www.northwestern.edu/provost/policies/academic-integrity/how-to-avoid-plagiarism.html>

## OUTLINE OF COURSE TOPICS + ASSIGNMENTS

### PT I: Philosophical Perspectives on Environment

#### **M August 24      Course Introduction**

Learning Activity: working with a partner, work to construct a definition of nature (and decide on examples selected from instructor-provided list).

Introduction of Scholar platform for e-portfolio: Create personal profile and represent nature definitions and divisions from learning activity. Today's work will represent our baseline understanding for the course.

#### **W August 26      Divergent Conceptions of Nature**

Core reading:

Henri BORTOFT, "The Possibility of a New Science of Nature," in *The Wholeness of Nature: Goethe's Way toward a Science of Conscious Participation in Nature*, (Albany: State University of New York Press, 1998): 321-330.

Additional reading:

Carolyn MERCHANT, "The Rise of Ecology, 1890-1990," in *American Environmental History: An Introduction* (New York: Columbia University Press, 2007): 177-191.

#### **M August 31      Thoreau in New England**

Core reading:

Henry David THOREAU, "Economy," *Walden* (1854), in *The Portable Thoreau*, ed. J. S. Cramer (New York: Penguin, 2012): 258-334.

Additional reading:

Ceceilia TICHI, "Domesticity on Walden Pond," in *A Historical Guide to Henry David Thoreau*, ed. W. E. Cain, (New York: Oxford University Press, 2000): 95-122.

#### **W Sept 2      Forest and Mountain: On Foot with John Muir**

Core Reading:

John MUIR, "The World and the University," "Through the Cumberland Mountains," "A Near View of the High Sierra," "Nut Time in Squirrelville," "God's First Temples: How Shall We Preserve Our Forests," in *Essential Muir: A Selection of John Muir's Best Writings*, ed. and intro. Fred D. White (Berkeley: Heyday Books, 2006): 11-24; 25-36; 37-54; 69-72; 113-18.

**M Sept 7 Labor Day**

**W Sept 9 Desert and River: Traveling West with John Wesley Powell**

Core Reading:

John Wesley POWELL, "Through the Grand Canyon from the Little Colorado to the Virgin River," "The Land System Needed for the Arid Region," "The Irrigable Lands of the Arid Region," "The Non-Irrigable Lands of the Arid Region," "From Barbarism to Civilization," in *Seeing Things Whole: The Essential John Wesley Powell* William de Buys, ed. and intro. (Washington, DC: Island Press, 2002).

Post: Reflection Paper 1 to Scholar for peer review.

**M Sept 14 In the Great Midwest with Aldo Leopold**

Core reading:

Aldo LEOPOLD, "Wisconsin," "Illinois and Iowa," "The Land Ethic," in *The Sand County Almanac, and Sketches Here and There*, (1949), with an introduction by Robert Finch (Oxford: Oxford University Press, 1989): 95-116; 117-121; 201-225

Additional reading:

Philip CAFARO, Thoreau, Leopold, and Carson: Toward an Environmental Virtue Ethics, *Environmental Ethics* 23:1 (Spring 2001): 3-17.

Peer review is complete; Paper 1 goes to instructor.

**W Sept 16 Feminist Perspectives on Environment I**

Core reading:

Evelyn Fox KELLER, "A World of Difference" in *Reflections on Gender and Science*, (New Haven: Yale University Press, 1985): 158-176.

Additional reading:

Carolyn MERCHANT, "Dominion over Nature" and "The Mechanical Order," in *The Death of Nature: Women, Ecology, and the Scientific Revolution*, (New York: Harper & Row, 1990): 164-191; 192-215.

**M Sept 21 Feminist Perspectives on Environment II**

Core reading:

Val PLUMWOOD, "The Blindspots of Centrism and Human Self-Enclosure," and "Philosophy, Prudence and Anthropomorphism," in *Environmental Culture: The Ecological Crisis of Reason* (New York: Routledge, 2002): 97-122; 123-142.

### **W Sept 23 Environment and Justice**

Core reading:

Vandana SHIVA, "Sacred Cow vs. Sacred Car," in *Soil Not Oil: Environmental Justice in a Time of Climate Crisis* (Boston: South End Press, 2008): 21-36.

Additional reading:

James D. PROCTOR, "Whose Nature? The Contested Moral Terrain of Ancient Forests," in *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W.W. Norton & Co., 1996):

### **M Sept 28 The Changing Nature of Nature**

Core reading:

William CRONON, "The Trouble with Wilderness; or, Getting Back to the Wrong Nature," in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: W.W. Norton & Co., 1996): 69-90.

Additional reading:

Bill MCKIBBEN, "The End of Nature," in *The End of Nature* (New York: Random House, 1989): 40-79.

### **W Sept 30 Ecological Thinking and Sustainable Design I**

Core reading:

Sim VAN DER RIN and Stuart COWAN, *Ecological Design, Tenth Anniversary Edition*, (Washington, DC: Island Press, 2007): 32-65.

Additional reading:

David BERGMAN, "Ecodesign: What and Why," in *Sustainable Design: A Critical Guide* (New York: Princeton Architectural Press, 2012):14-27.

Post: Reflection Paper 2 to Scholar for peer review.

### **M Oct 5 Ecological Thinking and Sustainable Design II**

Core reading:

David W. ORR, "Human Ecology as a Problem of Ecological Design," *The Nature of Design: Ecology, Culture, and Human Intention*. (Oxford: Oxford University Press, 2002): 13-32.

Peer review is complete; Paper 2 goes to instructor.

### **W Oct 7 Ecological Thinking and Sustainable Design III**

Core reading:

William MCDONOUGH and Michael BRAUNGART, *The Upcycle: Beyond Sustainability—Designing for Abundance* (New York: North Point Press, 2013): 23-50; 85-120.

## Part II: Sustainable Design: The Case of Agriculture

### **M Oct 12 Problem: Industrial Agriculture and the "Green Revolution"**

Screening: *Our Daily Bread* (2005). Dir. Nikolaus Geyrhalter.

Reading:

Leo HERRIGAN, Robert S. LAWRENCE, and Polly WALKER, "What's Wrong with Industrial Agriculture," *Environmental Health Perspectives* 110: 5 (May 2002): 445-456.

### **W Oct 14 Design Solution: No-Till Agriculture**

Core reading:

Masanobu FUKUOKA, Chapters 1 and 2 of *The One-Straw Revolution* (1978), trans. Larry Korn, Chris Pearce, and Tsune Kurosawa, (New York: New York Review of Books, 2009): 1-76.

Additional reading:

Wes JACKSON, "Farming in Nature's Image: Natural Systems Agriculture," *The Fatal Harvest Reader: The Tragedy of Industrial Agriculture*, ed. Andrew Kimbrell (Sausalito, CA: Deep Ecology Foundation, 2002): 65-76.

### **M Oct 19 Design Solution: Permaculture**

Screening: *Krameterhof: A Tour of Sepp Holzer's Permaculture Farm with His Son Josef*, 2013. Im(permanence) Films.

Reading:

Eric TOENSMEIER with contributions from Jonathan BATES, "Part Three: Leap," in *Paradise Lot: Two Plant Geeks, One-Tenth of an Acre and the Making of an Edible Garden Oasis in the City* (White River Junction, VT: Chelsea Green Publishing, 2013): 103-155.

### **W Oct 21 Design Solution: Woody Perennial Polyculture**

Core reading:

Mark SHEPARD, *Restoration Agriculture*. (Austin, TX: Acres U.S.A., 2013): 1-68.

Post: Reflection Paper 3 to Scholar for peer review.

### **M Oct 26 Design Solution: Remedial Soil Ecology**

Core reading:

Judith D SCHWARTZ, *Cows Save the Planet, and Other Improbable Ways of Restoring Soil to Heal the Earth*. (White River Junction, VT: Chelsea Green Publishing, 2013): 11-73.

Peer review is complete; Paper 3 to instructor.



### **W Oct 28    Design Solution: Biochar**

Core reading:

William BALÉE, "An Estimate of Anthropogenesis," in *Cultural Forests of the Amazon: A Historical Ecology of People and Their Landscapes* (University of Alabama Press, 2013): 32-52.

Additional reading:

Dominic WOOLF, James E. AMONETTE, F. Alayne STREET-PERROTT, Johannes LEHMANN, and Stephen JOSEPH, "Sustainable Biochar to Mitigate Global Climate Change," *Nature Communications* 1 (2010): 56.

## Part III: Sustainable Design: The Case of Architecture

### **M Nov 2    Problem: Why "Green Building" Isn't Enough**

Core reading:

Ernest J. YANARELLA, Richard S. LEVINE, and Robert W. LANCASTER, "Research and Solutions: "Green" vs. Sustainability: From Semantics to Enlightenment," *Sustainability: The Journal of Record* 2:5 (2009): 296-302.

### **W Nov 4    Sustainable Design Solution: Straw-Bale & Adobe Construction**

Core reading:

Paul LACINSKI and Michel BERGERON, "Why Straw Bales?" and "Design Challenges" in *Serious Straw Bale: A Home Construction Guide* (White River Junction, VT: Chelsea Green Publishing, 2000): 3-27; 28-51.

Additional reading:

A. Jenkins SWAN, A. RTEIL and G. LOVEGROVE, "Sustainable Earthen and Straw Bale Construction in North American Buildings: Codes and Practice," *Journal Of Materials In Civil Engineering* 23: 6 (June 2011): 866-872.

Post: Reflection Paper 4 to Scholar for peer review.

### **M Nov 9 S    Sustainable Design Solution: The Value of Prefabrication**

Reading:

Sheri KOONES, "Greenest Houses," in *Prefabulous and Sustainable* (New York: Harry N. Abrams, 2010): 150-233.

Peer review complete; paper 4 to instructor.

### **W Nov 11    Sustainable Design Solution: The Passivhaus Standard**

Core essay:

Janet COTTERELL and Adam DADEBY, *The Passivhaus Handbook: A Practical Guide for Building and Retrofitting Buildings for Ultralow Energy Performance*. Totnes: Green Books, 2012): 16-39; 110-207.

### **M Nov 16 Sustainable Design Solution: Net Zero Architecture**

Core reading:

Karsten VOSS, Eike MUSALL, Markus LICHTMEß, "From Low-Energy to Net Zero-Energy Buildings: Status and Perspectives," *Journal of Green Building* 6:1 (Winter 2011): 46-57.

### **W Nov 18 Biomimicry in Architecture and Design**

Core reading:

Janine M. BENYUS, "How Will We Harness Energy? Light into Life: Gathering Energy Like a Leaf," in *Biomimicry: Innovation Inspired by Nature* (New York: Perennial, 2002): 59-93.

Additional readings:

Blaine BROWNELL and Marc SWACKHAMER, *Hypernatural: Architecture's New Relationship with Nature* (New York: Princeton Architectural Press, 2015): excerpt.

M Nov 23 Fall Break

W Nov 25 Fall Break

## **Part IV: Sharing Sustainable Visions**

M Nov 30 PSA Rough Cut: In-Class Workshop Session

W Dec 2 PSA Rough Cut: In-Class Screening with instructor and peer review

M Dec 7 PSA Final Cut: In-Class Workshop Session

W Dec 9 PSA Due: In-class screening with invited guests\*

Dec 10 Reading Day

\*This session will be held in conjunction with other GCL courses concluding their fall semester activities, so time/day may need to be rescheduled for coordination purposes.