**ENST/HIST 250**

**The Global Mess We Made: The History and Future of Climate Change.**

**Fall 2020**

**Units: 4**

**Instructors:**

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Environmental Studies Program History and East Asian Languages and Cultures

CAS 108 SOS 260

TBD TBD

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**GE-C: Social Analysis Course Description**

Climate change is probably the greatest and quite possibly most paralyzing challenge facing our society today. It poses enormous questions that we find difficult to confront ethically, personally and intellectually. Climate change will increasingly require us to modify all of our behaviors and life-paths. Manifested in the form of natural disasters, climate change is already forcing communities across the planet to uproot. In the future we can expect it to devastate towns, coastal cities, island nations, and arctic communities. Its more gradual and inexorable effects are already evident in spiking extinction rates, ocean acidification, and intensified trends of drought and flooding that threaten access to the most essential resources for human survival: water and food.

The questions this course addresses are*: How did we get here? How did we get to this point in human history- where we need to quickly change fundamental aspects of our modern world systems so as not to destroy ourselves and much of the planet’s co-inhabitants? How do we even begin to solve this problem? Is it truly hopeless?*

This is fundamentally a historical question. Like all historical inquiries it is based on the premise that understanding the past (how we got to a certain place in our history) might help us understand how to think about our present in order to shape a better future. But it is also a social and scientific question*. What are the basic processes of geology, chemistry, and physics that shape climate change? In what ways do our modern infrastructures of energy production, land use and mass consumerism impact these processes?* We obviously need to be able to answer these questions if we are to begin forming a program of action to confront the challenges climate change poses to us. It is not an exaggeration to say that these challenges are existential.

In this course, we will learn the fundamentals of climate science, study how climate has impacted societies in the past, and apply social scientific methods to the problem of climate change. Through these tools, we will better comprehend how and why “we”—as a species, as participants in global economic and biogeochemical systems, and as individuals—find it is so difficult to shift from being passive bystanders of an unfolding planetary-scale train wreck to taking meaningful action to prevent (or, more realistically, minimize) the destruction of that ongoing wreck. We will work together on evaluating solutions that promise to help us to become active participants working to shape our climate and our future.

**Learning Objectives**

* Apply methods of social analysis from history, economics, psychology, and sociology to understand how climate change has been caused, understood and engaged with by human actors
* Learn how to create an unbiased, neutral survey (and learn how to recognize bias in national survey/poll questions)
* Analyze how human behavior and emotion changes in response to the acquisition of distressing information.
* Teach students how to evaluate empirical evidence including scientific data and assess the usefulness of this evidence in explaining anthropogenic climate change
* Teach students to understand the interplay between human action and organizations, institutions, and technologies that have shaped and will shape the historical paths of anthropogenic climate change
* Have students apply their knowledge to assess the feasibility and impact of various proposed solutions in and around the LA area.

**Required Readings and Supplementary Materials**

Selections from books:

Spencer Weart: *The Discovery of Global Warming* (2008) Chapters 1 and 2

W.F. Ruddiman, *Earth’s Climate: Past and Future*, 3rd edition. Chapters 2 and 3

Naomi Klein: *This Changes Everything* (2014) Chapters 1 and 9

Elizabeth Kolbert: *The Sixth Extinction* (2014) Chapters 5 and 6

Paul Hawker: *Project Drawdown: The most comprehensive plan ever proposed to reverse global warming* (2017).

Peter Kalmus: *Being the Change: Live Well and Spark a Climate Revolution* (2017)

Brian Tokar: *Toward Climate Justice* (2014)

Articles, papers, etc.:

IPCC. (2018) Special Report: Global Warming of 1.5 degrees. https://www.ipcc.ch/sr15/

Rich, N. (2018) “Losing Earth.” *New York Times,* August.

Malm, A. (2013) The origins of fossil capital: From water to steam in the British cotton industry. Historical Materialism 21: 15-68.

Malm, A. (2012) China as the Chimney of the World: The Fossil Capital Hypothesis. Organization and Environment, vol. 25 no. 2 146-177.

Foster, G.L., Royer, D.L., and Lunt, D.J. 2017. Future climate forcing potentially without precedent in the last 420 million years. *Nature Communications*. doi: 10.1038/ncomms14845.

Watson, A.J., and Lovelock, J.E., 1983. Biological homestasis of the global environment: The Parable of Daisyworld: *Tellus*, v. 35B, p. 284-289.

Monanstersky, R. 2015. Anthropocene: The human age. *Nature*. v. 519, p. 144-147. doi:10.1038/519144a

Steffen, W et al., 2018. Trajectories of the Earth System in the Anthropocene. *Proceedings of the National Academy of Sciences*. www.pnas.org/cgi/doi/10.1073/pnas.1810141115

King and Harrington, 2018. The inequality of climate change from 1.5°C to 2.0°C of global warming. *Geophysical Research Letters*.v. 45, p. 5030–5033. https://doi.org/10.1029/2018GL078430

Leiserowitz, A., et al. Politics & Global Warming, April 2019. A report by the Yale Program on Climate Change Communication.

Goldberg, M. H., van der Linden, S., Leiserowitz, A., & Maibach, E. (2019). Perceived social consensus can reduce ideological biases on climate change.

It is possible that some of the readings listed above will not be used or that a few readings not listed will be assigned dependent upon matters like the availability of guest speakers etc. We will update you well in advance of any changes.

**Description and Assessment of Assignments**

**Timeline Writing Assignment**

The “timeline” writing assignment is ongoing throughout the semester. Students will be tasked with looking for climate change issues in the news media. Sources will include major newspaper stories, social media, and online news sources. There will be an information session in the second week of the semester with a USC librarian to provide information on the range of news and scholarly websites available and how to access and search them. Each week students will write 1-2 paragraphs (1/2 page) on a climate change related news story from that week, summarizing its content and evaluating its reliability and significance. Write ups will be evaluated for how well they effectively pinpoint and summarize key arguments and assess reliability and significance through investigating article sourcing through finding and consulting original scientific reports mentioned in articles, checking into the backgrounds of experts and organizations consulted by journalists, evaluating media representations, etc. At the end of the semester, students will turn in the cumulative result (15 articles and write ups for a total of at least 7.5 page) which will be a “timeline” of that semester’s climate change news.

**Social Survey Analysis**

During the first week of class, students will take a survey assessing their carbon footprints, and a quick quiz on climate change literacy. These surveys and their results will be used in assignments later in course. They will help inform our discussions of public and behavior awareness, which are key elements of the Timeline and Behavior Diary assignments. As we prepare for the Group Work assignment, which will involve some social survey writing and analysis, we will do more readings and look more carefully at how surveys are designed.

**Behavior Diary**

The Behavior Diary is a weekly writing activity where you are asked to pay attention to a behaviors that directly impact climate change (eating, energy use, transport etc.). The Behavior Diary assignment will be a useful reference and record for the semester as it will relate to many aspects and assignments in the class: calculating your carbon footprint, assignments related to social surveys, etc. As you will discover this semester, immersing yourself in thinking about climate change can be emotionally intense—it can be very depressing to confront how devastating climate change already is, how much worse it will be in just another decade or two, and how powerless we often feel to change all of this. But the goal of this class is to work on not being powerless. You folks, being students, are at a key moment in your lives when you are deciding which career you will pursue, and that choice can have shape your role in facing climate change. Also, our individual behaviors do have clear climate impacts—how we eat, how we travel, how we use electricity all directly affect how much CO2 we produce and, maybe even more importantly—we are all also social and political beings so our individual actions and behaviors also can have a big impact on those around us.

Diaries will be due in week 13, along with a 1-2 page summary of the diarist’s most important findings regarding how the exercise succeeded or failed to produce awareness and change. This assignment causes students to see how their own actions matter, how they are influenced by social or cultural beliefs, and how they might be affected by the actions of certain institutions or organizations.

**Climate Model Assignment: The Parable of Daisyworld**

“Daisyworld” is a simple two-dimensional climate model built in the 1980s to investigate the feedbacks and interactions between temperature and life. The model contains an ocean-less world orbiting a star like our own. This planet has two species of life on it – black daisies and white daisies. Because of their color (albedo), the daisies reflect or absorb energy differently, and thus change surface temperature around them. The model was built to assess a (now discredited) theory that the Earth was a self-regulating system that could not be pushed far out of equilibrium. Daisyworld is too simple to be directly applicable to our Earth, but it does nicely illustrate the (sometimes catastrophic) impacts of feedback loops. As such, it is a good place to start for understanding what goes in to climate modeling and climate forecasting. In weeks 4 and 5, after they have built a decent amount of background knowledge of the climate system, students will run through several versions of the simulation, changing one variable at a time (such as the intensity of the star or percentages of black and white daisies) and observe the impacts. Finally, students are asked to edit the model’s code so as to change parameters such as the optimal temperature for daisy growth, or the rate of heat diffusion from each daisy. Students will make predictions about what they think will happen when they tweak these underlying physical constraints, and run the simulations to see if their hypotheses are correct or incorrect. In the end, students will submit a 3-5 page write up that includes their results and a discussion of their hypotheses.

**Group-work project: Local manifestations and solutions**

This is the portion of the course will change from semester to semester, as the problem of climate change morphs with time. For Spring 2020, we will work on doing a survey of USC student and faculty air travel use and habits. The cumulative air travel of students and faculty comprise one large aspect of the carbon footprint of USC as an institution, and the goal of the project is to produce data-informed proposals for USC’s Office of Sustainability regarding how to possibly mitigate USC’s air travel carbon footprint.

One section will be assigned to focus on students, the other on faculty. Each section will design an online survey to gather quantitative data. Students will also be divided into pairs and assigned to interview two individuals for more in depth qualitative data. Sections will also do research into other studies or activities that can shed light on these issues. After gathering the research data sections will produce an overview of their findings and a set of proposals for actions to take to reduce USC’s air travel carbon footprint. Assignments and activities related to Group Work will begin sometime after the midterm, and we will give you more specifics on the deliverables expected at each stage of the project.

**Grading Breakdown**

**Assignment Percentage**

Timeline writing assignment 15%

Behavior Diary 10%

Climate Model assignment 10%

Midterm 15%

Group-Work Project 20%

Final 20%

Participation 10%

**Grading Scale**

93-100 A

90-92 A-

87-89 B+

83-86 B

80-82 B-

77-79 C+

73-76 C

70-72 C-

67-69 D+

63-66 D

60-62 D-

0-59 F

**Assignment Submission Policy**

All assignments will be submitted via blackboard by the dates indicated on the syllabus. Exams will require bluebooks and be written in essay format (short and long essays).

**Course Schedule**

**Week 1** Intro to course

Aug 24 Tues: Course introduction; quiz on climate change literacy;

Introduction to Behavior Diary and Timeline Assignments.

Thurs: Discussing “Losing Earth” and Hansen’s speeches

Reading: Nathaniel Rich, Losing Earth; James Hansen’s speech to Congress 1988

***For Thursday: in addition to the readings look through some news media and pick an article related to climate change. You do not need to write it up this week, but bring an article with you to class and come ready to talk about it casually.***

***Discussion: Carbon Footprint***

**Week 2** History of Climate Science

Aug 31 History of climate change science: 1800s-1970s

Reading: Weart Chapter 1 and 2; Hansen speech to Congress, 2008

***Tues: Read Weart***

***Thurs: First article for the timeline and first entry in behavior diary due. Bring to class on Thursday.***

***Discussion: Weart, Behavior diaries and Timelines***

**Week 3 No Class Sept 07- Labor Day**

Introduction to climate science

Sept 09 Earth’s Current Climate: what controls the temperature we feel every day?

Reading: Earth’s Climate, Chapter 2

***Discussion: Intro Climate Readings,***

**Week 4** Assessing Climate

Sept 14, 16 Climate dynamics: what matters most when it comes to forcing our climate to change? Proxies, how do we know about past climates: How we know Earth’s climate has varied in the past; Daisyworld Intro

Reading: Earth’s Climate Chp 3; Watson and Lovelock, 1983

***Discussion: Daisyworld in class, write up due the next week***

**Week 5** How did we get here? A history of human CO2 emissions

Sept 21, 23 Tues: The industrial revolution through the history the cotton industry.

Reading: Selection from Sven Beckert, *Empire of Cotton*

Thurs: From Water to Coal; the origins of the fossil fuel economy Reading: Malm, “Origins of Fossil Fuels”

***Discussion: Readings***

**Week 6** The state of industrial emissions and climate science today

Sept 28, 30 Tues: Outsourcing and the accelerated rise of emission

Reading: Malm: “China as the Chimney of the World”

Thurs: Thin Ice

***Discussion: Midterm Review***

**Week 7** **MIDTERM**/Mass extinction

Oct 5,7 The “Big 5” mass extinctions, the role of climate in the biggest disasters the Earth has ever faced  
Reading: Foster et al., 2017

***Discussion: Foster et al., 2017***

**Week 8** The Anthropocene

Oct 12, 14 Are we in the middle of a current mass extinction?

Reading: Monastersky, 2015; Elizabeth Kolbert selections from the 6th Extinction

Where is the Earth headed? Projections for the near future

Reading: Steffen et al., 2018; King and Harrington, 2018

***Discussion: Readings***

FALL RECESS: OCT 15-18

**Week 9** Disinformation: how it works and who it works for

Oct 19, 21 Mon: Merchants of Doubt

Wed: Disinformation today—technofixes and transitional strategies

Readings: Naomi Oreskes; A Ecomodernist Manifesto

***Discussion: Readings; begin group work***

**Week 10** Social surveys and policies for change: Cap and Trade, Carbon Tax, etc.

Oct 26, 28 Reading: Leiserowitz, A., et al. Politics & Global Warming, April 2019. A report by the Yale Program on Climate Change Communication; Goldberg, M. H., van der Linden, S., Leiserowitz, A., & Maibach, E. (2019). Perceived social consensus can reduce ideological biases on climate change.

***Discussion: Group work and readings***

**Week 11** What can be done? Solutions to Climate change.

Nov 2, 4 Mon: Changes in our infrastructures

Reading: Selections from “Project Drawdown.

Wed: Changes in our Behavior

Reading: Selections from Peter Kalmus

***Discussion: Group work and readings***

**Week 12** The politics of climate change and activism

Nov 9, 11 Readings: Naomi Klein, “This Changes Everything” Chps 1 and 9.

***Discussion: Group work and readings***

**Week 13** Actions closer to home: USC and LA actions for sustainability

Nov 16, 18 Guest lectures: Ken Neaslon; Will Berelson, USC professors and active research

in climate change solutions, local NGOs

Readings: TBA

***Discussion: Group work and readings***

***Behavior diary and evaluation due***

**Week 14** Who is most affected? Examples from near and far

Nov 23, Readings: Brian Tokar, *Toward Climate Justice* Chp 4, TBD

**THANKSGIVING BREAK NOV 25-29**

**Week 15** Finishing up

Nov, 30, Dec 2 Section presentations of group work and their proposals

***Discussion: Review for Final***

**Week 16 Final Exam FRIDAY DEC 11, 2-4 Pm**

**Statement on Academic Conduct and Support Systems**

**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 Part B, Section 11, “Behavior Violating University Standards” [policy.usc.edu/scampus-part-b](https://policy.usc.edu/scampus-part-b/). Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, [policy.usc.edu/scientific-misconduct](http://policy.usc.edu/scientific-misconduct).

**Support Systems:**

*Student Health Counseling Services - (213) 740-7711 – 24/7 on call*

[engemannshc.usc.edu/counseling](https://engemannshc.usc.edu/counseling/)

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

*National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call*

[suicidepreventionlifeline.org](http://www.suicidepreventionlifeline.org/)

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

*Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call*

[engemannshc.usc.edu/rsvp](https://engemannshc.usc.edu/rsvp/)

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

*Office of Equity and Diversity (OED) | Title IX - (213) 740-5086*

[equity.usc.edu](https://equity.usc.edu/), [titleix.usc.edu](http://titleix.usc.edu)

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

*Bias Assessment Response and Support - (213) 740-2421*

[studentaffairs.usc.edu/bias-assessment-response-support](https://studentaffairs.usc.edu/bias-assessment-response-support/)

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

*The Office of Disability Services and Programs - (213) 740-0776*

[dsp.usc.edu](http://dsp.usc.edu/)

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

*USC Support and Advocacy - (213) 821-4710*

[studentaffairs.usc.edu/ssa](https://studentaffairs.usc.edu/ssa/)

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

*Diversity at USC - (213) 740-2101*

[diversity.usc.edu](https://diversity.usc.edu/)

Information on events, programs and training, the Provost’s Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

*USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu/), [emergency.usc.edu](http://emergency.usc.edu/)

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

*USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call*

[dps.usc.edu](http://dps.usc.edu/)

Non-emergency assistance or information.