

NUCLEAR REGULATION

University of Georgia
Department of International Affairs
Spring 2026

Instructor Information

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Office Hours: Wednesdays, 1:30-2:30 p.m.

Course Information

Course: INTL 8200
Time: Wednesdays, 2:55-5:35 p.m.
Location: Candler Hall 115

1 Course Description

This course surveys the evolution of U.S. and international policies to control peaceful and non-peaceful uses of atomic energy. The course examines the regulatory framework governing civilian nuclear power plants, as well as the management of high-level waste and spent nuclear fuel. Students will learn about the international and U.S. federal agencies involved in implementing these regulations, including the Department of Energy, the Nuclear Regulatory Commission, the Environmental Protection Agency and the International Atomic Energy Agency. The latter section of the course considers international efforts to ensure that existing and emerging nuclear technologies and materials are not diverted into the production of nuclear weapons. Students will have the opportunity to apply their understanding of nuclear regulations and nonproliferation to the regulation of advanced reactor designs. Students will also gain experience delivering briefs on both technical and policy topics.

2 Course Texts

The following text is **required**:

Fox, Michael H. (2014). *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press.

The following text is **recommended**:

Pherson, Randolph H, Walter Voskian, Jr and Roy Sullivan. (2017). *Analytic Briefing Guide*. Globalytica.

3 Evaluation

- Technical Briefing (50 pts)
- Discussion Leadership (50 pts)
- Participation (55 pts)
- Final Presentation (100 pts)
- Final Exam (50 pts)

TOTAL POINTS = 305

3.1 Grading Scale

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

3.2 Student Responsibilities

Technical Briefing

Value: 1 x 50 PTS, 50 PTS total

Each student will be assigned a week to deliver a technical briefing on a topic that I will choose. The briefing will consist of two parts. In the first part, the student should present a brief using research that they conducted on their own, *without the assistance of AI*. The brief should last 5-10 minutes, and should be designed to explain a technical topic to a lay audience (e.g., “How is nuclear power generated?”). Students will be assessed on both their

professional briefing skills and their ability to effectively distill a complex topic into something that can be understood by a wide audience. In the second part, the student will have prompted AI to answer the same question, and will discuss the results of that query. The student should focus their discussion on how AI's response is similar to, or different from, their own research on the topic.

Discussion Leadership

Value: 1 x 50 PTS, 50 PTS total

Each student will be assigned a week to lead discussion. The discussion will cover 1) the assigned readings for the week and 2) a news story chosen by you that is relevant to the week's topic. On the day preceding the seminar, you will email the news story and a complete set of discussion questions to the class. Topics of discussion may include both substantive and methodological (research design) issues. In addition to your own questions, you may want to consider addressing the following:

- What question motivates the article or chapter?
- What is the goal of the author? Description, explanation, prediction?
- What is the theory (if applicable)? Is it clear?
- What is the unit of analysis? (if applicable)
- What are the observable implications of the article or chapter?
- How are the cases selected (if applicable)? Do they offer an appropriate comparison?

Participation

Value: 11 x 5 PTS, 55 PTS total

All students are required to have completed the required readings for each week before class begins, and everyone should be prepared to discuss the readings during class. Intelligent participation will be highly valued throughout your professional career and you should practice this ability now. I expect you to provide evidence that you have done the readings in a thoughtful and careful manner. After each class meeting I will assign a participation grade that takes into account the frequency and quality of your contributions. The following scale will be used for scoring your participation:

- 5: The student made a very strong contribution to the class. Comments were thoughtful and constructive.

- 3-4: The student contributed meaningfully to the course. Comments went beyond simply repeating the assigned material, but did not demonstrate strong insights.
- 1-2: The student did not contribute meaningfully. Comments were limited to repeating the assigned material rather than making connections or extensions, or were inaccurate.
- 0: The student did not speak in class.

Final Presentation

Value: 1 x 100 PTS, 100 PTS total

In the last weeks of class, students will present a full research design project in 10-15 minute presentations. The topic must be approved by me early in the semester. Although you will not be developing a full paper, you will present your project as if there is a complete paper. Grades will be based on the quality of your presentation and the merit of the project.

Final Exam

Value: 1 x 50 PTS, 50 PTS total

Students will complete an in-class final exam. You must bring a blue book to class on the day of the scheduled exam. The exam will consist of short answer questions and will cover material from the entire semester. A study guide will be posted to eLC later in the semester to help you prepare.

4 Administrative Policies

4.1 Academic Integrity

Each student in this course is expected to abide by UGA's Academic Honesty Policy and the university's Student Honor Code. In short, this means that cheating and plagiarism will not be tolerated. Students violating the Academic Honesty Policy in this course will receive a minimum penalty of a grade of zero for the assignment or test in question and may receive an "F" in the course and referral to the Academic Honesty Policy.

4.2 Use of Generative AI

Use of Generative AI (GAI) tools should be limited to providing support as you develop your thinking and knowledge base for an assignment. If you are uncertain about using a

particular tool to support your work, please consult with me before using it.

Please note that you may not represent output generated by a GAI tool as your own work. Any such use of GAI output must be appropriately cited or disclosed, including quotation marks and in-line citations for direct quotes. Including anything you did not write in your assignment without proper citation will be treated as an academic misconduct case. Suspected unauthorized assistance, plagiarism, or other violations of UGAs A Culture of Honesty, will be reported to the Office of Academic Honesty. For full details on how to properly cite AI-generated work, please see the APA Style article, How to Cite ChatGPT (<https://apastyle.apa.org/blog/how-to-cite-chatgpt>). If you are unsure where the line is between collaborating with GAI and copying from GAI, I recommend that you do not have your assignment and the GAI tool open on your device at the same time. Instead, take notes in your own words while you interact with the GAI tool, then use your notes to remind you of what you've learned and to inform your work. Never copy output from GAI tools into your assignment. Instead, use your interaction with the tool as a learning experience, then close the interaction down, open your assignment, and let your assignment reflect your improved understanding. (Sidenote: This advice extends to AI assistants that are directly integrated into a composition environment or grammar modulation tool.)

Finally, GAI is highly vulnerable to inaccuracy and bias. You should assume GAI output is wrong unless you either know the answer or can verify it with another source. It is your responsibility to assess the validity and applicability of any GAI output used.

4.3 Prohibition on Recording Lectures

In the absence of written authorization from the UGA Disability Resource Center, students may not make a visual or audio recording of any aspect of this course. Students who have a recording accommodation agree in writing that they:

- Will use the records only for personal academic use during the specific course.
- Understand that faculty members have copyright interest in their class lectures and that they agree not to infringe on this right in any way.
- Understand that the faculty member and students in the class have privacy rights and agree not to violate those rights by using recordings for any reason other than their own personal study.
- Will not release, digitally upload, broadcast, transcribe, or otherwise share all or any part of the recordings. They also agree that they will not profit financially and will not allow others to benefit personally or financially from lecture recordings or other course materials.

- Will erase/delete all recordings at the end of the semester.
- Understand that violation of these terms may subject them to discipline under the Student Code of Conduct or subject them to liability under copyright laws.

4.4 UGA Well-being Resources

UGA Well-being Resources promote student success by cultivating a culture that supports a more active, healthy, and engaged student community.

Anyone needing assistance is encouraged to contact Student Care & Outreach (SCO) in the Division of Student Affairs at 706-542-8479 or visit sco.uga.edu. Student Care & Outreach helps students navigate difficult circumstances by connecting them with the most appropriate resources or services. They also administer the Embark@UGA program which supports students experiencing, or who have experienced, homelessness, foster care, or housing insecurity.

UGA provides both clinical and non-clinical options to support student well-being and mental health, any time, any place. Whether on campus, or studying from home or abroad, UGA Well-being Resources are here to help.

- Well-being Resources: well-being.uga.edu
- Student Care and Outreach: sco.uga.edu Health Center: healthcenter.uga.edu
- Counseling and Psychiatric Services: caps.uga.edu or CAPS 24/7 crisis support at 706-542-2273
- Health Promotion/ Fontaine Center: healthpromotion.uga.edu
- Disability Resource Center and Testing Services: drc.uga.edu

Additional information, including free digital well-being resources, can be accessed through the UGA app or by visiting <https://well-being.uga.edu>.

4.5 Students with Disabilities

If you plan to request accommodations for a disability, please register with the Disability Resource Center (DRC). The DRC can be reached by visiting Clark Howell Hall, by calling 706-542-8719 (voice) or 706-542-8778 (TTY), or by visiting <http://drc.uga.edu>

5 Course Schedule

This schedule is a guide for the course and is subject to change at my discretion.

Week 1: Course Introduction

Readings: Syllabus

Week 2: Nuclear Power Basics and Regulatory Landscape

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Introduction, Ch. 2, pp. 1-5, 39-53.

Cavers, D.F., 1954. The atomic energy act of 1954. *Scientific American*, 191(5), pp.31-35.

Roth, Michael B. and Jaramillo, Paulina, 2017. Going nuclear for climate mitigation: An analysis of the cost effectiveness of preserving existing US nuclear power plants as a carbon avoidance strategy. *Energy*, 131, pp.67-77.

Lordan-Perret, Rebecca, Sloan, Robert D. and Rosner, Robert, 2021. Decommissioning the US nuclear fleet: Financial assurance, corporate structures, and bankruptcy. *Energy Policy*, 154, p.112280.

U.S. Department of Energy, 1994. *The History of Nuclear Energy* Office of Nuclear Energy, Science and Technology, Washington, DC.

Recommended Reading:

Atomic Energy Act of 1954, Pub. L. 83-703, 68 Stat. 919 (1954)

Week 3: Regulating Civilian Nuclear Energy

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 5, pp. 101-117.

Brutschin, Elina and Jewell, Jessica, 2018. International political economy of nuclear energy. In *Handbook of the international political economy of energy and natural resources* (pp. 322-341). Edward Elgar Publishing.

Gattie, David K., Darnell, Joshua L. and Massey, Joshua N., 2018. The role of US nuclear power in the 21st century. *The Electricity Journal*, 31(10), pp.1-5.

Murley, Thomas E., Rosztoczy, Zoltan R. and McPherson, G. Donald, 1991. The evolution of the structure and application of US NRC regulations and standards. *Nuclear Engineering and Design*, 127(2), pp.219-224.

Week 4: Evolution of U.S. Regulations

DUE: Proposed Paper Topic

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 6-7, pp. 121-143.

Nourbakhsh, Hossein P., Apostolakis, George and Powers, Dana A., 2018. The evolution of the US nuclear regulatory process. *Progress in Nuclear Energy*, 102, pp.79-89.

Jones, Cynthia G., 2019. The US Nuclear Regulatory Commission radiation protection policy and opportunities for the future. *Journal of Radiological Protection*, 39(4), p.R51.

Mossman, Kenneth L., 2003. Restructuring nuclear regulations. *Environmental Health Perspectives*, 111(1), pp.13-17.

Canter, Larry and Clark, Ray, 1997. NEPA effectivenessa survey of academics. *Environmental impact assessment review*, 17(5), pp.313-327.

Week 5: Nuclear Crises

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 10, pp. 210-240.

National Research Council, 2014. *Lessons Learned from the Fukushima Nuclear Accident for Improving Safety of U.S. Nuclear Plants*. Washington, DC: The National Academies Press. Ch. 5, pp. 153-195.

Lyman, Edin, Schoeppner, Michael and von Hippel, Frank, 2017. Nuclear safety regulation in the post-Fukushima era. *Science*, 356(6340), pp.808-809.

Parenteau, Patrick A., 1975. Regulation of Nuclear Power Plants: A Constitutional Dilemma for the States. *Envtl. L.*, 6, p.675.

Nohrstedt, David and Weible, Christopher M., 2010. The logic of policy change after crisis: Proximity and subsystem interaction. *Risk, hazards crisis in public policy*, 1(2), pp.1-32.

Week 6: Nuclear Waste, Part I

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 8, pp. 170-184.

Nuclear Regulatory Commission, 2023. *Agreement States*. <https://www.nrc.gov/agreement-states.html>

Hamilton, Lee H., et al., 2012. *Blue Ribbon Commission on America's Nuclear Future*. Report to the Secretary of Energy, Ch. 3 & 6, pp. 9-26, 47-59.

Montange, Charles H., 1987. Federal nuclear waste disposal policy. *Nat. Resources J.*, 27, p.309.

Week 7: Nuclear Waste, Part II

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 9, pp. 185-209.

Rogers, Larry E., 1976. Nuclear Waste Disposal: A Federal and State Problem. *Ky. LJ*, 65, p.917.

Hamilton, Lee H., et al., 2012. *Blue Ribbon Commission on America's Nuclear Future*. Report to the Secretary of Energy, Ch. 4-5, pp. 27-46.

Environmental Protection Agency, 1994. Radioactive Waste Disposal: An Environmental Perspective. <https://www.epa.gov/sites/default/files/2015-03/documents/000003ob.pdf>

Week 8: Nuclear Waste, Part III

Readings:

Ojovan, Michael I. and Steinmetz, Hans J., 2022. Approaches to disposal of nuclear waste. *Energies*, 15(20), p.7804.

Conrad, Justin and Worsfold, Haley, 2023. The U.S. Should Look Abroad for Nuclear Waste Solutions. *CITS Paper Series*. Center for International Trade and Security, September.

Hamilton, Lee H., et al., 2012. *Blue Ribbon Commission on America's Nuclear Future*. Report to the Secretary of Energy, Ch. 7-10, pp. 60-98.

Week 9: International Cooperation and Nonproliferation, Part I

Readings:

Section 123, Atomic Energy Act of 1954, Pub. L. 83-703, 68 Stat. 919 (1954).

Eisenhower, Dwight D., 1953. Address to the 470th Plenary Meeting of the United Nations General Assembly. <https://www.iaea.org/about/history/atoms-for-peace-speech>

Hamilton, Lee H., et al., 2012. *Blue Ribbon Commission on America's Nuclear Future*. Report to the Secretary of Energy, Ch. 12, pp. 109-116.

Davis, Anna J., 2022. *The Role of Nuclear Energy in the Global Energy Transition*. Oxford Institute for Energy Studies: OIES Paper ET14.

Fuhrmann, Matthew, 2009. Spreading temptation: Proliferation and peaceful nuclear cooperation agreements. *International security*, 34(1), pp.7-41.

Week 10: International Cooperation and Nonproliferation, Part II

Readings:

10 CFR Part 110, Export and Import of Nuclear Equipment and Material, Subparts A, B, C.

10 CFR Part 810, Assistance to Foreign Atomic Energy Activities.

Bluth, C., Kroenig, M., Lee, R., Sailor, W.C. and Fuhrmann, M., 2010. Civilian nuclear cooperation and the proliferation of nuclear weapons. *International Security*, 35(1), pp.184-200.

Putnam, Robert D., 1988. Diplomacy and domestic politics: the logic of two-level games. *International organization*, pp. 437-470.

Bjola, Corneliu and Manor, Ilan, 2018. Revisiting Putnam's two-level game theory in the digital age: Domestic digital diplomacy and the Iran nuclear deal. *Cambridge review of international affairs*, 31(1), pp.3-32.

Week 11: Advanced Technologies: Licensing

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 4.

Hamilton, Lee H., et al., 2012. *Blue Ribbon Commission on America's Nuclear Future*. Report to the Secretary of Energy, Ch. 11, pp. 109-116.

Nuclear Energy Institute, 2016. *Proposed Physical Security Requirements for Advanced Reactor Technologies*. White Paper: pp. 1-10. www.nrc.gov/docs/ML1702/ML17026A474.pdf

Buongiorno, J., Corradini, M., Parsons, J. and Petti, D., 2019. Nuclear energy in a carbon-constrained world: Big challenges and big opportunities. *IEEE Power and Energy Magazine*, 17(2), pp. 69-77.

Park, Sulgiye and Ewing, Rodney C., 2023. US Legal and Regulatory Framework for Nuclear Waste from Present and Future Reactors and Their Fuel Cycles. *Annual Review of Environment and Resources*, 48(1), pp. 713-736.

Week 12: Advanced Technologies: Proliferation

Readings:

Fox, Michael H., 2014. *Why We Need Nuclear Power: The Environmental Case*. Oxford University Press: Ch. 12.

Virgili, Nicole, 2020. *The Impact of Small Modular Reactors on Nuclear Non-Proliferation and IAEA Safeguards*. Vienna Center for Disarmament and Non-proliferation.

https://www.nonproliferation.eu/wp-content/uploads/2020/08/Virgili-Nicole_SMR-Paper_Final.pdf

Monteiro, N.P. and Debs, A., 2014. The strategic logic of nuclear proliferation. *International Security*, 39(2), pp.7-51.

Cheng, L.Y., Cojazzi, G.G.M., Renda, G., Cipiti, B., Boyer, B., Edwards, G., Hervieu, E., Shiba, K., Kim, H., Nguyen, F. and Hesketh, K., 2021. White papers on proliferation resistance and physical protection characteristics of the six GEN IV nuclear energy systems (No. BNL-222075-2021-COPR). Brookhaven National Lab.(BNL), Upton, NY (United States).

Week 13: Final Presentations

Week 14: Final Presentations

FINAL EXAM: TBD

6 Syllabus Changes

The policies, assignments and readings contained in this syllabus are subject to change with advance notice.