Culture, Technology and Climate I:  
Regional Effects of Anthropogenic Climate Change  
(A CAT 2 Course)
Synopsis

According to the Intergovernmental Panel on Climate Change (the IPCC), global mean temperature for the planet Earth is projected to rise significantly over the course of this century. The IPCC has also concluded that contributions of greenhouse gases to the atmosphere, a bi-product of human action and productivity, are the primary cause of the projected warming.

By looking at a handful of regions across the globe this course examines various of the likely environmental and cultural consequences of climate change over the coming century. Among the regions to be explored: the Tibetan Plateau; Oceania; the American Southwest; the subarctic tundra; and the polar regions.

With an understanding of climate change in the past, and projections for the immediate future, we will consider the question: what is to be done?
The first week

Overview

**Tuesday**  **Introduction to the course**  
**January 10**  In Climate, Technology, and Culture you will learn about the environmental histories of six of the earth’s regions. You will be required to write a report, and analysis, and a project for an additional region using the case study method. In the first lecture I will introduce the course, its “methodology,” people, and requirements.

*Please read for Thursday:*  
<http://climate.nasa.gov/causes/>, <http://climate.nasa.gov/causes/>,  
http://climate.nasa.gov/uncertainties/

**Thursday**  **Anthropogenic Climate Change (ACC); distinguishing weather and climate**  
**January 12**  Anthropogenic Climate Change (ACC), also known as “global warming,” is a name for a cluster of findings in the area of climate sciences, related sciences such as ecology and biogeography, as well as models for projecting climatological futures. In this lecture we will endeavor to understand the fundamentals of ACC at the global and climatological scales. The lecture will then distinguish between the temporal scale of climate and the scale at which weather occurs. We will conclude with a “teaser” for next week’s lectures, in which we will leave the global spatial scale behind and turn our attention to regional scales.

*Please read for Tuesday:*  
Beth Christensen and Mark Maslin (2008) "Rocking the Cradle of Humanity: New thoughts on climate, tectonics, and human evolution" in Geotimes, January, 2008,  
http://www.geotimes.org/jan08/article.html?id=feature_humality.html

The second week

**From the Global to the Regional Scale**

**Tuesday**  **Climate and human life through time**  
**January 17**  *Homo sapiens* evolved during a glacial period and have vastly enlarged their range during the current interglacial. On a longer time scale, the fortunes of *Homo* and
of the ancestral genus *Australopithicus* have been closely tied to climate. In this lecture we will explore the relations between human evolution and climate, including a moment 80,000 years ago when the species was decimated and nearly extinguished by a climate event.

*Please read for Thursday:*


**Thursday  Regions and places**

**January 19** Although ACC occurs at a global scale, it manifests itself locally. To put this another way, a rise in global ocean temperatures can manifest itself as coastal flooding at peak high tides in places where flooding was not previously so routine. Geographers recognize a hierarchy of spatial areas in their studies, and we will make use of these – in particular, the *region* and the *place*. In this lecture, I will discuss some of the features of these categories.

*Please read for Tuesday, January 24:*

Weeks Three through Eight
The Regional Overviews
Third week  
January 24/26  

The American Southwest

The last thousand years of human history in the American southwest have been a period of drought, with minor perturbations over the millenium. ACC threatens to worsen the condition of aridity.

Please read for Tuesday, January 31:


Working draft of first essay due in lecture on January 24

Physiography of the Little Colorado River watershed and surrounding area.
The history of human inhabitation of Antarctica is recent, short, and tenuous. Following an overview that takes in the entire continent and the surrounding ocean, we will focus on the Antarctic Peninsula.

Please read for Tuesday, February 7:

“Oceania” is the name given to myriad islands and several nations in the South Pacific. Projections for ACC in the 21st century do not bode well for these islands, or for the peoples who inhabit them.

Please read for Tuesday, February 14:

Finished draft of first essay due in lecture on February 7
Sixth week
February 14/16

The Indian Subcontinent and the Tibetan Plateau

Glaciers on the Tibetan Plateau feed the rivers of India. With their loss and the low-lying inhabitations of coastal Bangladesh, this region is likely to see the greatest impact from ACC in the coming century.

Please read for Tuesday, February 21:
http://www.geotimes.org/jan08/article.html?id=feature_evolution.html
Seventh week
February 21/23

The Great Rift Valley

Both climate and tectonic forces have had a role in the evolution of humans and their ancestral species. Humans evolved on the African continent, where the geological conditions in the Great Rift Valley tend to amplify perturbations in climate.

Please read for Tuesday, February 28:

Susan A. Crate (2008) "Gone the Bull of Winter? Grappling with the Cultural Implications of and Anthropology’s Role(s) in Global Climate Chance" in *Current Anthropology* Volume 49, Number 4, August 2008, 569-595.

A generalized geological map of the Great Rift Valley
Eighth week
February 28/ March 1

The Arctic Tundra and Boreal Forest

Between the loss of season sea ice in the Arctic Ocean and the loss of permafrost in the arctic tundra, the entire northern circumpolar region is going through significant environmental change due to ACC, including the release of trapped methane, a feedback that will exacerbate warming.

Please read for Tuesday, March 6:


Finished draft of second essay is due in lecture on February 28
Ninth week

The IPCC

Tuesday  An overview of the IPCC
March 6  The Intergovernmental Panel on Climate Change is a body of scientists who are charged with assessing the causes, extents, rates, and consequences of climate change. In this lecture we will look at the history of the IPCC, and will look at how it goes about conducting its work.

Please read for Thursday:

Working draft of third essay due in lecture

Thursday  Group II of the IPCC
March 8  Group II of the IPCC looks at the ecological consequences of climate change, including consequences for human ecologies; it is the working group within the IPCC most closely related to the concerns of this course. Today we will look at how they do their work.

Please read for Tuesday:

Tenth week

The Upshots

Tuesday  How do we know that it’s anthropogenic?
March 13  A guest lecture by Dr. Cheryl Peach, who teaches CTC II on the science of climate change. Dr. Peach will review the evidence for ACC, and she will show that warming currently has a clear and unmistakable anthropogenic fingerprint.

Thursday  What can you do about it?
March 15  There are, quite literally, hundreds of things that need to be done, and can be done, to slow the rate of anthropogenic climate change. In this lecture I will review a spectrum of changes that individuals, families, communities, business, and governments can make – some simple, and others require fullscale changes in the way people go about their daily business.

Finished draft of third essay is due in lecture
People, Policies, and Requirements

Course instructor
Mark L. Hineline
Office: 219 Pepper Canyon Hall
Email: mhineline@ucsd.edu
Office hours: Wednesday 1-2 P.M., Thursday 1-2 P.M.

Teaching Assistants
You will meet the TA for your section in the first or second week of the quarter. It is vital that you know your TA’s full name and email address. All initial inquiries about course policies, absences, grades, and assignments should be addressed to your TA.

Grades will be based on performance in the following categories
First Essay: final draft due February 7 – 20%
Second Essay: final draft due February 28 – 20%
Third Essay: final draft due March 13 – 25%
Final exam: 10%
Participation: 25%

Readings
All readings are available online, or as PDFs on ted.ucsd.edu

Participation Grades
Here is a description of the kind of participation in the course that would earn you an A, B, C, etc. Your TA may use pluses and minuses to reflect your participation more exactly, but on this sheet we will simply show a general description for each letter grade.
A – EXCELLENT.
• You are always well prepared for discussion in lecture and for section, with almost no absences. You can explain each reading in your own words. In addition, you have already asked yourself questions about what it means, focusing on specific passages that are interesting to you and making connections between various readings and ideas.
• You express your thoughts clearly and politely, making and supporting specific claims. You respond to what other students are saying in order to have a dialogue with them.
• You find ways to connect the course material with issues that matter to you personally.
• You do all section activities with high energy and attention to detail, taking personal responsibility for achieving the assigned goal.

B – GOOD.
• You attend lecture and section with few absences. You have done most of the preparation. If you don’t understand the reading the first time you read it, you wait to have it
explained by the TA.

- You talk on a regular basis. Sometimes you offer well-thought-out ideas and connections, supported with evidence; sometimes your contributions are merely a statement of opinions or initial reactions.

- You do assigned activities willingly; but if you run into obstacles, you let the TA or someone else figure out how to overcome those obstacles.

C – SATISFACTORY.

- You are present in lecture and section, with few absences, and have done some reading some of the time.

- You occasionally contribute to the discussion; your contributions are more often opinions than thoughtful efforts to make connections. You’re not a real self-starter, and you have to be nudged to participate.

- You do activities when asked, because it’s required.

D – UNSATISFACTORY.

- You have multiple absences from section.

- When you come, you’re often not very prepared, and you don’t say much.

- You may have a habit of using your cell phone or computer in class to chat or do things not directly related to the course. Playing online poker or shopping for surfboards in either lecture or section, for instance, would be ways to earn a “D” (or lower) in participation.

F—FAILING.

- You have many absences, are habitually unprepared, or are uncooperative.

**Academic Integrity**

You are expected to uphold the standards of academic integrity in all your work. All work that you submit for credit in the course is expected to be your own original work, created specifically for this class. Where you are making appropriate use of the work of another person, which may include brief quotations, photographs or drawings, charts, special information, specific arguments, etc., you must credit the author of that work by using appropriate and complete citations. If you choose to include in your course assignments any data, information, argument or artwork that you have produced for another course, you should identify it as such with an appropriate self-citation, and it should in no way constitute the bulk of the assignment that you are submitting for credit in the course.

UCSD has a university-wide Policy on Integrity of Scholarship, which can be found online at http://www-senate.ucsd.edu/manual/appendices/app2.htm. All students must read and be familiar with this Policy. All suspected violations of academic integrity will be reported to UCSD’s Academic Integrity Coordinator. Students found to have violated UCSD’s standards for academic integrity may receive both administrative and academic sanctions. Administrative sanctions may extend up to and include suspension or dismissal, and academic sanctions may include failure of the assignment or failure of the course.

Specific examples of prohibited violations of academic integrity include the following: (although this should in no way be considered an exhaustive list of examples):
Academic stealing refers to the theft of exams or exam answers, of papers or take-home exams composed by others, and of research notes, computer files, or data collected by others.

Academic cheating, collusion, and fraud refer to having others do your schoolwork or helping or allowing them to present your work as their own; using unauthorized materials during exams; inventing data or bibliography to support a paper, project, or exam; purchasing tests, answers, or papers from any source whatsoever; submitting (nearly) identical papers to two classes. Helping other students to cheat or steal is also cheating.

Misrepresenting personal or family emergencies or health problems in order to extend deadlines and alter due dates or requirements is another form of academic fraud. Claiming you have been ill when you were not, claiming that a family member has been ill or has died when that is untrue are some examples of unacceptable ways of trying to gain more time than your fellow students have been allowed in which to complete assigned work.

Please do not ask or allow friends or family members to write or substantially edit your work. That is both a violation of academic integrity and a short-circuiting of the learning process.

Plagiarism refers to the use of another’s work without full acknowledgment, whether by suppressing the reference, neglecting to identify direct quotations, paraphrasing closely or at length without citing sources, spuriously identifying quotations or data, or cutting and pasting the work of several (usually unidentified) authors into a single undifferentiated whole.

Receipt of this syllabus constitutes an acknowledgment that you are responsible for understanding and acting in accordance with UCSD guidelines on academic integrity.