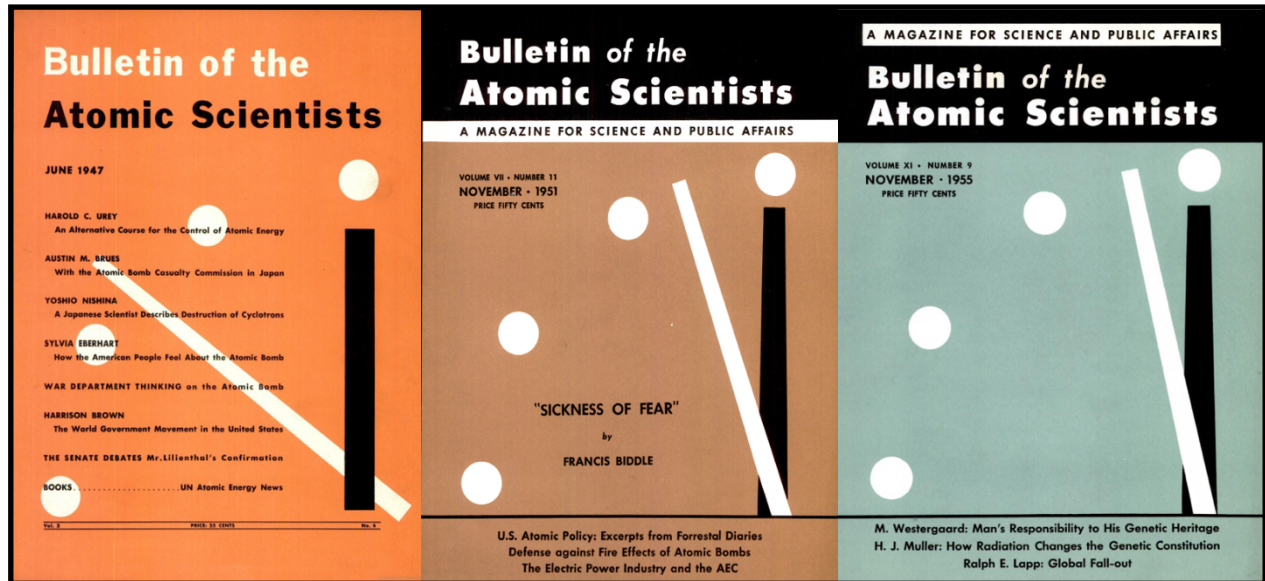


Instructor: Dan Zimmer (he/him), zimmerd@stanford.edu
Spring 2023: T/Th 12:00-1:20pm, Location: Wallenberg 124

Office Hours: [Thurs. 2:00-4:00pm](#)
Encina Hall, 2nd Floor



“The Science and Politics of the Apocalypse”

The Apocalypse may have been ‘nigh’ for millennia, but how people envision the imminent end of the world has changed drastically over time. This course considers how expectations surrounding the Apocalypse—and the role that human beings might play in bringing it about—have transformed over the last two centuries. Together, we survey a range of debates about how to reconcile traditional Western political theories and practices with the increasingly planet-scale scope of human power, addressing some of the relevant scientific developments as we proceed. The course begins with a brief look at traditional religious apocalypticisms before turning to explore how the apocalypse came to be approached as an entirely this-worldly phenomenon that demands urgent political consideration. Topics covered include the 19th century discovery of deep time, the mid-20th century development of the hydrogen bomb, and the ongoing rediscovery of the Earth as a complex system facing a mounting array of ecological risks.

Learning Goals

To successfully complete this course, you will: (1) acquire key historical reference points for understanding the origin and evolution of anthropogenic existential risk; (2) develop your ability to sustain constructive dialogue on emotionally fraught topics; and (3) conduct supervised independent research on an aspect of anthropogenic existential risk of your choosing and present your findings as an essay.

Course Format

This is a seminar class that meets twice a week for 80 minutes. I will typically begin class with a short presentation that will frame the material, provide context, and/or raise problems for us to talk about, but our meetings will also involve significant amounts of in-class discussion, which means that it is important for you to keep up with the reading, bring the texts with you to class, and to come prepared to think and talk together about the day’s material.

Course Requirements

- **Weekly Responses:** You will be expected to write a short (200-300 word) reflection on an aspect of one of that week's readings or a connection or tension that you notice between readings. You will also be expected to comment on at least one other person's response. Responses and comments are due by 8:00am Thursdays.
- **Short Presentation:** On the first day of class, you will sign up to deliver a short (5 to 10 minute) presentation on the assigned readings that will help to open up that day's discussion. This affords each student the opportunity to practice synthesizing complex material while also steering our conversation towards areas of personal interest.
- **Seminar Participation:** You are expected to actively contribute to in class discussions, deepening and diversifying the range of perspectives while helping to foster an atmosphere in which all feel welcome to participate. You will not be graded on either the sheer volume of participation nor how sophisticated you sound, but on whether your comments contribute to advancing our shared project of better understanding the ideas under discussion.
- **Term Paper:** You will be responsible for composing a medium length (3,000-5,000 word) final research essay. Students are encouraged to range widely and be creative in their choice of topics. Proposals (300-500 words) will be due the fifth week of class. A near-complete draft (of at least 3,000 words) will be due by week eight and receive prompt feedback in time to revise and submit the final draft.

Grading

Assignments are letter-graded. These letter grades are then translated onto a 100-point scale, where A=95, B=85, etc., and pluses and minuses add and subtract 3.5 points respectively. Each of these values represents the midpoint in a "grade space" that ranges from 96.99 to 93 (for an A) 92.99 to 90 (for an A-minus), etc. Your letter grade for the course will be determined by the "grade space" into which the average of your numerical grades falls. (In other words: an A on an assignment is worth 95, but the minimum final grade for an A in the class is 93.) The course requirements contribute to your overall grade as follows:

Short Presentation:	10%
Weekly Responses:	15%
Participation:	25%
Term Paper:	50%

Guidelines for Written Work

Written work must be typed in 12-point standard font (e.g. Times New Roman) and double-spaced, with one-inch margins and numbered pages. All evidence must be cited in accordance with MLA or Chicago format using footnotes rather than endnotes. You will find a range of writing support services available at the [Hume Center](#), but I am also happy to provide pointers and feedback during office hours.

Course Policies

- **Attendance:** You may miss two class sessions no questions asked (though advanced warning is appreciated where possible). However, beginning with the third unexcused absence, every missed class will lower the final participation score by a letter grade.

- **Deadlines:** You may submit one assignment up to 48 hours late with no points deducted. Beyond this, assignments will lose one third of a letter grade (e.g. A- to B+) for every 24 hours they are late.
- **Honor Code:** You are expected to abide by [Stanford's Honor Code](#). Please review [these recommendations](#) from the Office of Community Standards and this refresher on [documentation and citation resources](#) from the Hume Center.
- **Academic Accommodations:** If you experience disability, please register with the Office of Accessible Education (OAE). Professional staff will evaluate your needs, support appropriate and reasonable accommodations, and prepare an Academic Accommodation Letter for faculty. To get started, or to re-initiate services, please visit oe.stanford.edu.

Credit Options

Each academic credit you earn requires 3 hours of work per week (including class time). Workload for this course is based on 4 credit hours, which means an average of 9-10 hours a week spent on reading and assignments. The 3 credit variant of this course exists to provide you with additional scheduling flexibility, but the workload remains the same for all students.

Required Book(s): Jonathan Schell, *The Fate of the Earth* (New York: Knopf, 1982).

Course Schedule

Week 1: The Apocalypse Has Always Been Political (65 pages)

Apr. 4

- Introduction.

Apr. 6

- Trailer for [The Late Great Planet Earth](#) (1970).
- Alison McQueen, *Political Realism in Apocalyptic Times* (Cambridge: Cambridge University Press, 2018), pp. 22-62.
- Günther Anders, "These for the Atomic Age" (1959) in *The Massachusetts Review*, Vol. 3, No. 3 (Spring, 1962), pp. 493-505.
- Audra Mitchell and Aadita Chaudhury, "Worlding Beyond 'The' 'End' of 'The World': White Apocalyptic Visions and BIPOC Futurisms" in *International Relations* (2020), pp. 309-332

Week 2: Deep Time and the Cancelation of the Apocalypse (120 pages)

Apr. 11

- "[The Bible Timeline](#)" (2013)
- Martin Vargic, "[Timeline of the Universe](#)" (2015)
- A.O. Lovejoy, *The Great Chain of Being* (1936) (Cambridge, MA: Harvard University Press, 2001), pp. 288-333.
- Charles Lyell, *Principles of Geology*, Vol. 2 (1830) (Cambridge: Cambridge University Press, 2009), 141-157.
- Lord Kelvin, "[On the Age of the Sun's Heat](#)," *Macmillan's Magazine*, vol. 5 (March 5, 1862), pp. 388-393.

- Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (1871) (Princeton: Princeton University Press, 1981), pp. 385-405.

Apr. 13

- Emmanuel Kant, "Idea for a Universal History with a Cosmopolitan Purpose" (1784) in *Kant: Political Writings* (Cambridge: Cambridge University Press, 1991), 41-53
- Emmanuel Kant, "Anthropology from a Pragmatic Point of View" (1798) in *Anthropology, History, and Education* (Cambridge: Cambridge University Press, 2007), pp. 416-429.
- Karl Marx, "[Part 1: Bourgeois and Proletarians](#)" of *The Communist Manifesto* (1848).
- Karl Marx, "[Preface to the First German Edition of Capital](#)" (1867).
- Friedrich Nietzsche, *Human, All Too Human* (1878), Trans. R.J. Hollingdale (Cambridge: Cambridge University Press, 1996), Part One: aphorisms 1-3, 25, 29-33, 245-249; Part Two: aphorism 179.
- Friedrich Nietzsche, *The Gay Science* (1882), Trans. Walter Kaufmann (New York: Random House, 1971), aphorisms: 1, 13, 76, 108-110, 125, 343-345.

Week 3: The Great War and the Return of Armageddon (134 pages)

Apr. 18

- David Sepkoski, *Catastrophic Thinking: Extinction and the Value of Diversity from Darwin to the Anthropocene* (Chicago: University of Chicago Press, 2020), pp. 84-125.
- Winston Churchill, "Shall Mankind Commit Suicide?" in *Nashe's Pall Mall Magazine* (September 1924), pp. 12-13, 18.
- Winston Churchill, "[Fifty Years Hence](#)" (1931).
- Raymond Fosdick, *The Old Savage in the New Civilization* (1929), pp.1-42.

Apr. 20

- Sigmund Freud, "A Difficulty in the Path of Psychoanalysis" in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Vol. 17, Trans. James Strachey (London: The Hogarth Press, 1955), pp. 137-144.
- Sigmund Freud, *Civilization and Its Discontents* (1930), Trans. James Strachey (New York: W.W. Norton & Co, 1961), pp. 117-122, 134-145.
- Sigmund Freud and Albert Einstein, "Why War?" (1932) in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Vol. 22, Trans. James Strachey (London: The Hogarth Press, 1961), pp. 197-215.
- Albert Einstein and Leo Szilard, "[The Einstein-Szilard Letter](#)" of August 2, 1939.

Week 4: Fission, Fusion, and Universal Death (111 pages)

Apr. 25

- *Life*, "[When the Atom Bomb Struck—Uncensored](#)" (29 Sept. 1952), pp. 17-27.
- Spencer Weart, *The Rise of Nuclear Fear* (Cambridge, MA: Harvard University Press, 2012), pp. 45-57; 96-102; 110-122.
- Bertrand Russell, "The Atom Bomb" (1945) in *The Collected Papers of Bertrand Russell*, Vol. 24 (New York: Routledge, Forthcoming), pp. 307-311.
- Raymond Fosdick: "The Challenge: One World or None" in *The New York Times* (September 2, 1945).
- Norman Cousins, *Modern Man Is Obsolete* (New York: Viking Press, 1945), pp. 7-49.

Apr. 27

- Bertrand Russell, "Address to the House of Lords" (1945) in *Has Man a Future* (London: Spokesman Press, 2001), pp.18-23.
- Hans Bethe, Harrison Brown, Frederick Seitz, and Leo Szilard, "The Facts About the Hydrogen Bomb" in *The Bulletin of the Atomic Scientists*, Vol. 6, No. 4 (1950), pp.106-109, 126.
- Albert Einstein, "Arms Can Bring No Security" (1950) in *The Bulletin of the Atomic Scientists*, Vol. 6 No. 3 (March 1950), p.71.
- Bertrand Russell, "On History" (1904) in *The Basic Writings of Bertrand Russell* (New York: Routledge, 2009), pp. 499-505.
- Bertrand Russell, "[Man's Peril](#)" (1954) in *The Collected Papers of Bertrand Russell*, Volume 28, Ed. Andrew Bone (New York: Routledge, 2003), pp.66-69.
- Winston Churchill, "[Address to the House of Commons](#)" (March 1, 1955).

Week 5: Political Freedom or Biological Life? (133 pages)**RESEARCH PAPER PROPOSAL DUE**May 2

- Walt Disney, [Our Friend the Atom](#) (1957).
- Hannah Arendt, "Total Domination" (1958) in *The Origins of Totalitarianism*, Second Edition (New York: Schocken Books, 2004), pp. 269-275, 565-592.
- Karl Jaspers, *The Atom Bomb and the Future of Man* (1958), Trans. E.B. Ashton (Chicago: University of Chicago Press, 1961), pp. 1-6; 28-56; 160-173.
- Bertrand Russell, *Common Sense and Nuclear Warfare* (1959) (New York: Routledge Classics, 2010), pp. 54-63.

May 4

- Hans Morgenthau, "[Death in the Nuclear Age](#)" in *Commentary Magazine* (Sept., 1961).
- Hannah Arendt, "Europe and the Atom Bomb" (1954) in *Essays in Understanding*, Ed. Jerome Kohn (New York: Schocken Books, 1994), 419-422.
- Hannah Arendt, "Introduction into Politics" (c.1959) in *The Promise of Politics*, Trans. Jerome Kohn (New York: Penguin Random House, 2005), pp. 96-114; 142-162.
- E.B. White, "Sootfall and Fallout" (1956) in *Essays of E.B. White* (New York: Harper Perennial, 1977), pp. 112-124.

Week 6: From Fallout to Tracers (121 pages)May 9

- Isao Hashimoto, "[1945-1998](#)" (2003).
- Rachel Carson, *Silent Spring* (1962), Chapters 1 & 2.
- W. Ross Ashby, *An Introduction to Cybernetics* (London: Chapman & Hall LTD, 1957), pp. 1-6.
- Barry Commoner, *The Closing Circle* (1971) (Mineola, NY: Dover Publications Inc., 2020), pp. 12-60.
- Howard Odum, *Environment, Power and Society* (New York: Wiley Interscience, 1971), pp. 1-25, 236-253, 304-310.

May 11

- Bell Science Hour, [The Unchained Goddess](#) (1958).
- Paul Edwards, “Entangled Histories: Climate Science and Nuclear Weapons Research” in *The Bulletin of the Atomic Sciences*, Vol. 68, No. 4 (2012), pp. 28-40.
- James Lovelock, “The Interaction of the Atmosphere and the Biosphere” in *The Atmosphere: Endangered and Endangering*, Ed. William Kellogg and Margaret Mead (Washington DC: U.S. Government Printing Office, 1977), pp. 115-123.
- Margaret Mead, “Preface” in *The Atmosphere: Endangered and Endangering*, Ed. William Kellogg and Margaret Mead (Washington DC: U.S. Government Printing Office, 1977), pp. xix-xxiii.
- Paul Ehrlich, Carl Sagan, Donald Kennedy, and Walter Roberts, *The Cold and the Dark: The World after Nuclear War* (New York: Norton, 1984), pp. xiii-xxxv; 43-59.
- National Research Council, *Earth System Science: Overview: A Program for Global Change* (Washington DC, *The National Academy Press*, 1986), pp. 4-29.

Week 7: The Fate of the Earth (System) (132 pages)May 16 & 18

- BBC, [On the 8th Day](#) (1984).
- François Diaz-Maurin, “[Nowhere to Hide: How a Nuclear War Would Kill You – And Almost Everyone Else](#)” in *The Bulletin of the Atomic Scientists* (Oct. 2022).
- Jonathan Schell, *The Fate of the Earth* (New York: Knopf, 1982), pp. 91-188.
- Jacques Derrida, Jacques Derrida, “No Apocalypse, Not Now: Full Speed Ahead, Seven Missiles, Seven Missives” in *Diacritics*, Vol. 14, No. 2, Nuclear Criticism (Summer, 1984), pp. 20-31.

Week 8: Some Say the World Will End in Fire (102 pages)**RESEARCH PAPER DRAFT DUE**May 23

- ABC News, [Nightline](#) (7 September 1988).
- IPCC, [Summary For Policymakers](#) (2022).
- Roger Revelle and Hans Suess, “Carbon Dioxide Exchange Between Atmosphere and Ocean and the Question of an Increase of Atmospheric CO₂ During the Past Decades” in *Tellus*, Vol. IX (1957), pp. 18-27.
- Timothy Lenton et al, “Climate Tipping Points: Too Risky to Bet Against” in *Nature*, Vol. 575 (Nov. 2019), pp. 592-595.
- Luke Kemp, Chi Xu, Joanna Depledge, et al, “Climate End Game: Exploring Catastrophic Climate Change Scenarios” in *PNAS*, Vol. 119, No. 34 (2022), pp. 1-9.
- Dipesh Chakrabarty, *The Climate of History in a Planetary Age* (Chicago: University of Chicago Press, 2021), pp. 68-92.

May 25

- Clive Hamilton, *Defiant Earth: The Fate of Humans in the Anthropocene* (Malden, MA: Polity Press, 2017), 112-135.
- Joel Wainwright & Geoff Mann, *Climate Leviathan* (New York: Verso, 2018), pp. 25-49.
- Jairus Grove, *Savage Ecology: War and Geopolitics at the End of the World* (Durham, NC: Duke University Press, 2019), 35-57.

Week 9: Planet-Scale Problems and Risky Solutions (109 pages)

May 30

- [Geoengineering Map](#) (2022)
- The Economist, "[Could Solar Geoengineering Counter Global Warming?](#)" (2019).
- Oliver Morton, *The Planet Remade: How Geoengineering Could Change the World* (Princeton: Princeton University Press, 2015), 148-172.
- Henry Welser, "Modifying Weather on a Large Scale" in *Science*, Vol. 128, No. 3331 (October 1958), pp. 1059-1063.
- Joseph Masco, "The Age of Fallout" in *History of the Present*, Vol. 5, No. 2 (Fall 2015), pp. 137-164.
- Edward Teller, "The Planet Needs a Sunscreen" in *The Wallstreet Journal* (October 17, 1997).
- Paul Crutzen, "The Geology of Mankind" in *Nature*, Vol. 415 (Jan. 2002), 23.
- Paul Crutzen, "Albedo Enhancement by Stratospheric Injections: A Contribution to Resolve a Policy Dilemma?" in *Climatic Change*, No. 77 (2006), pp. 211-217.

June 1

- Holly Jean Buck, *After Geoengineering: Climate Tragedy, Repair, and Restoration* (New York: Verso, 2019), 24-49.
- Aaron Tang and Luke Kemp, "A Fate Worse than Warming? Stratospheric Aerosol Injection and Global Catastrophic Risk" in *Frontiers in Climate*, Vol. 3 (Nov. 2021), pp. 1-13.
- David Keith, "Toward Constructive Disagreement About Geoengineering" in *Science*, Vol. 374, No. 6569 (12 November 2021), 812-815
- Frank Biermann, Jeroen Oomen, Aarti Gupta, et al, "Solar Geoengineering: The Case for an International Non-Use Agreement" in *WIREs Climate Change*, Vol. e754 (Jan 2022), 1-8.

Week 10: Concluding Discussion: The Politics of Apocalypse (45 pages)

June 6

- Braden Allenby and Daniel Sarewitz, *The Techno-Human Condition* (Cambridge, MA: MIT University Press, 2011), pp. 63-7, 159-184.
- John von Neumann, "Can We Survive Technology?" (1955) in *The Neumann Compendium*, Ed. F. Brody and T. Vámos (Singapore: World Scientific Publishing Co Ltd, 1995), 658-673.

JUNE 10: RESEARCH PAPER DUE