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 essays written by students.

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 Statecraft: History and Strategy in America’s Atomic Age, Francis J. Gavin (Cornell University Press, 2012)
   * The Doomsday Machine: Confessions of a Nuclear War Planner, Daniel Ellsberg (New York: Bloomsbury USA, 2017)

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:**


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

International Panel on Fissile Material at [http://fissilematerials.org](http://fissilematerials.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. Written response essays will count for 50% of your grade. Each student will write a first essay responding to a major dilemma of nuclear weapons and a second essay responding to a major dilemma of developing nuclear power.

**Dilemma: 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.

**DUE February 5**

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

Build more nuclear power plants to provide a major 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.

**DUE March 5**

4. Article for possible publication in the *Bulletin of the Atomic Scientists* will count for 25% of your grade. Each student will write an essay of 2,000 words about a topic of his/her choosing, in consultation with the instructor, for submission to the Voices of Tomorrow column of the *Bulletin of the Atomic Scientists*. Submission guidelines and examples of other essays can be found at [www.thebulletin.org/next-generation-program](http://www.thebulletin.org/next-generation-program) about Voices of Tomorrow.

5. Grading

- Class participation and written questions: 25%
- Two response essays: 50%
- One written article for possible publication: 25%
Course Outline and Readings

Week 1: Introduction and Overview (January 8)
Film shown in class, The Day After Trinity

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

Week 2: Making Nuclear Bombs (January 15)


Week 3: Using Nuclear Weapons (January 22)
John Hersey, Hiroshima, entire


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

Week 4: Preparing for and Deterring Nuclear War (January 29)

Siracusa, Nuclear Weapons, pp. 60-117

Gavin, Nuclear Statecraft, pp. 12-74

Daniel Ellsberg, The Doomsday Machine: Confessions of a Nuclear War Planner, entire

Week 5: Reducing Risks from Nuclear Weapons: International Cooperation and Democratic Accountability (February 5)

Gavin, Nuclear Statecraft, pp. 104-169

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


https://www.tandfonline.com/doi.org/10.1080/00963402.2018.1507775

FIRST ESSAY DUE FEBRUARY 5: Deterrence or Cooperation to reduce risks of nuclear weapons
**Week 6: Spreading Nuclear Technology (February 12)**


Gavin, *Nuclear Statecraft*, pp. 75-103


https://doi.org/10.1177/0096340215571909

**Week 7: Developing Civilian Nuclear Power (February 19)**

View in class: “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

Mycle Schneider and Anthony Froggatt, *The World Nuclear Industry: A Status Report 2017*  

**Week 8: Benefits and Risks of Nuclear Energy (February 26)**


https://www.tandfonline.com/doi/full/10.1177/0096340212440359

Suggested reading: Svetlana Alexievich, *Voices of Chernobyl*, entire

**Week 9: Controlling Nuclear Technologies and Materials (March 5)**

http://www.tandfonline.com/doi/full/10.1080/00963402.2016.1170398

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

SECOND ESSAY DUE MARCH 5: The Future of Nuclear power

Week 10: In-class presentation of papers: Major topics in nuclear policy *(March 12)*

Presentation and discussion of papers for submission to the Voices of Tomorrow, *Bulletin of the Atomic Scientists*