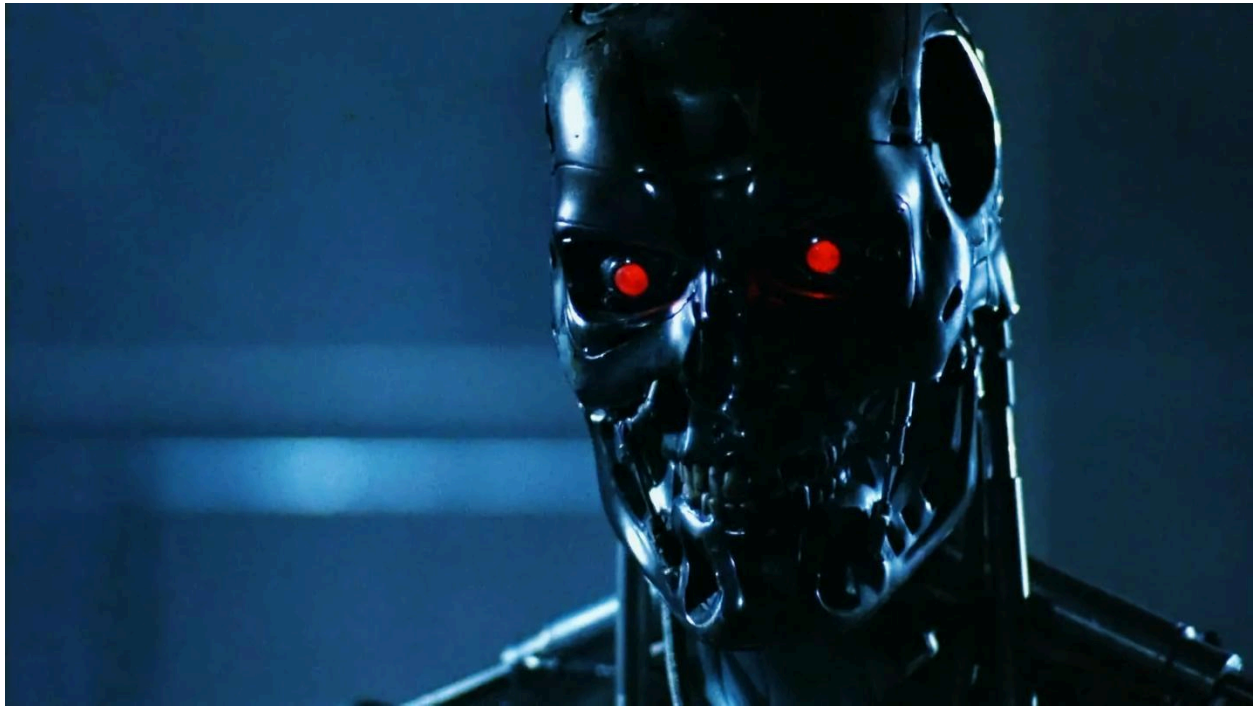


HIST 4110: EXISTENTIAL RISK



Essential Information

Class Time/Place: Mondays and Wednesdays, 9:30-10:45 AM EST, White-Gravenor 206.

Professor's Office Hours: Tuesdays, 11:00-1:00 PM EST, ICC 610.

Professor: Dagomar Degroot. Email: dd865@georgetown.edu. Web: DagomarDegroot.com.

Course Description

Existential risks threaten to drive humanity to extinction, or at least permanently prohibit humanity's future flourishing. We seem to live in an era defined, in part, by the proliferation of such risks, from extreme climate change to nuclear war, from engineered pandemics to artificial superintelligence.

Half of this course guides students through the history of such risks. It explores the origins of existential risk as a concept, and then reveals how different existential risks – including nuclear winter, asteroid impacts, the ozone hole, runaway global warming, and even alien invasions – were mitigated or exacerbated in different parts of the world between the nineteenth and twenty-first centuries. In the second half of the course, students collaborate to develop solutions to a present-day or near-future existential risk that seems particularly urgent. The solutions could, hopefully, guide government responses to that risk – and thereby make the world a little safer than it once was.

Course Goals

Like other courses offered by the Department of History, this course will help you:

1. Gain a deeper appreciation of the nature and practice of history as a discipline, and as the study, based on evidence, of human experiences, interactions, and relationships as they change over time.
2. Learn that history does not consist of a simple succession of self-evident facts, and that evidence-based interpretation and analysis are central to all historical work.
3. Hone reading, writing, and oral communication skills.
4. Develop your capacity to think historically: to situate events and developments in their historical context for the purpose of critical analysis.
5. Expand your ability to engage with complex causal analysis, and to articulate arguments that integrate supporting evidence and analytical commentary.
6. View the world from perspectives other than your own.

This course in particular will also help you:

1. Understand how different academic disciplines approach the human past, and what their distinct methods and sources can tell us.
2. Learn the history that will help you confront the most important risks faced by humanity today.

Breakdown

Participation:	20%
In-class Test:	20%
Existential Risk Project Proposal:	20%
Existential Risk Project Rough Draft:	10%
Existential Risk Group Project:	30%

Evaluation

You will submit all assignments on Canvas. You will be able to access additional assignment resources on our course homepage.

Participation:

You will earn half of your participation grade just for attending class. The other half will reflect the quantity and especially the quality of your comments. If we break into groups for debates and primary source exercises, I will evaluate your group participation. If you want top grades, I strongly encourage you to keep notes from your readings. You should aim for around two pages of single-spaced notes per week.

At any point in the semester, you may ask me for your current participation grade. If you find yourself speaking less than others, please meet with me to discuss how you might boost your performance. It's important to be proactive, because participation accounts for a significant share of your final grade in a discussion seminar.

In-Class Test:

A short answer test that will quiz you on the history and future of existential risk. The questions touch on fundamental concepts, rather than details.

Project Proposal:

You will develop a short (no more than 1,000-word) proposal for a major class project that focuses on mitigating an existential risk. You will identify a risk that our class could address, and defend your selection of that risk. Then, you will develop a vision for how we could work to reduce that risk.

Group Project:

We will work in class, and outside of class, to develop a detailed proposal for reducing a single existential risk. The risk will be chosen on the basis of my analysis of the project proposals.

After we begin the project, our weekly readings will be tailored to the project. We will divide into groups dedicated to different aspects of the project. Our classes will involve groupwork, interviews with visiting experts, simulations, or even visits to local institutions that are relevant to the risk we've chosen to address.

Formatting Your Assignments

Make a title page! Your title page should have your assignment title in large, centered font. Your name, your class name, my name, and the date should be in a smaller font at the bottom right of your title page. **Note that your title page is not included in your page count.**

Your papers should be written in size 12, Times New Roman font. They should be double-spaced. You should use standard margins (one inch on all sides of the document). Number your pages (at the top right).

Use formal academic writing (no contractions or colloquialisms).

Cite all sources using Chicago Style formatting, which means that you need footnotes **and** a bibliography (**note that the bibliography does not add to your page count**). Click [here](#) to find out how you do this. You should always cite at the end of a quotation. Otherwise, include all citations in a footnote at the end of a paragraph. You do not need to cite every sentence. Your footnotes should be numbered sequentially and they should be single-spaced.

Grading Criteria

Each of these criteria will be worth approximately a third of your grade:

Clarity:

Are you using words that appropriately and formally express your meaning? Are your points sourced correctly? Do your sentences precisely express your meaning, and are they grammatically correct? Is there a clear thesis that presents an argument and outlines how that argument will be defended? Is there a coherent organization that culminates in a conclusion that references the thesis?

Research:

Are your secondary sources serious works of scholarship, and are they relevant to your argument? Do your primary sources illuminate the issue you are investigating, and to what extent? Are those primary sources relevant to your argument, and do you present them in the context of your secondary sources?

Ideas:

How creative and nuanced are your arguments? Are you merely repeating the claims of other scholars, or are you evaluating them in the context of other arguments and concepts? To what extent can you develop fresh ideas?

Value of Letter Grades

A	95-100
A-	90-94
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72

Important Notes

House Rules:

You may use your laptops to take notes or look up information in class. However, you may **not** use your phones, and you may not access social media.

Do not show up late to class. This detracts from your learning and disturbs your classmates. If you are repeatedly late, I will lower your participation grade, and I may do so without informing you.

Submitting Assignments:

All assignments should be submitted on Canvas, and all are due **at any time on the due date**. Late assignments will receive a 2%/day penalty. I will not grade assignments that are more than two weeks late, unless you have negotiated an extension with me (see below).

Extensions:

You may ask me for a short extension **before an assignment is due**. I will likely grant your request if you A) give me a convincing explanation for why you're late; B) give me a roadmap that outlines how you will complete your assignment; and C) propose a new due date.

I will only grant requests for an extension on or after the assignment due date in exceptional circumstances (a serious illness, for example). You do not need a doctor's note. Be sure to contact your deans in case of absences, difficulties meeting due dates, and other problems.

Missing Assignments:

If you fail to hand in an assignment, **you will receive a zero for that assignment**. Note that you will not necessarily receive a message from me that asks about your missing assignment; it's up to you to keep track of the due dates in this course.

Missing Class:

You must attend class to earn your full participation grade (see above). If you think that you will need to miss several classes for significant and predictable reasons (such as religious observances, or University-sponsored athletic events), you must inform me of the specific circumstances and dates **at the start of the term**.

I will try to accommodate requests for a reasonable number of such absences. You must make sure that the details of the situation are clear to me early on, so that you may have a chance to enroll in a different class if I cannot accommodate your circumstances. Note that the short length of this module will make it hard for you to do well if you must miss more than two classes.

If you cannot attend class for whatever reason – a White House soiree, an infectious illness – please let me know. I will excuse you if I hear from you before class. If you do not let me know, you will receive a grade of zero for the class you missed.

Academic Honesty:

Plagiarism is not just about copying someone else's writing. *Any time* you present ideas without correctly citing them, you are committing plagiarism. **This is the most serious intellectual offense you can commit at a university**, so your professors – me included – take it very seriously.

It is **your** responsibility to familiarize yourself with the [Georgetown University Undergraduate Honor System](#). It is my professional duty to refer academic misconduct – including plagiarism –

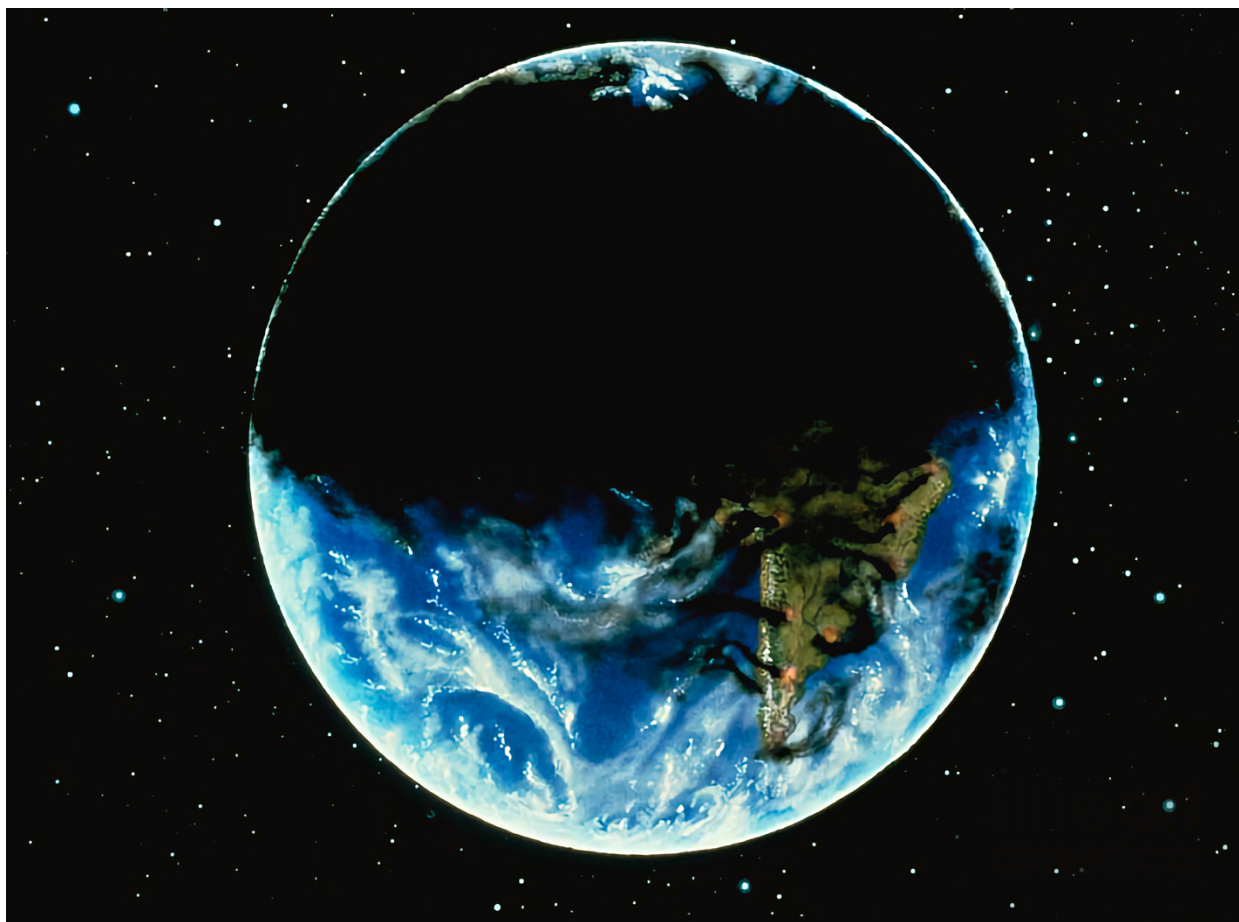
to the Georgetown Honor Council. If the Council decides that you have plagiarized on an assignment, you will fail that assignment, you may fail the course, and you may suffer additional, more serious consequences.

Artificial Intelligence:

A Large Language Model (LLM), such as ChatGPT or DeepSeek, will not be able to complete the assignments that you'll need to write in this course – at least, not competently. It will be able to help you look up sources, try out new ideas, or avoid serious errors. I allow the use of LLMs *for this purpose*. In class, we'll discuss how to use – and how not to use – LLMs in coursework.

Beyond the Course:

University policy requires faculty to report any disclosures about sexual misconduct to the Georgetown Title IX Coordinator, who directs the University's response to sexual misconduct. Georgetown has a number of fully confidential professionals who provide support and assistance to survivors of sexual assault and other forms of sexual misconduct. To connect with those professionals – including to report an incident – and to review our university policies, you can visit: <https://sexualassault.georgetown.edu>.



Schedule

- *This schedule may be changed by your professor. You should have one week's notice.*
- *Please complete all weekly readings by Monday.*
- *If you have trouble completing the readings, I am more than happy to chat with you. **My door is always open.***
- *Be sure to take notes so you can contribute to our classroom conversations. You may want to bring a few questions to class. And make sure you can talk about specific passages in our readings.*

PART I: AN INTRODUCTION TO EXISTENTIAL RISKS

Week 1: The Great Filter

January 7

Readings:

1. Ord, Toby. *The Precipice: Existential Risk and the Future of Humanity*. New York: Hachette Books, 2020. Please read up to page 163 (or in other words, the introduction and sections 1-5).
2. Jonathan H. Jiang et al., "Avoiding the 'Great Filter': Extraterrestrial Life and Humanity's Future in the Universe." *arXiv preprint* arXiv:2210.10582 (2022).

Week 2: Understanding Risk

January 12

January 14

Readings:

1. U.S. Nuclear Regulatory Commission, *Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants*. Report WASH-1400 (NUREG-75/014). Washington, DC: U.S. Government Printing Office, 1975. Available [here](#).
2. Stirling, Andy. "Keep It Complex." *Nature* 468 (2010): 1029–1031.
3. Aven, Terje. "Risk assessment and risk management: Review of recent advances on their foundation." *European Journal of Operational Research* 253:1 (2016): 1-13.

Week 3: Climate Change

January 19: NO CLASS

January 21

Readings:

1. Episode 2 and 10 of *The Climate Chronicles*. Available at: [TheClimateChronicles.com](https://www.theclimatchronicles.com) (or wherever you download podcasts).
2. IPCC AR 6, “Summary for Policymakers.” Available [here](#).
3. Bradshaw, Corey J. A. et al., “Underestimating the Challenges of Avoiding a Ghastly Future.” *Frontiers in Conservation Science* 1 (2021).
4. Trust, Sandy et al., “Planetary Solvency.” Institute and Faculty of Actuaries, 2025. Available [here](#).

Week 4: Nuclear War

January 26

January 28

Readings:

1. Schlosser, Eric. *Command and Control: Nuclear Weapons, the Damascus Accident, and the Illusion of Safety*. New York: The Penguin Press, 2013.

Instead of coming to class on January 26 (this should take no more than 75 minutes):

1. Assess the toll of a nuclear explosion with a Nuclear Bomb Blast Simulator. Available at: <https://outrider.org/nuclear-weapons/interactive/bomb-blast>.
2. Watch a short video: “How would a nuclear war between Russia and the US affect you personally?” Future of Life Institute. Available at: <https://www.youtube.com/watch?v=-xthzy1PxTA>.
3. Read a scientific article: Shi, Yuning et al., “Adapting agriculture to climate catastrophes: the nuclear winter case.” *Environmental Research Letters* 2025. Available at: <https://iopscience.iop.org/article/10.1088/1748-9326/adcfb5>.

Week 5: Pandemics and Contamination

February 2

February 4

Readings:

1. Casadevall, Arturo. “Pandemics past, present, and future: progress and persistent risks.” *The Journal of Clinical Investigation* 134:7 (2024).
2. Degroot, Dagomar “One Small Step for Man, One Giant Leap for Moon Microbes? Interpretations of Risk and the Limits of Quarantine in NASA’s Apollo Program.” *Isis* 114:2 (2023): 272-298.
3. Colin J. Carlson et al., “Pathogens and planetary change.” *Nature Reviews Biodiversity* 1:1 (2025): 32-49.
4. Chitayat, Liyam and Kate Adamala, “What to Do About ‘Mirror Life?’” *Foreign Affairs*, 2025. Available [here](#).

Week 6: Artificial Superintelligence

February 9

February 11: NO CLASS

Readings:

1. Kokotajlo, Daniel et al., “AI 2027.” Available [here](#).
2. Have a look at Moltbook (moltbook.com).
3. Stenseke, Jakob. “Counter-productivity and suspicion: two arguments against talking about the AGI control problem.” *Philosophical Studies* (2025): 1-24.
4. Blili-Hamelin, B., L. Hancox-Li, and A. Smart, “Unsocial Intelligence: An Investigation of the Assumptions of AGI Discourse.” Preprint (arXiv:2401.13142), 2024.
5. Dario Amodei, “The Adolescence of Technology.” Available at: <https://www.darioamodei.com/essay/the-adolescence-of-technology>.
6. Drexel, Bill, and Caleb Withers. “AI and the Evolution of Biological National Security Risks.” Center for a New American Security. August 13 (2024): 2024.

Week 7: Biodiversity Collapse

February 17: TUESDAY IS ON A MONDAY SCHEDULE

February 18

Readings:

1. Keck, François, Tianna Peller, Roman Alther, Cécilia Barouillet, Rosetta Blackman, Eric Capo, Teofana Chonova et al. “The global human impact on biodiversity.” *Nature* (2025): 1-6.
2. Van Der Sluijs, Jeroen P. “Insect decline, an emerging global environmental risk.” *Current opinion in environmental sustainability* 46 (2020): 39-42.
3. Gebremariam, Gebreegziabher Hailay. “A systematic review of insect decline and discovery: Trends, drivers, and conservation strategies over the past two decades.” *Psyche: A Journal of Entomology* 2024:1 (2024): 5998962.
4. Saban, Kristen E., and John J. Wiens. “Unpacking the extinction crisis: rates, patterns and causes of recent extinctions in plants and animals.” *Proceedings B* 292:2057 (2025): 20251717.
5. Roberts, Patrick et al., “Uncovering the Multibiome environmental and Earth system legacies of past human societies.” *Annual Review of Environment and Resources* 49 (2024).

Week 8: Cosmic Risk

February 23

February 25: IN CLASS TEST

Readings:

1. Chapters 3, 4, 18, 19, and 20 in Degroot, Dagomar, *Ripples on the Cosmic Ocean: An Environmental History of Our Place in the Solar System*. Cambridge, MA: Harvard University Press, 2025.
2. Fischer, Ilan and Shacked Avrashi, "Identifying optimal decision-making strategies and determining effective messaging to maximize the expected outcomes of potential human–extraterrestrial encounters." *International Journal of Astrobiology* 23 (2024): e21.

Week 9: Civilizational Collapse

March 9

March 11: EXISTENTIAL RISK PROJECT PROPOSALS DUE

Readings:

1. Parts I and III in Kemp, Luke. *Goliath's Curse: The History and Future of Societal Collapse*. New York: Knopf, 2025.
2. Roberts, T., "Digital authoritarianism: a systematic literature review," *Information Technology for Development* (2024)

APRIL 22: EXISTENTIAL RISK PROJECT ROUGH DRAFT DUE

APRIL 27: EXISTENTIAL RISK PROJECT DUE

PART II: MAJOR CLASS PROJECT, GEOENGINEERING

If you'd like to propose a reading or an activity (such as an interview, a visit to a location, etc.), please list it between the horizontal lines, below. And please include your name next to the reading or activity you've added.

<https://www.simonsfoundation.org/event/solar-radiation-management-annual-meeting-2025/> (annual meeting of SRM experts, we could look at the slides/presentation materials for technical aspects of our research, which may also give us ideas of experts to reach out to if they can explain concepts in simpler terms. Also, the 2026 meeting is April 9-10 in NYC) –Abby

Talk with/interview Prof. **Jeremy Mathis** (Earth Commons and STIA professor at Georgetown), had a class with him Fall 2025 and he's very knowledgeable about geoengineering and especially how that may work (in regards to government, environment, industry) - Katherine (John Henry seconds this, taking Environmental Security in the Arctic right now, I would be happy to ask him)

If no Prof Mathis (who I highly recommend we talk with), she's more focused on climate change / energy security but I would also recommend talking to Prof **Theresa Sabonis-Helf** (STIA).
She's especially knowledgeable about the energy side of things - Katherine

Maybe also explore somewhere in the **Earth Commons**? Pretty sure there ought to be someone with more expertise on geoengineering (though that may be Prof Mathis) - Katherine

Some **articles on SRM and ethics** (not sure if that's where we want to go, but we could explore):  Week 5 Article.pdf  Week 10 Article.pdf - Katherine

https://accf.org/wp-content/uploads/2026/03/ACCF_SRM_TechnologyV5.pdf - Feb 2026 report from American Council for Capital Formation arguing for US leadership in SRM - Katherine

<https://physicstoday.aip.org/features/the-urgent-need-for-research-governance-of-solar-geoengineering> - very good intro (in my opinion) to what SRM is and what it actually does - Katherine

[Space Bubbles](#) - John Henry

March 23: VISIT NATURAL HISTORY MUSEUM (see below)
March 25

Museum Visit:

Instead of coming to class on Monday, please visit the Hall of Fossils, the Hall of Human Origins, and the NASA Earth Information Center at the Smithsonian Museum of Natural History.

In these exhibits, look for information that can tell you - and us - about the urgency of present-day climate change. Your goal is to use this museum to learn what both the deep past and present-day computer models and instruments can tell us about the magnitude of the dangers posed by global warming.

Concentrate on: 1) the reasons for past changes in climate; 2) the connections between climate changes and life on Earth, especially the possible links between climate change and past extinctions.

We will discuss your findings in class.

Readings:

1. Ripple, William J. et al., "The risk of a hothouse Earth trajectory." *One Earth* 9:2 (2026). Available [here](#).

2. Dagomar Degroot, “Our Ancestors Coped with the Collapse of Ocean Currents. Can We?” *Science Politics* (2026). Available at: <https://sciencepolitics.org/2026/02/11/our-ancestors-coped-with-the-collapse-of-ocean-currents-can-we>.
3. White House Office of Science and Technology Policy. “Congressionally Mandated Research Plan and an Initial Research Governance Framework Related to Solar Radiation Modification.” Washington, DC: Executive Office of the President, 2023. Available [here](#).
4. Yuan, Tianle et al., “Abrupt reduction in shipping emission as an inadvertent geoengineering termination shock produces substantial radiative warming.” *Nature Communications Earth & Environment* 5:1 (2024): 281.

March 30

April 1

Readings:

1. Kim Stanley Robinson, *The Ministry for the Future*. You can read the whole book - it provides a lot of food for thought - or you can focus on the first 30 or so (short) chapters, and the final 30.