

Fall 2012

# Nuclear Weapons in International Relations

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## Nuclear Weapons in International Relations

DIPL6134NA Course Syllabus

The John C. Whitehead School of Diplomacy and International Relations  
of Seton Hall University.

Instructor: Edward A. Friedman, Adjunct Faculty Seton Hall University & Professor Emeritus of  
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Fall Semester 2012

### **Course Description:**

This course provides a knowledge base and background for understanding contemporary international relations in which nuclear weapons play a central role. Currently, nuclear weapons policy is of critical importance in U.S. relations with Iran, Pakistan and North Korea. Questions of stockpiles, safety, proliferation and deployment have been ongoing with the Russian Federation since 1991 and with the previous Soviet Union dating back to the dawn of the Atomic Age. In addition, the real but often unacknowledged, nuclear strike capabilities of Israel play a critical role in shaping the dynamics of Middle East affairs. Since the Al Qaeda attack of 9/11, the potential use of nuclear weapons by non-nation states has become a priority focus of national and international attention. The specter of Nuclear Terrorism has become a more central concern than that of Nuclear Deterrence.

In order to understand these issues, the course will include study of the fundamentals of nuclear weapons technology through an historic review that begins with the Manhattan Project of World War II and continues with the U.S. - Soviet Union arms race that shaped many aspects of world affairs from post World-War II through the break up of the Soviet Union in 1991. Additional historic events that help illuminate contemporary issues include the unsuccessful weapons programs of Iraq and Libya, as well as the abandoned weapons program of South Africa.

These discussions will provide a context for reviewing the various international initiatives, treaties and organizations that have been developed for facilitating monitoring and control of nuclear weapons. These include the Nuclear Test Ban Treaty (1963), SALT I (1972), SALT II (1979), START I (1991), START II (1993), New START (2010) among other treaties, as well as the role of President Eisenhower's Atoms for Peace Program and the initiation and development of the International Atomic Energy Agency (IAEA).

The course is segmented into five sections: A. Nuclear Awakening, B. Cold War Arms Race, C. Post Soviet Era, D. Worldwide Proliferation, and E. Threats & Challenges. Two or three class periods will be devoted to each segment.

### **Readings:**

*The Manhattan Project* by Francis George Gosling - a Google Book online - click on "Preview this Book." It is possible to read the entire book online without a purchase - but it cannot be printed. However, a printed copy can be ordered from various vendors who are identified at - <http://books.google.com/books?id=SKaSCzKs8ZsC&printsec=frontcover#v=onepage&q&f=false> (66 pages)

*Hiroshima* by John Hersey, Vintage Books a division of Random House, New York, Originally published in 1946 with a 1985 Aftermath. (1989 edition)

*Deadly Arsenals - Nuclear, Biological, and Chemical Threats*. Second Edition, Joseph Cirincione, Jon B. Wolfsthal and Miriam Rajkumar, Carnegie Endowment for International Peace, Washington, D.C. 2005 (paperback edition \$29.95)

Deadly Arsenals Online (PDF available for \$18.00) at:

<http://carnegieendowment.org/2005/07/10/deadly-arsenals-nuclear-biological-and-chemical-threats-second-edition-revised-and-expanded/2r7q>

*The Nuclear Express. A Political History of the Bomb and Its Proliferation* by Thomas C. Reed and Danny B. Stillman, Zenith Press, Minneapolis, MN 2009.

*The Twilight of the Bombs* by Richard Rhodes, Vintage Books A Division of Random House, Inc. New York 2010

In addition to these five books, various on-line documents and reports are included in the required readings. They are noted below in the context of the descriptions of each class period. In order to help students budget their time, the number of pages in each reading assignment is noted.

For students interested in pursuing topics in greater depth, the instructor will be pleased to suggest additional readings. There are many worthwhile books that deal with various subject areas of this course.

Given that a number of topics in this course are evolving on a day to day basis, there may be some substitutions in the readings as new reports are issued by organizations such as the Congressional Research Service, the Belfer Center at Harvard University, the Carnegie Center for Peace and Security, the Federation of American Scientists and other similar organizations.

A Web-based discussion group will be established by the instructor for this course, in order to share information and create an on-line environment for informal exchanges.

### **Requirements and Grading:**

Reading assignments will be identified well in advance of each class period. The amount of reading will be between approximately 75 to 100 standard size pages each week. These readings will be related to the Writing Assignments and to the content of the class discussions.

Associated with each of nine classes, nine Writing Assignments are assigned below. Each of these focuses on some aspect of the week's reading assignment and will help facilitate classroom discussions. Each of these Writing Assignments should contain between 250 and 500 words. The Writing Assignment should demonstrate an understanding of the assigned

material and its relevance to the themes being studied in the course. These Writing Assignments are due prior to each class and should be submitted in print, as well as in electronic form. Late papers will not be accepted and a grade of F will be applied to rejected or missing assignments.

A term paper will be due at the end of the semester. Teams of two students each should complete the term papers. A number of suggested topics are included with this course description, but students are invited to propose other topics. Each team should meet with the instructor to receive approval for their topic and confer with the instructor regarding the progress that they are making in pursuit of this assignment. Through ongoing interactions with each team the instructor will be evaluating the relative contribution to the effort by each member of the team. Grades for the term paper assignment will take into account the individual contributions of each of the team members. Each team should be pursuing a unique topic. Topics will be assigned on a first-come, first-served basis. This paper should have a length of about 5,000 words and contain references and suitable citations. Anyone engaging in plagiarism will receive a failing grade for the course and be reported to the school administration. Students will make presentations of these term papers during the last two or three class periods. Term papers should bring together multiple reference sources in a manner that establishes a coherent position on a complex topic. The term paper grade will take into account the quality of the writing and the manner in which the presentation is delivered to the class.

Classes will be conducted with the expectation that students have read the assigned materials and completed the written assignments. Therefore, student participation in classroom discussions will be expected along with interactive responses to new material that is presented by the instructor. The instructor will evaluate class participation and advise students of their status, in this regard, as the term progresses.

The grading breakdown is as follows:

The nine written assignments	40%
The term paper	35%
Class participation	25%

**Accommodation:**

Students who have a physical, medical, learning or psychiatric disability, either temporary or permanent, may be eligible for reasonable accommodations at the University as per the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act. In order to receive such accommodations, students must identify themselves at the Office of Disability Support Services (DSS), provide appropriate documentation and collaborate with the development of an accommodation plan. The DSS phone number is 973-313-6003. For further information, please go to website at <http://studentaffairs.shu.edu/health/DisabilitySupportServices.html>.

**Outline of Classes**

**A. Nuclear Awakening**

Topics: Discovery of fission; Initiatives of Einstein and other European émigré scientists to President Roosevelt; Development of Manhattan Project in U.S. in response to

Nuclear program in Germany; Attacks on Hiroshima and Nagasaki; Physical as well as political consequences of the use of A-Bombs.

### Class 1 - Course Overview and Introduction to Nuclear Weapons Development

### Class 2 - The Manhattan Project and Making the Atomic Bomb

#### Readings and Writing Assignment

2.1 *The Manhattan Project* by Francis George Gosling - a Google Book online - click on *Preview this Book*. It is possible to read the entire book online without a purchase - but it cannot be printed. However, a printed copy can be ordered from various vendors who are identified at - <http://books.google.com/books?id=SKaSCzKs8ZsC&printsec=frontcover#v=onepage&q&f=false> (66 pages)

Also, most of this material can be found at the following web site - Atomic Archive - The Manhattan Project - Making the Atomic Bomb. Click on the History link and then on the Manhattan Project link.

<http://www.atomicarchive.com/index.shtml>

2.2 View - Trinity First Atomic Bomb Test - 1945 - YouTube

<http://www.youtube.com/watch?v=XH907H1wadE>

Writing Assignment #1- Prepare a brief summary of how various branches of civil government, the military, the business community and academics collaborated in implementing the Manhattan Project.

2.3 Nuclear Express – Chapter 1 and 2

### Class 3 A-Bomb Use on Hiroshima and Nagasaki - impact of fission and fusion weapons

#### Readings and Writing Assignment

3.1 *Hiroshima* by John Hersey, Vintage Books A division of Random House, New York, Originally published in 1946 with a 1985 Aftermath.

Writing Assignment #2 - Japan is the only country in the world in which atomic weapons have been used against a civilian population. Given the insights provided from the Aftermath section of the Hersey book - What do you believe might be the long-term impact of Hiroshima and Nagasaki on Japanese society? (optional) How do you think their attitudes and perceptions might differ from those of Americans? (optional) How do you think the 1945 experience affected attitudes regarding the Fukushima disaster?

The following Reference materials will be the cited during classroom discussions. Please have printouts available.

3.2 Reference: Vulnerability of populations and the urban health care systems to nuclear weapons attack -

Examples of four American Cities - New York, Chicago, Washington DC and Atlanta  
Bell and Dallas - U. of Georgia (Results from hypothetical 20 kiloton and 550 Kiloton nuclear  
detonations) (24 Pages)  
<http://www.ncbi.nlm.nih.gov/pubmed/17328796>

3.3 Reference note: Hydrogen Bomb - <http://www.infoplease.com/ce6/history/A0824719.html>  
and

3.4 Reference note: <http://www.pbs.org/wgbh/amex/bomb/peopleevents/pandeAMEX63.html>

3.5 Homeland Security - Effects of 1 Megaton Surface Blast and a 25 Megaton Air Blast (3  
pages)  
<http://www.nationalterroralert.com/nuclear/>

3.6 YouTube of first hydrogen bomb (please view)  
<http://www.youtube.com/watch?v=h7vyKDcSTaE>

3.7 Nuclear Express, Chapter 3

## **B. Cold War Arms Race - Policies of Mutually Assured Destruction (MAD)**

Topics: Soviet weapons development, role of spies, development of H-bomb, testing programs,  
Eisenhower's Atoms For Peace Program and creation of the International Atomic Energy  
Agency (IAEA), Test Ban Treaty (1963), Salt I Treaty (1972), START Treaty (1991), U.S. and  
Soviet deployment of Tactical Nuclear Weapons that have never been subject to treaty  
regulations.

Class 4 Arms Race - Weapons Systems Development of U.S. and U.S.S.R.

### Readings and Study Assignment

4.1 Cold war arms race - a brief history - read these 27 online pages.  
<http://www.atomicarchive.com/History/coldwar/index.shtml>

4.2 A Multi-Megaton World?, Franco Cozzani, European Institute of International Relations  
- Read this 8-page overview.  
<http://www.ieri.be/en/publications/ierinews/2011/juillet/multi-megaton-world>

4.3 Nuclear Express Chapter 4 and Chapter 12

4.3 *Deadly Arsenals - Nuclear, Biological, and Chemical Threats*. Second Edition, Joseph  
Cirincione, Jon B. Wolfsthal and Miriam Rajkumar, Carnegie Endowment for International  
Peace, Washington D.C. 2005 (paperback edition \$29.95)

*Deadly Arsenals* Online (PDF available for \$18.00) at:  
<http://carnegieendowment.org/2005/07/10/deadly-arsenals-nuclear-biological-and-chemical-threats-second-edition-revised-and-expanded/2r7q>

Read *Deadly Arsenals* Chapter 6 Russia pages 121 - 144(23 pages) and Chapter 10 United States pages 203 - 214 (11 pages)

Read these various materials (a total of 115 pages) and be prepared to discuss in class the role of arms treaties and negotiations in ameliorating the inherent dangers of the U.S. - Soviet arms race.

Class 5 Strategic Weapons Treaties and International Agreements (With Non-inclusion of Tactical Weapons)

Readings and Writing Assignment

5.1 A Scan of Existing Arms Control Treaties with Lessons Learned

By Dr. Thomas Axworthy and Ryan Dean at the 29th Annual Plenary Session of The Interaction Council (an organization that brings together 30 former Heads of State)  
<http://www.interactioncouncil.Org/scan-existing-arms-control-treaties-lessons-learned>

Read the above report - 26 pages.

5.2 Presidential Nuclear Initiatives on Tactical Weapons (not included in Strategic Weapons Treaties)

<http://www.armscontrol.org/factsheets/pniglance>

Read the above summary statement - 3 pages

5.3 Tacit Bargaining and Arms Control. George W. Downs and David M. Rocke, *World Politics*, Volume 39, No. 3(Apr., 1987), pp. 297-325 (28pages)

5.4 Bargaining, Enforcement, and International Cooperation, James D. Fearon. *International Organization* Vol 52, No. 2, (Spring 1998). Pp. 269-305 (35 pages)

5,5 Nuclear Express – Chapter 5 and Chapter 9

Writing Assignment #3 - Given the past history of arms control treaties, what do you believe the highest priorities are today for new treaty issues, or unilateral initiatives, that could promote a more stable world. What factors affect the likelihood of achieving success in negotiating these new treaties or implementing the unilateral initiatives?

**C. Post Soviet Era**

Topics: Impact of the break-up of the Soviet Union on the weapons held by Ukraine, Belarus and Kazakhstan. Events that transpired in the countries of the Former Soviet Union and U.S. policies enacted to ameliorate dangers and conflicts. Ongoing problems regarding stockpiles, rogue scientists, and unverified decommissioning of weapons.

Class 6 - Elimination of Weapons from Belarus, Kazakhstan and Ukraine

Readings and Writing Assignment

6.1 Carnegie Corporation for International Peace and Security

Opening the Closed Cities of The Soviet Union - 10 pages

[http://carnegie.org/fileadmin/Media/Publications/PDF/carnegie\\_results\\_winter10.pdf](http://carnegie.org/fileadmin/Media/Publications/PDF/carnegie_results_winter10.pdf)

6.2 *The Twilight of the Bombs* by Richard Rhodes, Vintage Books A Division of Random House, Inc. New York 2010

Chapters 5, 6, 7 & 8 (pages 105-197) - 92 pages

Writing Assignment #4 - The elimination of strategic weapons from Belarus, Kazakhstan and the Ukraine was an astonishing accomplishment of U.S. - Russian collaboration with significant U.S. initiatives. Major roles were played by non-diplomatic individuals, including Sam Nunn, Richard Lugar and scientists from U. S. weapons laboratories. Are there lessons to be learned regarding conduct of diplomatic negotiations from this de-nuclearization experience?

6.3 Nuclear Express – Chapter 13

## Class 7 - Post 1990 Nuclear Weapons Programs and Policies in Russia

### Reading and Writing Assignment

7.1 Nonproliferation and Threat Reduction Assistance: U.S. Programs in the Former Soviet Union, Congressional Research Service, April 26, 2011 - 60 pages

<http://www.fas.org/sqp/crs/nuke/RL31957.pdf>

7.2 Current Status and Future of Russian Strategic Forces - Federation of American Scientists Report, 2011 - 6 pages

[http://armscontrol.ru/start/rsf\\_now.htm](http://armscontrol.ru/start/rsf_now.htm)

7.3 Nuclear Weapons in Russia: Safety, Security and Control Issues, Amy Woulf, April 2002, Congressional Research Service - 20 pages

<http://fpc.state.gov/documents/organization/9580.pdf>

Writing Assignment #5 - What policies and initiatives might the U.S. take today to further reduce and render secure the nuclear armaments of Russia?

## **D. Worldwide Proliferation**

Topics: Development of weapons programs in U.K., France, Israel, South Africa, India, China, Pakistan and North Korea. Impact on international relations of these programs. Deactivation program in South Africa. Issues of command and control in all nuclear states. Potential for accidents and theft. U.S. policies relating to nuclear and non-nuclear states.

Class 8 - Evolution of Nuclear Weapons Policies and Developments in U.K., France, South Africa and Israel.

### Readings and Writing Assignment



8.1 The Enduring Effects of Atoms for Peace - 7 pages  
[http://www.armscontrol.org/act/2003\\_12/Lavoy](http://www.armscontrol.org/act/2003_12/Lavoy)

8.2 *Deadly Arsenals* - Chapter 9 U.K., pages 197-202 (5 pages), Chapter 6 France, pages 189-196 (7 pages), Chapter 13 Israel, pages 259- 276 (17 pages), Chapter 21 South Africa, pages 407- 418 (11 pages)

8.3 *Twilight* - Chapter 9 dealing with South Africa, pages 198-219 (21 pages)

8.4 The Second Nuclear Age, Paul Bracken, Foreign Affairs, January/February 2000 – (8 pages)

8.5 Nuclear Express – Chapter 7 and 14 (on China); Chapter 11 (South Africa); Chapter 6 and Chapter 8 (Israel, China and France)

Writing Assignment #6 Given that both Israel and South Africa were participants in the Atoms for Peace program, what might be said about the long-term impact of that initiative and the effectiveness of the International Atomic Energy Agency (IAEA) that was established as a consequence of the Atoms for Peace program.

## Class 9 - North Korea

### Readings and Writing Assignment

9.1 *Twilight* - Chapter 10, pages 220 - 251 (31 pages)

9.2 *Deadly Arsenals* - Chapter 14, pages 279-294 (15 pages)

Writing Assignment #7 Find a recent news story about the North Korean nuclear weapons developments and comment on it taking into account the history and background of their nuclear initiative.

9.3 Nuclear Express – Chapter 15

## Class 10 - Iran

### Readings and Debate Preparation Assignment

10.1 *Deadly Arsenals* - Chapter 15 pages 295 - 314 (19 pages)

10.2 Iran, the Middle East and International Security by Kaghan Barzyar, Belfer Center Programs and Projects. 2009 (13 pages)  
[http://www.orsam.org.tr/en/enUploads/Article/Files/20091016\\_barzegar.Pdf](http://www.orsam.org.tr/en/enUploads/Article/Files/20091016_barzegar.Pdf)

10.3 Iran's Nuclear File: Recommendations for the Future by Abbas Malaki, Belfer Center Programs and Projects, 2010 (11 pages)  
[http://belfercenter.ksg.harvard.edu/publication/19854/irans\\_nuclear\\_file.html](http://belfercenter.ksg.harvard.edu/publication/19854/irans_nuclear_file.html)

10.4 Time to Attack Iran, by Matthew Kroenig, Foreign Affairs, January/February 2012 – (7 pages)

10.5 Nuclear Express – Chapter 17

Class 10 Assignment - The class will be divided into two opposing debate groups. Based upon the assigned readings and other relevant material, please prepare for a debate on how the international community might resolve outstanding conflicts with Iran. The opposing positions will be identified two weeks prior to the scheduled time for Class 10.

### **E. Threats & Challenges**

Topics: Conflict in the Indian Subcontinent between India and Pakistan. Development of nuclear arsenals in India and then Pakistan. Origin of the Khan Network in Pakistan and its past role in Syria, Libya, Iran and North Korea. Stockpiles of enriched uranium in Pakistan and potential for acquisition by terrorist organizations. Threat of nuclear terrorism.

### Class 11 - Pakistan and India

#### Readings and Writing Assignment

11.1 *Deadly Arsenals* - Chapter 11 India, pages 221 to 238 (17 pages); Chapter 12 Pakistan, pages 239 to 258 (19 pages)

11.2 Executive Summary of Federation of American Scientists report on vulnerability of nuclear resources in Pakistan: Anatomizing Non-State Threats to Pakistan's Nuclear Infrastructure - The Pakistani Neo-Taliban pages 3 thru 11 (8 pages)

[http://www.fas.org/pubs/docs/Terrorism\\_Analysis\\_Report\\_1-lowres.Pdf](http://www.fas.org/pubs/docs/Terrorism_Analysis_Report_1-lowres.Pdf)

11.3 Assessing threats from nuclear materials and weapons in Pakistan (abstract) (1 page)  
<http://bos.sagepub.com/content/67/6/19.full>

11.4 Nuclear Express – Chapter 10 and Chapter 16

Writing Assignment #8 What actions might the international community take to ameliorate the threat of nuclear instability caused by conflict or terrorism in the Pakistan-India sub continent?

### Class 12 - Nuclear Terrorism

#### Readings and Writing Assignment

12.1 Belfer Center Nuclear Terrorism Assessment 2011 - lecture slides (9 slides)  
<http://belfercenter.ksg.harvard.edu/files/threat-assessment.pdf>

12.2 The U.S.- Russia Joint Threat Assessment on Nuclear Terrorism

Belfer Center for Science and International Affairs, Harvard University, May 2011 (52 pages)  
<http://belfercenter.ksg.harvard.edu/files/Joint-Threat-Assessment%20ENG%2027%20May%202011.pdf>

12.3 Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?  
By Rolf Mowatt-Larssen, Forward by Graham Allison, Belfer Center for Science and International Affairs, Harvard University, 2010 (32 pages)  
<http://belfercenter.ksg.harvard.edu/files/al-qaeda-wmd-threat.pdf>

12.4 Planning for Success at the 2012 Seoul Nuclear Security Summit by William Tobey, The Stanley Foundation, June 2011 [www.stanleyfoundation.org](http://www.stanleyfoundation.org) - (8 pages)

12.5 Nuclear Express – Chapters 19 and Epilogue

For Reference Only: Global Fissile Material Report 2010 - Balancing the Books: Production and Stocks

By the International Panel on Fissile Materials (IPFM) Administered by Princeton University's Program on Science and Global Security

[http://www.fissilematerials.org/ipfm/site\\_down/gfmr10.pdf](http://www.fissilematerials.org/ipfm/site_down/gfmr10.pdf)

Note: Based on class size, some portion of Class 12 may be devoted to Student Reports.

Writing Assignment #9 Given the possibilities of nuclear conflict, nuclear weapons accidents, and nuclear terrorism - what do you believe is the highest priority issue facing society today?

## **F. Student Reports**

Class 13 - Student Reports Based on Term Papers

Class 14 - Student Reports Based on Term Papers

### **Student Term Paper Topics**

To be implemented by two-person teams. Students should identify their topic in consultation with the instructor.

- \* 13.1 Analysis of the IAEA - UN Special Team Inspections of Iraq that discovered the Iraq Weapons Development Program.
- \* 13.2 Role of Atoms for Peace initiative of Eisenhower in contributing to nuclear proliferation.
- \* 13.3 Rise and fall of the Khan Network in developing a nuclear weapons program for Libya.
- \* 13.4 Tactical Nuclear weapons in international agreements on weapons controls.
- \* 13.5 The relationship between Israel and South Africa in nuclear weapons development and testing as a case study in covert development of nuclear weapons programs.

- \* 13.6 Pros and cons for Development of a Nuclear weapons program by Saudi Arabia or Egypt.
  - \* 13.7 Cuban Missile Crisis and lessons learned.
  - \* 13.8 Anti-Missile Defense - Pro's and Con's.
  - \* 13.9 An analysis of the decision to Use Nuclear Weapons Against Japan.
  - \* 13.10 Aging and obsolescence of nuclear arsenals and nuclear submarine fleets.
  - \*13.11 New treaty roadblocks and opportunities.
  - \*13.12 China Nuclear Weapons Program in the context of their foreign policy objectives.
- Students may wish to suggest additional topics.