The Hebrew University of Jerusalem

Syllabus

nuclear energy in the 21st century - 58879

Last update 05-08-2019

HU Credits: 4

Degree/Cycle: 2nd degree (Master)

Responsible Department: International Relations

Academic year: 0

Semester: Yearly

Teaching Languages: Hebrew

Campus: Mt. Scopus

Course/Module Coordinator: Or Rabinowitzת PhD

Coordinator Email: or.rabinowitz-batz@huji.ac.il

Coordinator Office Hours: Wednesday, 1130-1230, room 5309

Teaching Staff:

Dr. Or Rabinowitz

Course/Module description:

This module will explore issues relating to nuclear energy in the 21st century, and will examine the relations between civilian nuclear technology and the proliferation of nuclear weapons. This will be accomplished by using historical and legal sources combined with the discussion pf empirical cases, and the related IR theories. We will explore the relevant terminology and the basics of nuclear physics and its history in a manner relevant to students of Social Sciences. The module will also explore issues concerning nuclear proliferation, the relevant regimes and treaties, economic and financial issues relating to nuclear power development, environmental considerations and climate change, and issues relating to nuclear security and safety.

Course/Module aims:

The aim of this module is to explore how different issues relating to nuclear energy and nuclear proliferation affect the development of this field and its future.

Learning outcomes - On successful completion of this module, students should be able to:

- Interpret the effect of the considerations on the development of nuclear power around the world.
- Classify and compare the relevant empirical and theoretical debates which impact the field.
- Define the relevant terms relevant to the academic debates in this field.
- Critically discuss the relevant arguments.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Lecture and Seminar.

Course/Module Content:

1. Introduction to nuclear energy
2. Nuclear physics, basics and history
3. The Manhattan project
4. Atoms for Peace and the IAEA
5. Why states develop nuclear weapons

6. The 1960s and the NPT
7. Technological assistance
8. The 1970s and the NSG
9. Nuclear deals and covert development
10. Counterproliferation
11. Economic considerations of nuclear power.
12. Nuclear power: Israel and the Middle East
13. Nuclear security and nuclear terror.
14. Nuclear safety and nuclear accidents
15. Environmental considerations and climate change
16. Nuclear allergy, the Japanese case
17. Plutonium, breeder reactors and fusion reactors.

<u>Required Reading:</u>
Reading material (list will be updated)
- Charles D. Ferguson, 'Nuclear Energy: What Everyone Needs to Know', Oxford University Press, 2011.
- Steven E. Miller and Scott D. Sagan, (Fall, 2009), Nuclear Power without Nuclear Proliferation? Daedalus, 138:4, On the Global Nuclear Future, Vol. 1, pp. 7-18
- Gabrielle Hecht , A Cosmogram for Nuclear Things, Isis, Vol. 98, No. 1 (March 2007), pp. 100-108.
- Richard K. Lester & Robert Rosner, The growth of nuclear power: drivers & constraints, (Fall, 2009), Nuclear Power without Nuclear Proliferation? Daedalus, 138:4, On the Global Nuclear Future, Vol. 1, pp. 19-30.
- James Mahaffey, 'Atomic awakening, a new look at the history and the future of nuclear power', Pegasus Books, New York, 2009. Pp. 1-92
- J. Samuel Walker, "Recent Literature on Truman's Atomic Bomb Decision: A Search for Middle Ground," Diplomatic History, Vol 29, No. 2 (2005), 311-334.
- Elisabeth Roehrlich (2016) The Cold War, the developing world, and the creation of the International Atomic Energy Agency (IAEA), 1953–1957, Cold War History, 16:2, 195-212
- Mara Drogan, 'The Nuclear Imperative: Atoms for Peace and the Development of U.S. Policy on Exporting Nuclear Power, 1953-1955', Diplomatic History Advance Access published September 18, 2015.
- Stephen Twigge, (2016), The Atomic Marshall Plan: Atoms for Peace, British diplomacy and civil nuclear power, Cold War History, 16:2, 213–230
- David Holloway (2016) The Soviet Union and the creation of the International Atomic Energy Agency, Cold War History, 16:2, 177-193.
- Scott D. Sagan. Why Do States Build Nuclear Weapons?: Three Models in Search of a Bomb, International Security, Vol. 21, No. 3 (Winter, 1996-1997), pp. 54-86
- Etel Solingen, "The Political Economy of Nuclear Restraint," International Security 19, No. 2 (1994): 126-169.
- Nuno Monteiro and Alex Debs, "The Strategic Logic of Nuclear Proliferation,"

International Security, Vol. 39, No. 2 (Fall 2014), pp. 7–51
- Ephraim Asculai, Chapter 1, "Nuclear Non-Proliferation: Past, Present, and Possible Future' , pp. 1-24 in: Rethinking the Nuclear Non-Proliferation Regime, INSS Memorandum No. 70, June 2004 (available on-line).
- Swango, Dane. "The United States and the Role of Nuclear Co-operation and Assistance in the Design of the Non-Proliferation Treaty." The International History Review 36.2 (2014): 210-229.
- Matthew Fuhrmann, "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements," International Security 34, No. 1 (2009): 7-41.
- Matthew Kroenig, "Exporting the Bomb: Why States Provide Sensitive Nuclear Assistance," American Political Science Review 103, No. 1 (2009): 113-133.
- R. Scott Kemp, "The Nonproliferation Emperor Has No Clothes: The Gas Centrifuge, Supply-Side Controls, and the Future of Nuclear Proliferation," International Security 38, No. 4 (2014):39-78.
- James Cameron , Or Rabinowitz, Eight Lost Years? Nixon, Ford, Kissinger and the Non-Proliferation Regime, 1969–1977, Journal of Strategic Studies, Published online: 05 Jan 2016
- William Burr (2014) A Scheme of 'Control': The United States and the Origins of the Nuclear Suppliers' Group, 1974–1976, The International History Review, 36:2, 252-276
- Joseph S. Nye (1981). Maintaining a nonproliferation regime. International Organization, 35, pp 15-38.
- Martinez, J. Michael, The Carter Administration and the Evolution of American Nuclear Nonproliferation Policy, 1977–1981, Journal of Policy History, Volume 14, Number 3, 2002, pp. 261-292
- Or Rabinowitz and Nicholas L. Miller, "Keeping the bombs in the basement", International Security, summer 2015 (Vol. 40, No. 1)
- Nicholas Miller "The Secret Success of Nonproliferation Sanctions." International Organization 68, No. 4 (2014): 913-944.
- Nicholas L. Miller (2014) Nuclear Dominoes: A Self-Defeating Prophecy, Security Studies, 23:1, 33-73.
- Sarah Kreps and Matthew Fuhrmann, "Attacking the Atom: Does Bombing Nuclear Facilities Affect Proliferation?" Journal of Strategic Studies 34, No. 2 (2011): 161-187.
- Malfrid Braut-Hegghammer, "Revisiting Osirak: Preventive Attacks and Nuclear Proliferation Risks," International Security 36, No. 1 (2011): 101-132.
- José Goldemberg, Nuclear energy in developing countries, in: On the Global Nuclear Future, Vol. 1Dædalus, Fall 2009
- Harold A. Feiveson, A skeptic's view of nuclear energy, in: On the Global Nuclear Future, Vol. 1, Dædalus, Fall 2009

Additional Reading Material:

Course/Module evaluation:

End of year written/oral examination 0 %
Presentation 5 %
Participation in Tutorials 0 %
Project work 90 %
Assignments 0 %
Reports 5 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:

Students will be required to submit 9 reading reports during the year, and to present them in class.
Student who take the module as a regular course will be asked to submit a final paper, 10 pages long.
Students who take the course as a seminar will be asked to submit a seminar paper, 25 pages long.