

The Archaeology of Climate Change – social adaptation and vulnerability in temporal perspective

Prof. Isabel C. Rivera-Collazo

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Course description:

Understanding human adaptation to climate change is increasingly relevant to modern life. As a discipline, archaeology provides tools to look at past instances of change and to study social resilience and vulnerabilities. This seminar studies the dynamics of climate change and human responses through time. Topics include research methods in socioecodynamics, human responses to change in different socio-political and economic contexts, and lessons from the past that can inform the present.

Course objectives:

By the end of this course, the student will be able to:

- 1) Distinguish climate and weather and explain why the difference is significant in social contexts
- 2) Identify proxies of past climates
- 3) Identify what aspects of climate change are relevant in the context of socio-natural dynamics.
- 4) Predict landscape-scale dynamism through time in contexts of relevance for human decision-making.
- 5) Give examples of social vulnerability (exposure, sensitivity, adaptive capacity) and scale-sensitive data in archaeological or ethnographic case studies
- 6) Apply the framework of scale-aware differential social vulnerability to a case study
- 7) Explain ancient social dynamics in the context of changing climate or extreme weather
- 8) Analyze the concepts of risk perception, hazards, resilience, vulnerability, exposure and adaptive capacity in the context of social dynamics with climate change.
- 9) Assess how climate change has been incorporated in the understanding of the social dynamics of a case study and formulate new research perspectives
- 10) Explain how knowledge of the past can contribute to an understanding of modern climate change threats.

Required Textbook

W. Ruddiman. 2014. *Earth's Climate: Past and Future*, 3rd ed. Freeman and Company. New York. 978-1-4292-5525-7

Other important references:

Cooper, Jago and Sheets, Payson. 2012. *Surviving sudden environmental change: Answers from Archaeology*. University Press of Colorado: Boulder, CO. (Freely available online: <http://www.upcolorado.com/excerpts/9781607321682.pdf>)

Brooke, John. 2014. *Climate change and the course of Global History. A Rough Journey*. Cambridge University Press: New York.

Dunlap, Riley E. and Robert J. Brulle. 2015. Climate Change and Society. Sociological Perspectives. Oxford University Press: Oxford.

Expectations:

This seminar consists of open discussion with required background readings and in-class presentations. Formal lectures will also be dictated. The students will be expected to attend to class, do all assigned readings, and participate actively. Modified expectations will be adjusted for advanced undergraduate students enrolled in the seminar.

Assignments

Grading will be based on the student's performance on the following assignments.

Not graded assignment

1. Attendance and participation (50 points)

Graded assignments

1. In-Class presentation (100 points)
2. Mid-Term Essay (150 points)
3. Final Essay (200 points)

Policies

Total course grading

The final grading for this course will be measured out of a total of 500 points, divided in the following manner:

<u>Assignment</u>	<u>Points</u>
Attendance	50
Presentation	100
Mid-Term	150
Final Essay	200
TOTAL POINTS	500

Grading scale (%)

94-100 = A	74-76 = C
90-93 = A-	70-73 = C-
87-89 = B+	67-69 = D+
84-86 = B	64-66 = D
80-83 = B-	60-63 = D-
77-79 = C+	<60 = F

Late or missed deadlines (including exams)

The standard policy for this course is zero tolerance for missed deadlines. Work submitted after the deadline will receive zero points. The professor reserves the right to accept late assignments in exceptional cases. If the student has a situation affecting his or her ability to comply with a deadline (including exam attendance), he or she must discuss it with the professor **before the deadline**. If the situation is an emergency, an explanatory email requesting additional time must be received in the professor's inbox up to five minutes **before** the regular meeting time of the course or the assignment's due time. **If these conditions are not met, requests for time extension will not be considered.** Exceptions will only be made on the most unique situations where the student was absolutely and unforeseeably unable to notify as described above, the situation was informed via email as soon as the student was able to do it, and further arrangements were discussed in person with the professor.

Academic Integrity

Students are expected to complete the course in compliance with the highest standards of academic integrity. Honest effort is expected of everyone. By continuing their enrolment in this course, the student pledges to abide by UC San Diego's Integrity of Scholarship Agreement (<https://academicintegrity.ucsd.edu/forms/form-scholarship-agreement.html>) which reads as follows (some modifications were made to adjust it to the present course):

1. No student shall knowingly procure, provide, or accept any materials that contain questions or answers to any examination or assignment to be given at a subsequent time.
2. No student shall complete, in part or in total, any examination or assignment for another person.
3. No student shall knowingly allow any examination or assignment to be completed, in part or in total, for himself or herself by another person.
4. No student shall plagiarize or copy the work of another person and submit it as his or her own work.
5. No student shall employ aids excluded by the instructor in undertaking course work.
6. No student shall alter graded class assignments or examinations and then resubmit them for regrading.
7. No student shall submit substantially the same material in more than one course without prior authorization. A student acting in the capacity of an instructional assistant (IA), including but not limited to teaching assistants, readers, and tutors, has a special responsibility to safeguard the integrity of scholarship. In these roles the student functions as an apprentice instructor, under the tutelage of the responsible instructor. An IA shall equitably grade student work in the manner agreed upon with the course instructor. An IA shall not make any unauthorized material related to tests, exams, homeworks, etc. available to any student.
8. No student shall provide their assignments, in part or in total, to any other student in current or future classes of this course. No student shall procure or accept assignments from any other student from current or prior classes of this course.
9. For all group assignments, each member of the group is responsible for the academic integrity of the entire submission.
10. Each student is responsible for knowing and abiding by UCSD's Policies on Integrity of Scholarship (<http://academicintegrity.ucsd.edu/>) and Student Conduct (<https://students.ucsd.edu/sponsor/student-conduct/>). Any student violating these policies will earn an 'F' in the course and will be reported to the University for the violation.

Attendance

Attendance is part of the final grade of the course. Points will be deducted for unexcused absences and late arrivals. Students arriving late to class have to inform the professor at the end of the class or they will be marked as absent. All absences must be justified in person before class, or up to 5 minutes before the meeting via email in case of emergencies. Notification of absence only guarantees consideration for excuse, and will not entail automatic exemption from class attendance. The professor reserves the right to excuse the student from attendance.

Accommodations for Students with Disabilities

If you have a disability for which you are or may be requesting accommodations, please inform the professor as soon as possible, and contact Office for Students with Disabilities (<https://students.ucsd.edu/well-being/disability-services/>). You must have documentation from the Office before accommodations can be granted.

Course outline:

- I. **Introduction to Climate Change and Archaeology**
 - a. Social vulnerability and human ecodynamics
 - b. What is climate change and what does archaeology have to do with it?
- II. **Concepts and methods**
 - a. Resilience and adaptation: Geographic lottery and climatic opportunism
 - b. Methods for studying society and climate change
- III. **Human response and socioeconomic complexity**
 - a. Hunter-gatherers
 - b. Mixed economies
 - c. Early complex societies
 - d. Empires and colonialism
- IV. **Archaeology and the present**
 - a. Expected climate change and social vulnerability
 - b. Contributions of Archaeology to research in the present

Presentations and Essays

The students will select research themes to explore in class. These research themes will shape both their mid-term and the final essays as well as the presentations in class. The topics will be selected on Week 3.

Presentation (After Week 4):

Format: 5 minute presentation (up to 6 powerpoint slides).

Explain: Topic, climate change context, social context (location and culture), and research idea.

The presentation and notes **MUST** be uploaded to receive full points (50 points will be deducted from Presentation Grade if this requirement is not complied).

Mid-term Essay (Week 6)

Format: Research proposal.

Include the following sub-headings: Introduction, Research Question, Theoretical Framework, Methods and case study, Hypothesis and expected outcome, Bibliography. More information will be provided.

Final Essay (Deadline: Final Exam week – printed copy at the Department of Anthropology)

Format: Final research, 12 – 15 pages in length (not including references). Additional information will be provided.

Preliminary Schedule

The final schedule and reading list will be posted in the class' webpage. Without exceptions, the student will be held responsible for the assigned work as posted online even if it differs from the information detailed below. (Readings marked with * are required).

On...	we will discuss...	So please read...	and be ready to think and talk about...
Week 1	Social vulnerability and Human Ecodynamics	Rivera-Collazo et al. 2017 * Thomas et al. 2018 * Carmin et al. 2015 1924 Huntington Chapter 1	How does climate change affect people? What is social vulnerability? How do social structures affect response to change? How do societies articulate with nature?

Week 2	What is Climate Change? How do we know climate changes? What does archaeology have to do with it?	Ruddiman 2014 Chapters 1 – 3 * Carey and Garone 2014 Rosen 2007 pp 1 - 16 Sandweiss and Kelley 2012	What is climate? What is weather? What are the mechanisms of climate change? How have people attempted to understand CC before (history of research)? Why is archaeology an archive of sociodynamics?
Week 3	Climate Vulnerability and Cultural Heritage Methods for studying society and climate change	ICOMOS 2019 * Hambercht and Rockman 2017 D'Alpoim Guedes 2016 Dawson 2016	How can we study and understand human response to climate change? What are the relevant variables for these studies? How does scale and scale shifting affect research on social vulnerabilities? What threats does Climate Change poses to cultural heritage?
Week 4	Hunter-Gatherers and climate change	Ruddiman 2014 Chapter 14 Additional readings TBA	What is the socioeconomic context of hunter-gatherers? What is their range of vulnerability? What can be learnt of hunter-gatherer responses to climate change in the past?
Week 5	Climate change and societies with mixed economies	Additional readings TBA	What is the socioeconomic context of societies with mixed economies? What is their range of vulnerability? What can be learnt of the responses of these societies to climate change in the past?
Week 6	Climate change and early complex societies	Butzer 2012 Additional readings TBA	What is the socioeconomic context of early complex societies? What is their range of vulnerability? What can be learnt of the responses of early complex societies to climate change in the past?
Week 7	Empires and colonialism: the effect on the center	Ruddiman 2014 Chapter 17 Additional readings TBA	What is the socioeconomic context of Empires? What is their range of vulnerability? What can be learnt of the responses of the center of empires to climate change in the past?
Week 8	Empires and colonialism: the effect on the periphery	Ruddiman 2014 Chapter 18 Additional readings TBA	What is the socioeconomic context the people colonized by Empires? What is their range of vulnerability? What can be learnt of the responses of the periphery of empires to climate change in the past?
Week 9	Adaptation and resilience? Geographical lottery and climatic opportunism	Ruddiman 2014 Chapters 8 – 11 Adger et al. 2009 Adger et al. 2013 Harrod et al. 2014 Kohler 2012	How climate change impacts societies in different geographical contexts? What does adaptation and resilience mean? What is climatic opportunism? What does the archaeological record reflect about these issues?
Week 10	Contributions of Archaeology to modern	Ruddiman 2014 Chapters 19 and 20	What lessons can be recovered from the past to inform current climate change research?

	climate change studies and challenges	Redman 2012 Additional readings TBA	How can archaeology contribute to issues of modern concern? Can archaeologists work with researchers of other disciplines in their projects (not archaeology projects)? If so, how?
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Partial list of references:

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Additional Research Resources

Global Human Ecodynamics Alliance: <http://www.gheahome.org/>

Intergovernmental Panel on Climate Change: <http://www.ipcc.ch/>

Hercules Project: <http://www.hercules-landscapes.eu/>

Integrated History and Future of People on Earth (IHOPE) Project: <http://www.hercules-landscapes.eu/>

http://know.climateofconcern.org/index.php?option=com_content&task=article&id=113

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