Course Description

“With the unleashing of atomic energy, everything has changed save our way of thinking, and thus we drift toward catastrophe beyond comprehension.” Albert Einstein made this observation in 1953, when the United States and the Soviet Union were pitted against each other in the most dangerous arms race in history with the potential, at its peak, to destroy human civilization and lay waste to the planet. At the same time, the United States and the Soviet Union were also developing peaceful uses of nuclear energy for life-saving medical treatments and for generating electricity. While issues arising from technologies that have both military uses and civilian applications are not new, the nearly incomprehensible damage from exploding nuclear weapons focuses the mind as few other dual-use technologies can.

This course will examine the development of US national policy and the international regime on the uses of nuclear energy—both military and civilian. We will review military doctrine and the plans for nuclear war-fighting as well as the effects on societies of developing and using nuclear weapons. We will briefly review the history of international proliferation of nuclear technology and fissile material and examine efforts to curtail the spread of weapons. In the second part of the course, we will focus on the development of civilian nuclear power and on current policy arising from efforts to prevent accidents and dispose of nuclear waste materials.

In the domain of nuclear policy, political leaders often face policy dilemmas because nuclear technology and materials offer great benefit, as well as presenting great danger; societies often must choose between two or more not very good alternatives. We’ll explore a number of these dilemmas throughout the course, and look at two of the most difficult in the last class session.

Course Requirements and Expectations

The course is organized around class discussion, class presentations, and individual research and writing in a weekly three-hour seminar.

1. Please purchase:


   *Nuclear Energy: What Everyone Needs to Know* by Charles Ferguson (Oxford University Press, 2011);

   *Voices of Chernobyl* by Svetlana Alexievich (Picador, 2006)

All other readings are available on the web and through the University of Chicago online journals library.

**On-line resources for background and current events:**


International Panel on Fissile Material at [http://fissilematerials.org](http://fissilematerials.org)

*Arms Control Today* at [www.armscontrol.org](http://www.armscontrol.org)

International Atomic Energy Agency at [www.iaea.org](http://www.iaea.org)

2. Participation in class discussions will count for 25% of your grade, so attending and preparing for weekly discussions is a priority. As part of that preparation each student will come to class with one major discussion question based on the week’s reading. **Students will each submit one written question at each class session based on the readings.**

3. Each student will write two (2) papers exploring the following topics and implications for nuclear policymaking. Each paper should be 5-7 double-spaced pages (about 1300-1800 words) and due on the following dates:

**Essay due February 1:** US-North Korea Relations and Implications for Nuclear Deterrence

**Essay due March 1:** The Fukushima Daiichi Nuclear Power Station Disaster and Consequences for the Future of Nuclear Power

4. Each student will also select one of two debate topics listed below and team up with classmates to debate the topic. Select one topic for debate on **March 8:**

**Debate: Reducing risks from nuclear weapons: Deterrence or international cooperation?**

**Debate: The future of civilian nuclear power in an era of climate change**

5. **Grading**

   - Class participation and written questions: 25%
   - Two case study papers: 50%
   - Team debate presentation: 25%
Course Outline and Readings

Week 1: Introduction and Overview (January 4)

Film shown in class, The Day After Trinity

Film to view at home—Command and Control: American Experience

Week 2: Making Nuclear Bombs (January 11)


Week 3: Using Nuclear Weapons (January 18)

Rhodes, The Making of the Atomic Bomb, pp. 617-747


Alex Wellerstein, Nukemap, http://nuclearsecrecy.com/nukemap/


Recommended: John Hersey, Hiroshima, Alfred A. Knopf, 1946

Week 4: Preparing for and Deterring Nuclear War (January 25)

Siracusa, Nuclear Weapons, pp. 60-117

Albert Wohlstetter, “The Delicate Balance of Terror”
https://www.rand.org/about/history/wohlstetter/P1472/P1472.html

Rhodes, The Making of the Atomic Bomb, pp. 749-788

Week 5: Reducing Risks from Nuclear Weapons: International Cooperation and Democracy (February 1)

www.tandfonline.com/doi/full/10.1080/00963402.2016.1170393


First paper due February 1: US-North Korea Relations and Implications for Nuclear Deterrence
Week 6: Spreading Nuclear Technology (February 8)


Week 7: Developing Civilian Nuclear Power (February 15)

“How to Build a Nuclear Power Plant.”

Ferguson, *Nuclear Energy*, pp. 3-85


Allison Macfarlane, “It’s 2050: Do you know where you nuclear waste is?” *Bulletin of the Atomic Scientists*, July/August, 2011, pp. 30-36


Week 8: Benefits and Risks of Nuclear Energy (February 22)


Svetlana Alexievich, *Voices of Chernobyl*, entire

Week 9: Controlling Nuclear Technologies and Materials (March 1)


Frank von Hippel, *Uncertain Future*, 63-85

Second Paper Due—March 1: Lessons from the Fukushima Daiichi Nuclear Power Station Disaster for the Future of Nuclear power
Week 10: Major dilemmas of nuclear energy (March 8)

**Debate: Deterrence or cooperation to reduce risks of nuclear war**

Rely on deterrence to prevent nuclear war, but risk nuclear weapons use through arms races, miscalculation, or accident; OR reduce reliance on nuclear weapons by strengthening international cooperation, but risk use by outlaw countries.

**Debate: Whether or not to build new nuclear power plants**

Build more nuclear power plants to provide energy source without further disrupting the climate, but risk more accidents and proliferation of nuclear weapons to more countries; OR phase out nuclear power to prevent more accidents and further spread of nuclear weapons, but risk continued climate change.