“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, 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. Current efforts at controlling nuclear arms and limiting the number of nuclear powers will be addressed towards the end of the course, but that will not be our main focus. Our sources will be historical texts, firsthand accounts, fiction, documentary films, feature films, a variety of historical and contemporary articles, and at least one guest lecturer, possibly a second (still in the planning stages).

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

Basis for evaluation. (1) regular attendance and participation, including weekly ungraded response papers on the readings, 25%, (2) three essays, details to follow, 75%
Texts. The following required texts have been ordered at the NYU Bookstore and are on reserve at the Bobst Library:


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

Rules and requirements:

**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. The only good reason for leaving the classroom in the middle of a class period is sudden illness, so expect to remain for the full 75 minutes. For obvious reasons, turn off cell phones before coming to class. 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 laptops.* If you bring a laptop, please do not turn it on or use it during class time. Notetaking with pen or pencil is a wonderful exercise of the mind and hand.

**Response papers.** You will be expected to write one response paper on the readings each week. With few exceptions, you will have a choice of submitting a response paper on Tues. or Thurs. Each should be one printed page (single-spacing is fine), due at the beginning of the class corresponding to the reading, or, if submitted electronically (as an attached file) by 10 a.m. on the day of class. Feel free to speculate, question, challenge, and probe. Your prose can be looser than for a formal essay, but based on thoughtful reflections on the readings. **Note:** Over the course of the semester at least two response papers should be based on viewing a video related to the readings, selected from the list on page 6.

**Participation.** The success of this course depends on the quality of the discussions, which, in turn, depends on each student keeping up with the reading and on everyone working to maintain an atmosphere conducive to discussion. For most classes, two students will be assigned to initiate the discussions. On the day(s) you are assigned, you should come to class prepared with one or two questions or comments on the required reading for that day.

**Essays.** There will be three formal essays of from 6 to 8 pages. Topics will be handed out about two weeks before the due dates (tentatively Mar. 6, Apr. 18, & May 15). Each essay should have a title and follow formal rules of style, grammar, and documentation.

**Late papers.** Essays are due on the dates designated. Unless the paper is late due to documented illness or emergency, it will be downgraded one grade for each day late. Response papers turned in after the class period to which they correspond will be given half credit; those submitted after Friday, 6 p.m., of each week will receive no credit.
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/about/bulletin/undergrad/policies/integrity.html

Films and videos. See page 6 for a list of films and videos to be viewed for two of your response papers. Most of these are available for viewing at the Avery Fisher Center, Bobst Library, 2nd floor, but many are also available on Netflix, You Tube, and other venues. If you can make a good case for it, you will be allowed to substitute a film or video that is not on the list, but you must obtain permission in advance.

SCHEDULE OF TOPICS AND READINGS

JAN 27  Introductions: the atomic age at 70, 1945-2015

JAN 29  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

FEB 3  Radiation and atomic structure
       Rhodes, The Making of the Atomic Bomb, chaps. 1 & 2

FEB 5  Neils Bohr and the atom; scientists and war—World War I
       Rhodes, chaps. 3 & 4

FEB 10  The Hungarian connection; the young Oppenheimer; the discovery of the neutron
        Rhodes, chaps. 5 & 6 (for chap. 6, focus on pp. 153-67)

FEB 12  Nazis in power; the fate of Jewish scientists; the discovery of uranium fission
        Rhodes, chaps. 7-9 (selections)

FEB 17  Scientists and governments: U.S., U.K., Germany, Japan—1939-early 1941
        Rhodes, chaps. 10 & 11 (selections)

FEB 19  The MAUD report, Pearl Harbor, and the first sustained chain reaction
        Rhodes, chaps. 12 & 13 (selections)

FEB 24  The Manhattan Engineer District, aka “Manhattan Project,” is launched
        Rhodes, chaps. 14-15 (selections)

FEB 26  Secrecy, victory in Europe, war in the Pacific, final preparations
        Rhodes, chaps. 16 & 17 (selections)
MAR 3   The nuclear age begins: Trinity, July 16, 1945
Rhodes, chap. 18

MAR 5   Hiroshima & Nagasaki
Rhodes, chap. 19

FIRST ESSAY DUE, FRI. MARCH 6

MAR 10  Realities: Aug 6-11, 1945
Hachiya, *Hiroshima Diary*, pp. 1-55

MAR 12  Aug 12-22, 1945
Hachiya, pp. 55-109
Video: *Hiroshima-Nagasaki*

MAR 16-20  SPRING BREAK

MAR 24  Aug 23-Sep 4, 1945
Hachiya, pp. 110-165

MAR 26  Atomic monopoly
Gordin, *Red Cloud at Dawn*, Introduction and chap. 1

MAR 31  Information, espionage, and the Soviet bomb test
Gordin, pp. 106-132 & chap. 4

APR 2   Detection and announcement
Gordin, chaps. 5 & 6

APR 7   End of monopoly—Cold War strategies
Guest lecturer Alex Wellerstein on nuclear secrecy in the Cold War
Gordin, chap. 7, & epilogue; possible additional readings

APR 9   The real thirteen days
Munton & Welch, *Cuban Missile Crisis*, Intro. & chap. 1

APR 14  Two minutes to midnight?
Munton & Welch, chaps. 2-3

APR 16  Consequences
Munton & Welch, chap. 4-conclusion
Videos: *One Week in October* and *Voices From the Brink*

SECOND ESSAY DUE APRIL 18
Note: The topics and readings for these last six sessions are tentative. Specific themes and readings may change as a result of consensus of the class. Will discuss the particulars after the first few weeks of classes.

APR 21 Early history of nuclear fear; Plutopia—the secret histories of Hanford and Ozersk
Begin reading *Rise of Nuclear Fear*, chaps. 1-4; clips from an interview with Kate Brown; possible additional selections

APR 23 The Atomic Bomb Casualty Commission
Putnam, “The Atomic Bomb Casualty Commission in Retrospect;” Todeschini, “Illegitimate Sufferers” (NYU Classes)

APR 28 Atoms for Peace, risk perception, and the fallout debate
Weart, chaps. 8-11, and additional readings to be determined

APR 30 Nuclear disarmament: strategies, debates, treaties
Weart, chaps. 12-15, and additional readings to be determined

May 5 Nuclear power, nuclear fear, and the search for clean energy
Weart, chaps. 16, 19-21, & pp. 301-304

May 7 Nuclear imagery in film—class discussion based on films students viewed for response papers.

**FINAL ESSAY DUE FRIDAY, MAY 15**

On the following page is a list of films and videos to choose from for two of your response papers over the course of the semester. As mentioned, I will allow some substitutions of selections not on this list, but you must discuss this with me in advance.
Origins of the Atomic Age

FILMS/VIDEOS FOR RESPONSE PAPERS
*recommended, **highly recommended

*Copenhagen*, 2002
  Television adaptation of Michael Frayn’s play about the 1941 Bohr-Heisenberg meeting

*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.