

POL487H1  
The Planet's Last Frontiers  
Fall 2025  
Mondays 1-3PM  
Robarts Library 14190  
Instructor: Prof. Jessica Green  
Office: Sidney Smith, 3031  
Office Hours, Tuesdays 12-2 or by appointment  
(Please sign up on Quercus)

### **Course Description**

This course will examine the law, politics and environmental challenges surrounding four parts of the Earth that belong to no one (i.e. *res nullius*): Antarctica, the high seas (and a variety of associated environmental issues), the Arctic and outer space. We ask several questions related to each of these areas:

- 1) What environmental threats do they face?
- 2) How have these threats been addressed – both through international environmental law, and other policy approaches?
- 3) Have these approaches been successful, and why or why not?

The course will consist of four parts. First, we review the history and mechanics of international environmental law to understand the tools available to manage these areas. Next, we investigate each of the three areas in detail, looking both at general issues of management as well as specific cases. Each geographic area will start with a discussion of the environmental aspects: what's there, why we care about it and how it's currently managed. We will then turn to the legal and political responses.

### **Course Format**

This class will be run in a seminar-style format. Doing the readings and *coming prepared to discuss them* is essential.

### **Learning Objectives**

By the end of the semester, you should:

- Be able to identify the major environmental and social issues facing the planet's last frontiers.
- Understand the different types of actors involved and their contributions to solutions or inaction.
- Be able to explain the political challenges and legal approaches to international cooperation on transboundary environmental problems.

### **Readings**

Since this is a seminar, doing the readings is an essential component to the success of the course.

**You are expected to do ALL of the readings each week.**

All readings will be available electronically either on the Internet or through Quercus. **UofT-e** means they are available through the library website. When possible, I will link them through the Library Course Reserves on Quercus; these will be indicated by **LRL**. **Quercus** means they are available in the Readings module on the Quercus site for the class, uploaded as PDFs.

### **Course Assignments, Due Dates and Grading**

Since this course is held as a seminar, there is a great emphasis put on attendance and participation. I will take attendance. You will get one freebie absence; after that, absences will negatively affect your attendance grade.

The details of each assignment are detailed in the document “Assignments” available on the Quercus.

1. Attendance (10%)
2. In the news response papers (30%) [2 papers @ 15% each]
3. Short presentations on issues in outer space governance (15%)
4. End of semester “teach in” (20%)
5. In class term test (25%)

### **Policies and Expectations**

- In this course, you can expect that I will strive to be fair, respectful, responsive and open-minded.
- In return, I ask you to respectful of your classmates and of me, be prepared and on time for class, and meet deadlines for assignments.
- I expect that everyone will attend and participate actively in class. Active participation includes both contributing your ideas (questions, comments, analyses, insights) and listening to the contributions of others (without distraction).
- **Accessibility:** Students who require special arrangements should contact the Student Accessibility Services at (416) 978 8060; [accessibility.services@utoronto.ca](mailto:accessibility.services@utoronto.ca). Some students find that they must wait to contact and secure approval from Accessibility Services: in these cases, **you should still contact me in advance**, to let me know you might require accommodations for assignments.

### **Attendance**

Attendance is mandatory. I understand that under the current circumstances, everyone is operating under different, and sometimes unexpected constraints. If you are sick, please do not come to class.

**If you miss class, please do not email me to ask what you missed. Please download the slide deck and / or ask your classmates for notes.**

### **Quercus**

As indicated above, many materials will be available electronically through the U of T library, in the Readings module as a pdf, or through the Library Course Reserves menu option in Quercus.

*Please do not contact me if you are experiencing technical difficulties with Quercus.*

Consult the Help menus, especially [the one for students](#). You may also contact: lme.migration@utoronto.ca

### **Deadlines and late penalties**

**All deadlines are final.** For each day an assignment is late, there will be a 3% reduction in your grade. I may make exceptions under extenuating circumstances, such as illness or family emergency. However, these will require documentation. If there are other issues that you think may affect your ability to turn in assignments on time, I suggest you contact me *as early as possible*. I am **not** inclined to give extensions to those who ask the night before.

### **Email and communication**

I will hold weekly **IN PERSON** office hours on Tuesday, and I will be glad to meet with you at those times to discuss readings, lectures, assignments, essays, and more. If you cannot make my office hours, please email me and we can find another time. **You must sign up for office hours using the course calendar on Quercus.** If you would like to meet online, that is fine too; please just let me know.

I have also listed my email address in the contact information at the start of the syllabus; however, please consider several things when reaching out to me by email:

- **Please check (and double-check) that the answer to your query is not in the syllabus before you contact me with questions.**
- You are expected to write from your University of Toronto email account. If you write from another email account (Hotmail, Gmail, Yahoo, etc.), I might not answer.
- I generally use email to address simple yes/no questions and to make arrangements about logistics; if you have any substantive concerns, please come to my office hours.
- I will do my best to respond to your messages, but please don't expect a rapid response. I will not be responding daily to emails about the class and will not check my email on evenings and weekends. As such, please plan ahead if you need to reach out to me.
- If you write to request an extension or accommodation the night before an assignment is due, I am unlikely to accommodate your request.
- Please treat emails as a professional form of communication; I expect proper grammar, sentences, and greetings and sign-offs in your messages, and you can expect the same from me. Please include a greeting, and please address me as Prof. Green. A sign-off is also appropriate ("sincerely," "thanks," "cheers," followed by your name).

### **Legal**

**Please read the policy on [academic integrity](#).** Plagiarism results in failure in the class. **Academic dishonesty is a serious offense that can result in loss of credit, suspension, and possibly expulsion from the university. All suspected cases of academic dishonesty will be reported.**

Plagiarism includes:

- copying sentences or fragments from any source without quotes and references

- not citing a source used in your papers
- citing internet information without proper citation
- presenting someone else's work as your own
- *inadvertently* copying verbatim from any source.

**In many cases, plagiarism is a mistake rather than a deliberate act. If you have questions about what constitutes plagiarism, please come talk to me.**

I reserve the right to amend the syllabus.

### **Use of Generative AI**

In general, I think human brains are superior to machine brains. One point of a university education in the social science is to learn skills like critical reading, evaluating evidence, and constructing arguments. When you use automated technologies, you are foregoing part of the process of learning skills.<sup>1</sup> You are cheating yourself.

Also, using AI is [terrible for the climate](#). However, I will not penalize you for using generative AI (GAI), ***provided that you follow the guidelines below.***

- 1) **Disclosure.** You **must disclose** that you have used GAI (and which tool) in an assignment, and include the prompt *and* a screenshot of the output at the end of the assignment. If you use GAI and claim this as your own work, this is called plagiarism.

**If you don't submit these two items, you are giving me your word of honor that you did not use GAI *at all* on that submission. Please don't create false impressions: you might earn a grade of 0 and face an academic misconduct charge.**

- 2) **Limits.** You may use GAI for critiquing and editing an assignment for purposes of revision, but **the first draft must be original work produced by you alone.**

Any new ideas introduced by GAI during the critique or editing process must be appropriately cited as generated by the AI tool.

You may NOT use AI tools for actual drafting of ANY text, outline, presentation or slidedeck whatsoever (see #1).

- 3) **A word of caution:** You should note that GAI is not necessarily based on peer-reviewed work. Thus, it can (and does!) produce incorrect facts and citations. You will be responsible for any inaccurate content you submit regardless of whether it originally comes from you or from GAI. In other words, you can't blame it on ChatGPT.

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<sup>1</sup> Thanks to Wendy Wong for the formulation of the prose in this paragraph.

## CLASS SCHEDULE

### Sept 8: Introduction and overview

Question: What do we mean by the word frontier?

- Read excerpt from *Green Mars*, by Kim Stanley Robinson. **Quercus**.
- Endrizzi, Dimitri. 2023. As an Introduction: The Term ‘Frontier’ and Kindred Concepts, in Endrizzi et al. eds. *Frontiers – Law, Theory, Cases*. Read pp. 1-10. **Which definition(s) of frontier do you find most compelling and why?** UofT-e / LRL
- [How to read a journal article](#)

### Sept 15: A crash course in international environmental law

Questions: Why do we have international environmental law? What does IEL look like?

- Hardin, Garrett. 1968. The Tragedy of the Commons. *Science* 162: 1243–1248. Available [here](#).
- Mildemberger, Matto. 2019. The Tragedy of the Tragedy of the Commons. *Scientific American*. Available [here](#)
- Ostrom, Elinor, Joanna Burger, Christopher Field, Richard Norgaard, and David Policansky. 1999. Revisiting the Commons: Local Lessons, Global Challenges. *Science* 284(5412): 282–287. Available [here](#)
- Barrett, Scott. 2010. *Why Cooperate? The Incentive to Supply Global Public Goods*. Oxford ; New York: Oxford University Press. Introduction. **UofT-e / LRL**
- Bodansky, Daniel and Harro Van Asselt. 2023. *The Art and Craft of International Environmental Law*. Cambridge, MA: Harvard University Press. Chap 1, “What is International Environmental Law”. **UofT-e / LRL. Make sure you read the second edition!**
- Read the [Stockholm Declaration on the Human Environment](#) and [the Rio Declaration on Environment and Development](#)

### Sept 22: The Antarctic Treaty System (part 1)

Questions: What are the key provisions of the Antarctic Treaty, and how are they notable? What are the other agreements in the “Antarctic Treaty System” and what issues do they address?

- Read the [Antarctic Treaty](#). **What are the key provisions in the treaty?**
- Berkman, Paul. 2011. “President Eisenhower, the Antarctic Treaty, and the Origin of International Spaces.” In Paul Berkman et al. eds. *Science Diplomacy: Antarctica, Science and the Governance of International Spaces*. Available [here](#)
- Scully, Vincent. 2011. “The Development of the Antarctic Treaty System.” In Paul Berkman et al. eds. *Science Diplomacy: Antarctica, Science and the Governance of International Spaces*. Available [here](#)
- Yao, Joanne. 2021. An international hierarchy of science: conquest, cooperation, and the 1959 Antarctic Treaty System. *European Journal of International Relations* 27 (4). SAGE Publications Ltd: 995–1019. **UofT-e / LRL**. (You can skip the section “Science, Hierarchy and international order, on pp. 997-1002)

## Sept 29: The Antarctic Treaty System (part 2)

Questions: What are the key challenges and issues for Antarctic regulation going forward?

- Hemmings, Alan D. 2017. “Antarctic politics in a transforming global geopolitics” (Chapter 32). In *Handbook on the Politics of Antarctica*, edited by Klaus Dodds et. al. Cheltenham, UK: Edward Elgar. **UofT-e**
- Nyman, Elizabeth. 2017. Contemporary Security Concerns (Chapter 36). In *Handbook on the Politics of Antarctica*, edited by Klaus Dodds et. al. Cheltenham, UK: Edward Elgar. **UofT-e**
- Senigaglia, V., D. Hatton MacDonald, N. Stoeckl, J. Tian, E. Leane, V. Adams, R. Baird, et al. n.d. Managing tourism in Antarctica: impacts, forecasts, and suitable economic instruments. *Journal of Sustainable Tourism* 0 (0). Routledge: 1–21. **UofT-e** and available [here](#)

## Oct 6: The Oceans: Fisheries

How do we manage the world’s fisheries? How does the principle of sovereignty work on the high seas? Is sustainable fishing possible?

- **READ THESE FIRST:**
  1. Mendenhall, Elizabeth. 2019. “The Ocean Governance Regime” in Paul Harris, ed. *Climate Change and Ocean Governance*. Cambridge: Cambridge University Press. **UofT-e / Quercus**
  2. Johns, Leslie. 2022. “Law of the Sea” in *Politics and International Law: Making, Breaking and Upholding Global Rules*. Pp. 177-195. **UofT-e / LRL**
- Articles 87 and 116-120 of UNCLOS, available [here](#)
- Peruse the [Executive Summary of State of World Fisheries and Agriculture 2024](#), paying special attention to figures.
- DeSombre, Elizabeth. 2010. Flags of Convenience and Property Rights on the High Seas. In Robin Allen et al. eds. *Conservation and Management of Transnational Tuna Fisheries*. **UofT-e / Quercus**
- Barkin, J. Samuel, and Elizabeth R. DeSombre. 2013. Do we need a global fisheries management organization? *Journal of Environmental Studies and Sciences* 3 (2): 232–242. **LRL / UofT-e**
- Skim this article, paying particular attention to the figures: Welch, Heather et. al. 2022. Hot spots of unseen fishing vessels. *Science Advances* 8(4). **LRL / UofT-e**

## Oct 13: Thanksgiving Holiday. NO CLASS

## Oct 20: Mining the seabed

Questions: Is the Seabed common heritage of mankind? How is it regulated? How does prospecting work, and who benefits?

- For background on what deep sea mining is, watch this [short video](#). For a different view, watch [this one](#).
- Wood, Michael. 2022. “A Historical Perspective: The Evolution of the International Seabed Authority” Read pp. 41-59. In Alfonso Ascencio-Herrera and Myron Nordquist eds. *The*

*United Nations Convention on the Law of the Sea, Part XI Regime and the International Seabed Authority: A Twenty-Five Year Journey.* **UofT-e**

- Dingwall, Joanna. 2021. *International Law and Corporate Actors in Deep Sea Mining*. Chapter 2 – Sections 2.2 and 2.3 only. **UofT-e**
- Feichtner, Isabel, and Harald Ginzky. 2024. The struggle at the International Seabed Authority over deep sea mineral resources. *npj Ocean Sustainability* 3 (1). Nature Publishing Group: 1–3. **UofT-e**
- Bearak, Max. “[The US takes another step toward opening the seabed for mining](#)”. *New York Times* (link is a gift link). 21 May 2025.
- **Optional:** [John Oliver’s segment on Last Week Tonight](#) on Deep Sea Mining
- **Optional:** Rudyk, Bryce. 2021. Under the Sea. The Bottlemen Podcast. Available [here](#)

## Oct 27: READING WEEK; NO CLASS

### Nov 3: Geoengineering: Solar Radiation Management

Questions: Is SRM a viable climate policy? (How) should it be governed?

- Gelles, David. 2024. Silicon Valley Renegades Pollute the Sky to Save the Planet. *New York Times*. Gift link available [here](#).
- Keith, David. 2014. *The Case for Climate Geoengineering*. Cambridge: MIT Press. Chapters 1-2. **UofT-e / LRL**.
- Chhetri, Netra et al. 2018. *Governing Solar Radiation Management*. Academic Working Group on Climate Engineering Governance. Read the Executive Summary and Introduction. Available [here](#).
- Biermann, Frank et al. 2021. Solar geoengineering: The case for an international non-use agreement. *WIREs Climate Change*. **UofT-e / LRL**.

### Nov 10: The Arctic

Questions: How will climate change re-shape the physical and geo-political contours of the Arctic?

- Smieszek, Malgorzata et al. 2021. “The state and challenges of Arctic governance in an era of transformation.” *Cell* 4(12): 1665-1670. Available [here](#) and **UofT-e / LRL**
- Fravel, M Taylor et al. 2022. “China Engages the Arctic: a great power in a regime complex” *Asian Security* 18(2): 138-58. **UofT-e / LRL**
- Conley, Heather. 2025. “The Arctic Great Game” *Foreign Affairs*. **Quercus**.
- Ministry of Foreign Affairs, 2025. “[Canada’s Arctic Foreign Policy](#).” Read the sections entitled: Executive Summary, Arctic Foreign Policy Pillars, Leadership on Arctic Governance and Multilateral Challenges. Skim the others as you wish.
- Skim the Arctic Council brochure [here](#)

### Nov 17: Space

Questions: How is outer space currently governed? What challenges does this governance regime face?

Note: Today class will be run by YOU, in groups that you decide upon. Each group must a) choose an issue in space governance and b) present the key facts on the issue in class that day. See assignments sheet for more details.

*Original documents*

- Skim the [Outer Space Agreement](#)
- Skim the [Moon Agreement](#)
- Read the [Artemis Accords](#)

*Secondary Literature*

- Read this [brief history](#) of COPUOUS
- Byers, Michael and Aaron Boley. 2023. *Who Owns Outer Space?* Cambridge: Cambridge University Press. [Introduction](#). **UofT-e**

**Nov 24: Teach-in day**

Students will do group presentations about issues not covered or not covered in depth during the course of the semester. See Assignments for more details.

**Dec 1: Review**

**Dec 2: Make-up class: IN CLASS TERM TEST**