USC School of Architecture

ARCH 499 Climate Change and the Built Environment: Past, Present & Future

3 units (Fall 2017)
Fridays, 9:00-12:00, Harris 115a
Kelly Shannon
Office hours: by appointment; contact:

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Cappadocia, Turkey; Vo Trong Nghia Architects, Vietnam; Vincent Callebaut Architects, Belgium

COURSE DESCRIPTION

The course will focus on the specific relation of climate change and the built environment. There are a number of courses, at USC and elsewhere, that delve into the science of climate change, but few that discuss climate change policies and way in which architects, urbanists, landscape architects and others are developing innovative responses to the challenges and opportunities that climate change brings. Students will read canonical texts and be presented with both indigenous ways in which man has adapted to the environment in order to respond to the forces of nature and create resilient settlements. As there has been an acceleration during the late 20th and 21st century of the paradox between ecological balance and economic growth. This has become particularly magnified by present day American politics: The Trump administration, in its refusal to recognize climate change as an eminent threat to the planet, is forging a full-fledged assault on the environment. Ecological policies, decades-in-the-making and their respective regulating agencies, are at risk of vanishing. Now more than ever, architects, landscape architects and urbanists must develop projects that address social and environmental justice, despite – or because of – the stripping away of protections to the planet and its valuable resources. The course will begin by looking at the rich legacy of our collective past to understand what lessons can be learned, before turning to the present day and both reading and exploring projects from around the world which are exploring alternatives to a post-carbon future.

PART 1: PAST

Class 1 Friday August 25

Climate / Productive Landscapes & Settlements

9:00-10:30: Introduction of climate change as an on-going phenomenon + humankind adaptation
break
10:45-12:00: worldwide case studies

Class 2 Friday September 1

Indigenous Water & Forest Urbanism

9:00-10:30: worldwide case studies
break
10:45-12:00: discussion of readings

1. Selection from Marsh, George Perkins (1864) *Man and Nature: or, Physical Geography as Modified by Human Action*, reprinted by Cambridge: The Belknap Press of Harvard University Press.
2. Selection from Konijnendijk, Cecil C. (2008) *The Forest and the City*, Springer Netherlands.
3. Shannon, Kelly and Manawadu, Samintha (2007) 'Indigenous Landscape Urbanism: Sri Lanka's Reservoir & Tank System),' *JoLA (Journal for Landscape Architecture) Autumn 2007*, pp. 6-17.

Class 3 Friday September 8

Indigenous architectural scale responses

9:00-10:30: worldwide case studies
break
10:45-12:00: discussion of readings

1. selection from Rudofsky, Bernard (1964) *Architecture without Architects: A Short Introduction to Non-pedigreed Architecture*, New York: Museum of Modern Art.
2. selection from Oliver, Paul (1987) *The House Across the World*, London: Oxford.

Class 4 Friday September 15

Canonical figures and movements

9:00-10:30: presentation

break

10:45-12:00: discussion of readings

1. Selection from Carson, Rachel (1962) *Silent Spring*, Houghton Mifflin.
2. Selection from Meadows, Donella, Meadows, Dennis, Randers, Jorgen (1972) *The Limits to Growth*, Universe Books.
3. Selection from Aldo Leopold (1949) 'Land Ethic' in *A Sand County Almanac*

PART 2: PRESENT

Class 5 Friday September 22

Contemporary Wake Up Call

9:00-10:30: Film *This Changes Everything*, Avi Lewis, 2015 (film based on book by same name by Naomi Klein, poses climate change vs. capitalism)

break

10:45-12:00: discussion of film & readings

1. 'Statement of Dr. James Hansen (1988)', in *The Global Warming Reader*, Bill McKibben (ed.), New York: Penguin Books, 2011, pp. 47-53. (all students)
2. 'The "Anthropocene" Paul J. Crutzen and Eugene F. Stoermer (2000)' in *The Global Warming Reader*, Bill McKibben (ed.), New York: Penguin Books, 2011, pp. 69-72. (50% students)
3. 'from *Earth in the Balance*, Al Gore (2000)' in *The Global Warming Reader*, Bill McKibben (ed.), New York: Penguin Books, 2011, pp. 97-103. (50% students)

Class 6 Friday September 29

Accelerated Climate Change

9:00-10:30: Climate Change, Politics, Economics and Ethics

10:45-12:00: discussion of readings

1. selection from Purdy, Jedediah (2015) *After Nature: A Politics for the Anthropocene*, Cambridge: Harvard University Press.
2. selection from Klein, Naomi (2014) *This Changes Everything: Capitalism vs. the Climate*, New York: Simon and Schuster.
3. selection from Pope Francis (2015) Encyclical on Climate Change & Inequality: On Care for our Common Home, Brooklyn: Melville House.

Class 7 Friday October 6

Policies

9:00-10:30: International Policies & US Policies & California Policies

break

10:45-12:00: discussion of readings

1. selection from IPCC Sixth Assessment Report (due in Summer 2017)
2. US Government (2014) *Climate Change Impacts in the United States*, U.S. National Climate Assessment, U.S. Global Change Research Program, particularly chapters 03: Water Resources (pp. 69-112), 11: Urban Systems and Infrastructure (pp. 282-296), 27: Mitigation (pp. 648-669) and 28: Adaptation (pp. 670-706).
3. Excerpts from California Assembly Bill 32

Class 8 Friday
October 13

Sea Level Rise / Coastal Flooding

9:00-10:30: worldwide case studies
break
10:45-12:00: discussion of readings

1. Plunz, Richard and Echeverria, Inaki (2001) 'Beyond the Lake: A Gardner's Logic,' *Praxis – Mexico City issue* 2, New Orleans, pp. 88-91.
2. Shannon, K. (2013) Eco-Engineering for Water: From Soft to Hard and Back, in Pickett, S. T. A., Cadenasso, M., McGrath, B. (eds.) Resilience in Ecology and Urban Design: Linking Theory and Practice for Sustainable Cities, Future City Series, Vol. 3, Springer, London, pp. 163-182.

Class 9 Friday
October 20

Inland Flooding

9:00-10:30: worldwide case studies
break
10:45-12:30: work on timeline

Class 10 Friday
October 27

Drought

9:00-10:30: worldwide case studies
break
10:45-12:00: discussion of readings

1. selections from Margolis, Liat and Chaouni, Aziza (2014) *Out of Water: Design Solutions for Arid Regions*: Berlin: Birkhauser.

Class 11 Friday
November 3

Heat Island

9:00-10:30: worldwide case studies
break
10:45-12:30: work on timeline

Class 12 Friday
November 10

Mobility Infrastructure

9:00-10:30: worldwide case studies
break
10:45-12:00: discussion of readings

1. Reed, Chris (2006) 'Public Works Practice,' in Charles Waldheim (ed.) *The Landscape Urbanism Reader;* New York: Princeton Architecture Press, 2006, pp. 267-285.
2. Selection from Graham, Simon and Marvin, Simon (2001) *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*: London: Routledge.
3. Selection from Rauland, Vanessa and Newman, Peter (2015) *Decarbonozing Cities: Mainstreaming Low Carbon Urban Development*; Basel: Springer International.

Class 13 Friday
November 17

Energy

9:00-10:30: worldwide case studies
break
10:45-12:30: work on timeline

PART 3: FUTURE

Class 14 Friday

Necessity for Design

December 1	9:00-10:30: worldwide case studies break 10:45-12:00: discussion of reading 1. Oreskes, Naomi and Conway, Eric (2014) The Collapse of Western Civilization, New York: Columbia University Press.

Learning Objectives

Students will study the challenges facing cities and territories in an age of accelerated climate change and will learn about strategies that can be used to make them more resilient and robust. They will have to understand systems thinking and how cities function as regional ecosystems and collections of individual buildings and places. They will explore the role of flows, green networks and urban infrastructure, as well as the impact of specific building practices on the constructed environment.

Students should learn to critically read texts and form insights that are relevant to the contemporary context.

Students should develop and novel, sharp and refined ways to perceive and represent their environment.

Students should develop skills of working as a group and creating a collective project (timeline).

Prerequisites

none

Technological Proficiency and Hardware/Software Required

Basic computer skills plus proficiency with ADOBE Suite.

Description of Assignments

There will be three types of assignments in the course:

1) weekly readings that will be discussed. They will be assigned beforehand and made available via *Blackboard*. The entire class will read one text and half the class will read another text. For all of these texts, each student will individually produce a one-page summary (11 font Cambria, with interesting quotes sourced). These will be presented discussed with an image that the students take from fieldwork in Los Angles. All will be uploaded onto *Blackboard* and become a database for the course.

2) the class will collectively develop a timeline of climate change and the built environment: past, present & future. The exact format of the graphic timeline will be developed as a group and partially developed in class. It will be completed by the end of the course.

3) the final exam (due in December, posted to *Blackboard*) for the course will be an illustrated document of two contemporary projects. One projects must be in California and must include fieldwork photos, not those from the Internet. Another can be from another place anywhere in the world (with sources from the Internet and elsewhere). Choices of the projects can be discussed individually with the instructor before the assignment is due. Each project is to be no more and no less than 4-8.5x11 pages (vertical format). Images should have extended captions and the proper referencing must be made for the captions and the images alike. Citations from non-scientific web-based sources will NOT be accepted (Wikipedia, for example). An example of the assignment will be included for reference (to be eventually up-loaded on *Blackboard*).

GRADING & GRADING BREAKDOWN

Grading will be done on an A, B, C, D, F basis.

Weekly reading summaries: 15%
Group timeline input: 15%
Final exam: 55%
Class participation: 15%

Assignment Submission Policy

Assignments will be submitted by email and *Blackboard*. Assignments handed in 1-3 days late will have their grades reduced by half a grade; those handed in 4-7 days late will be reduced by a full grade. Each week late will reduce the assessment by another full grade.

Additional Policies

Students are expected to attend each class and must notify the instructor before class if they are unable to attend on a particular day.

Academic Conduct

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, http://policy.usc.edu/scientific-misconduct.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* http://equity.usc.edu or to the *Department of Public Safety* http://adminopsnet.usc.edu/department/department-public-safety. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* http://www.usc.edu/student-affairs/cwm/ provides 24/7 confidential support, and the sexual assault resource center webpage http://sarc.usc.edu describes reporting options and other resources.

Support Systems

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* http://dornsife.usc.edu/ali, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* *http://emergency.usc.edu* will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.