“We must be curious to learn how such a set of objects—hundreds of power plants, thousands of bombs, tens of thousands of people massed in national establishments—can be traced back to a few people sitting at laboratory benches discussing the peculiar behavior of one type of atom.”

Spencer Weart, *Scientists in Power*, 1979

Despite some recent progress toward disarmament, we still exist in a world in which two nations, each possessing thousands of nuclear warheads, have the capacity to destroy all of the planet’s major cities, not to mention much of the territory in between, many times over. At least seven other nations have control of sufficient nuclear explosives to utterly destroy their immediate neighbors. This course explores how this situation came about and how perceptions of nuclear weapons and nuclear energy have changed, with a focus on science, scientists, and scientific culture. We will examine, from different perspectives, the race to develop the first nuclear weapons, the decision to use atomic bombs during World War II, the effects and immediate aftermath of the bombing, theories of how nuclear weapons changed perceptions first of World War II and then of warfare in general, the subsequent arms race and various efforts to limit testing and weapons development, strategies of arms control, debates over the safety and regulation of nuclear reactors, and changing views of the biomedical effects and risks of nuclear weapons testing and nuclear power.

**Course goals.**

1) To understand as fully as possible the circumstances—scientific, technical, cultural, political, economic, moral, etc.—that led to the development and use of nuclear weapons at the end of World War II
2) To examine, from equally diverse perspectives, the variety and complexity of consequences of that sequence of events
3) To gain insights into the interplay between scientific knowledge and expertise, on the one hand, and government policies and goals, on the other, in the modern world
4) To examine the role that nuclear weapons and nuclear power have played in popular culture since 1945

**Course requirements.** (1) regular attendance and participation, including weekly ungraded forum posts on course readings, (2) participation in one of the student-run sessions, Dec. 5-14, (3) a short (5-page) essay due Sept. 30; a 6-8 page essay due Nov. 4; an 6-8 page essay on films or documentaries due anytime before our final class, Dec. 14 (4) a final (7-9 page) essay due Dec. 20

**Basis for evaluation.** Attendance and participation (15%); first short essay (15%); second essay (20%); essay on films/documentaries (20%); final essay (30%)
Texts. The following required texts have been ordered at the NYU Bookstore and are on reserve at the Bobst Library:

Don Munton and David Welch, *The Cuban Missile Crisis: A Concise History,* 2nd ed. (2011)

In addition, there will be selected readings made available on NYU Classes.

Rules and requirements:

Ground rules. *Attendance and etiquette.* I take attendance and expect you to attend every class. The class begins promptly at 11:00. Please respect your classmates and arrive on time; late arrivals always disrupt the atmosphere of a classroom, as do mid-class exits and re-entries. Also, expect to remain for the full 75 minutes. The success of this class depends upon open discussions. Feel free to speak your mind, but also be prepared to listen and respect the opinions of others. *Turn off electronic devices (cell phones, laptops, notebooks, iPads, tablets, etc.).* The only legitimate reason for using an electronic device is to view the course readings, in which case you must check with me first. *Late papers.* Unless the paper is late due to documented illness or an emergency, it will be downgraded one grade (A- to B+, B- to C+, etc.) for each day late.

*Forum posts/response papers.* You are required to post your responses to course readings once each week to the forum on NYU Classes. Beginning with the second week of classes, there will be a forum set up for each class date. You have the choice of submitting your post on Monday or Wednesday, and your comments should relate to the readings assigned for the given date. Your responses should be about a paragraph in length. Feel free to probe, criticize, and speculate, but your forum comments should show serious reflections on the readings. You must post your response by 10:00 a.m. on the day of the class so that the various forum posts can be taken into consideration for class discussion. Earlier posts are strongly encouraged. *Note:* If you are uncomfortable with posting to the forum you may submit your response as an email attachment (Word or pdf to ec15@nyu.edu) or, if you prefer, submit it in print at the beginning of class on the date due. The forum posts/papers will not be graded individually, but I will take them into consideration collectively in evaluating the participation component of your grade.

*Essays.* The essays due on Sept. 30 and Nov. 4 will be based on the course readings. I will hand out a list of suggested topics about two weeks in advance. The essay on films and/or documentaries should discuss two films/documentaries of your choice as they relate to the course readings and themes. A list of suggested selections follows the schedule below. The final essay should be based on some aspect of the topic of the student-run session in which you participate and can include sources beyond the course readings. Details will follow later in the term.
**Documentation and plagiarism.** Out of respect for yourself, your fellow classmates, your professor, and the academic enterprise, *do your own work* and always acknowledge the work of others with proper documentation. I will assume that all written work is your own and that you understand the basic rules for acknowledging your sources. If you don’t, please ask; I’ll be more than happy to assist you. Also, please review the official Gallatin statement on academic integrity: [http://gallatin.nyu.edu/academics/policies/policies1/academic-integrity.html](http://gallatin.nyu.edu/academics/policies/policies1/academic-integrity.html)

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**SCHEDULE OF TOPICS AND READINGS**

We will try to keep close to the following schedule, but expect changes from time to time. Readings listed on any given date are the readings you should be prepared to discuss on that date. The videos listed in the schedule will be shown in class on the given dates.

**SEP 7**  
Introductions: the atomic age at 71, 1945-2016

**SEP 12**  
Barack Obama’s hope for a nuclear-free world  
Broad & Sanger, “The Long Arc of a Nuclear-Free Vision,” 2009, and Obama, “Breaking the War Mentality,” 1983 (handout from first class); also begin reading Rhodes

**SEP 14**  
Radiation and atomic structure  

**SEP 19**  
Neils Bohr and the atom; scientists and war—World War I  
Rhodes, chaps. 3 & 4

**SEP 21**  
The Hungarian connection; the young Oppenheimer; the discovery of the neutron  
Rhodes, chaps. 5 & 6 (for chap. 6, focus on pp. 153-67)

**SEP 26**  
Nazis in power; the fate of Jewish scientists; the discovery of uranium fission  
Rhodes, chaps. 7-9 (selections)

**SEP 28**  
Scientists and governments: U.S., U.K., Germany, Japan—1939-early 1941  
Rhodes, chaps. 10 & 11 (selections)

**FIRST ESSAY DUE FRIDAY SEPTEMBER 30**

**OCT 3**  
The MAUD report, Pearl Harbor, and the first sustained chain reaction  
Rhodes, chaps. 12 & 13 (selections)

**OCT 5**  
The Manhattan Engineer District, aka “Manhattan Project,” is launched  
Rhodes, chaps. 14-15 (selections)

**OCT 10**  
NO CLASS  
Columbus Day
OCT 12  What really happened in Copenhagen, 1941?  
Frayn, *Copenhagen*, entire (the Postscript is optional); members of the Fiasco Theater group will perform a reading from the play in class

OCT 17  Secrecy, victory in Europe, war in the Pacific, final preparations  
Rhodes, chaps. 16 & 17 (selections)

OCT 19  The nuclear age begins: Trinity, July 16, 1945  
Rhodes, chap. 18; Video: *The Day After Trinity*, part 1

OCT 24  Hiroshima & Nagasaki  
Rhodes, chap. 19; Video: *The Day After Trinity*, part 2

OCT 26  Realities: Aug 6-8, 1945  
Hachiya, *Hiroshima Diary*, pp. 1-34

OCT 31  Aug 9-15, 1945; the shock of “surrender”  
Hachiya, pp. 34-84  
Video: *Hiroshima-Nagasaki*

NOV 2  Dr. Hachiya’s paper, “Atom Bomb and A-Bomb Disease;” final thoughts  
Hachiya, pp. 154-74; 226-33  
SECOND ESSAY DUE FRIDAY NOV 4

NOV 7  Atomic monopoly  
Gordin, *Red Cloud at Dawn*, Introduction and chap. 1

NOV 9  Information, espionage, and the Soviet bomb test  
Gordin, pp. 106-132 & chap. 4

NOV 14  End of monopoly—Cold War strategies  
Gordin, chap. 7, & epilogue

NOV 16  The real thirteen days  
Munton & Welch, *Cuban Missile Crisis*, Intro. – chap. 2

NOV 21  Crisis, resolution, and consequences  
Munton & Welch, chap. 3 - conclusion  
Videos: *One Week in October* and *Voices From the Brink*

NOV 23  NO CLASS  Thanksgiving holiday begins

NOV 28  Nuclear families, atomic cities – the other side of the nuclear arms race  
Brown, *Plutopia*, Part One

NOV 30  Opportunity, risk perception, and Cold War culture  
Brown, *Plutopia*, selections from Parts Two and Three
The following are suggested topics for our final five classes. Final topics will be determined by group consensus.

DEC 5  Student-run session #1
Plutopia continued: further selections from Kate Brown’s book plus possible discussion of the Atomic Bomb Casualty Commission, the fate of the Marshall Islanders, etc.

DEC 7  Student-run session #2
Atoms for Peace? Efforts to “sell” nuclear energy for peaceful uses, including nuclear-powered cars and airplanes, nuclear excavation (Project Plowshare), etc.

DEC 12  Student-run session #3
Nuclear proliferation and the arms control movement: the many efforts to limit nuclear testing, monitor weapons development, etc. – treaties, protest movements

DEC 13  Student-run session #4
Nuclear power: solution to global warming or potential nightmare? The waxing and waning of public opinion, Three Mile Island and Chernobyl, nuclear wastes, etc.

DEC 14  Student-run session #5
Nuclear weapons in popular culture: films, fiction, songs, cartoons, television shows

FINAL ESSAY DUE TUES DEC 20

SUGGESTED LIST OF FILMS/DOCUMENTARIES/VIDEOS

*recommended, **highly recommended

Here is a list of selections for your paper on films and documentaries about the nuclear weapons and nuclear power. This is not an exhaustive list, but I’ve included most of the “classics” along with some popular and not-so-classic choices. Most of these are available for viewing at the Avery Fisher Center, Bobst Library, 2nd floor, but many are also available on Netflix, YouTube, and other venues. I am open to suggestions for further choices, including some from the extensive post-apocalyptic science-fiction genre.

*Copenhagen, 2002
A BBC-PBS adaptation of Michael Frayn’s play set on location in Copenhagen

Fat Man and Little Boy, 1979
Hollywood dramatization of the Manhattan Project

Secret City: The Oak Ridge Story, 2005
Documentary on Oak Ridge contribution to Manhattan Project, based on interviews

*Doctor Atomic, 2007 (if you are into opera)
Operatic rendition of the days at Los Alamos leading to the Trinity test
Hiroshima no pika, 1986
  Animated film based on Japanese children’s book

**Black Rain, 1991
  Gripping Japanese feature film on Hiroshima bombing and aftermath

The China Syndrome, 1979
  Feature film that explored nuclear reactor safety and just preceded Three Mile Island accident

*Radio Bikini, 1989
  Effects of radiation on sailors at Bikini Islands bomb tests

*The Day the Earth Stood Still, 1951
  Aliens threaten to destroy Earth if humans do not put an end to war

*Them! 1954
  Nuclear tests create giant ants in the Southwest

*Gojiri (Godzilla), 1954
  Monster awakened from beneath the sea by nuclear tests

**On the Beach, 1959
  Survivors of nuclear war await their fate in Australia as radiation clouds approach

*Hiroshima, mon amour, 1959
  French actress & Japanese architect fall in love and share wartime experiences

**Dr. Strangelove, 1963
  Paranoid general precipitates nuclear Armageddon

*Fail-Safe, 1964
  Technical glitch puts world on brink of nuclear holocaust

The Day After, 1983
  Reagan-era made-for-TV movie about the unthinkable: all-out nuclear war

War Games, 1983
  A young Matthew Broderick nearly starts nuclear war playing computer game

*Threads, 1984
  Fictional account of effects of nuclear war set in English city of Sheffield

**Atomic Cafe, 1982
  Compilation of film clips from Alamagordo to Civil Defense films

Target You!
  1950s and ‘60s educational films on Civil Defense, the bomb, etc.

Atomic Scare Films, Vol. I
  Various government films on Civil Defense

*The Missiles of October, 1974
  Dramatic reenactment of events of October 1962

Thirteen Days in October, 2000
  Documentary on the Cuban Missile Crisis (90 min.)

Thirteen Days, 2000
  Feature film, Kevin Costner, et al.