

THE FLETCHER SCHOOL OF LAW AND DIPLOMACY

DHP P215

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Nuclear Dossiers: U.S Priorities, Dilemmas and Challenges in a Time of Nuclear Disorder

SEMINAR

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Nowhere has the United States exercised more vigorous leadership than in the nuclear realm, where the country has devoted unprecedented resources to establishing and maintaining a global order.

Since the advent of the nuclear revolution that changed the fundamentals of global politics and the nature of the international system, the United States has been entangled in an all-out mission to prevent the spread of nuclear weapons, to avoid catastrophic nuclear collisions with other great powers, to stop terrorists from getting access to nuclear material, and to control the export of sensitive technology without precluding access to nuclear technology for peaceful purposes.

In order to accomplish these goals, and at each turn of history (frequently marked by a shock or a major security crisis), the United States has faced deep dilemmas that have required hard choices in an ever evolving strategic environment.

As the world grows increasingly multifaceted, so must the role and leadership of the United States adapt in order to respond to existing and emerging challenges. The rise of nuclear terrorism, for instance, requires a new approach to safety and security of material and critical infrastructures and simultaneously demands stronger border control policies around the world. The continuous peril posed by rogue states' development and acquisition of nuclear weapons and increasingly sophisticated delivery means calls for robust cooperation between the U.S. and regional and great powers with which the U.S. is concurrently in geo-political equivalent of arm wrestling. Finally, the principles upon which the nuclear relationships between superpowers have so far rested, such as strategic stability and nuclear deterrence, are fast eroding as nuclear weapons states revise their

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nuclear posture or acquire conventional capabilities that put in jeopardy the already frail global nuclear balance.

How are existing U.S. policies currently tackling these dilemmas? How should young scholars approach these problems? What are the most relevant explanatory frameworks for examining nuclear ambitions among states and non-state actors? And what principles should guide the U.S. nuclear policies and strategies in the future?

The proposed seminar offers an in-depth analysis of selected nuclear issues that today top the U.S. nuclear agenda. The course seeks to explain the genesis and the evolution of these issues and to examine and debate the appropriateness of current policies.

The course offers both theoretical and policy perspectives on these issues so as to encourage students to experiment with different theoretical lenses and to familiarize themselves with the constraints and limits of policy formulation in the face of complex and pressing dilemmas.

Seminar Structure

Each seminar session will seek to address a specific question and are structured so as to offer students space to learn, interact and discuss. All seminars will open with a short 20-25 minute lecture by the instructor that frames the conversation. At each seminar, two students will then be asked to articulate their views on the subject based on the assigned readings. All students are expected to contribute to the discussion by providing a well-articulated and informed position based on the assigned readings as well as independent research and additional readings of their own choice. The central discussion question for each class is presented in a text box prior to the list of assigned readings.

Seminar Assignments

Final grades will be based on:

- 1) **A mid-term paper** that “assesses” a nuclear institution² (organization, treaty or convention) of the student’s choosing;

² The list of institutions to be researched together with the questions that will guide the analysis can be found at

- 2) **A final paper** on the future global nuclear order³;
- 3) **10-minute presentation** at the opening of one of the seminars: two students will be assigned per each seminar. The students will prepare a 10-minute presentation on the key points of the readings and will raise some questions for group discussion
- 4) **Group discussion**
- 5) **Attendance**

Office Hours

Tufts Policy

Some web-sites you might want to consult in preparation for the seminar (not required)

- International Atomic Energy Agency news site: <https://www.iaea.org/newscenter>
- Arms Control Association: <http://www.armscontrol.org/>
- Bulletin of Atomic Scientists: <http://thebulletin.org/>
- Carnegie Endowment for International Peace, Nuclear Policy program: <http://carnegieendowment.org/programs/npp/>
- Rand/Nuclear Energy: <http://www.rand.org/topics/nuclear-energy.html>
- RAND/Nuclear Weapons: <http://www.rand.org/topics/nuclear-weapons-and-warfare.html>
- Brookings/Nuclear Energy: <http://www.brookings.edu/research/topics/nuclear-energy>
- Brookings/Nuclear Weapons: <http://www.brookings.edu/research/topics/nuclear-weapons>
- American Academy of Arts and Sciences Nuclear Program: <https://www.amacad.org/content/Research/research.aspx?d=289>

³ A discussion on the subject will be held during the last seminar of the semester

Some video material you might want to consider in order to prepare for the seminar (not required):


- **Hiroshima**, by Koreyoshi Kurahara and Roger Spottiswoode, 1995
- **Dr. Strangelove** or: How I Learned to Stop Worrying and Love the Bomb, by Stanley Kubrick, 1964
- **War and Peace in the Nuclear Age**, available on Youtube:
<https://www.youtube.com/watch?v=iAtQn5299-Q>
- **The man who saved the world**, by Peter Anthony 2014

Suggested Schedule

Seminar #1:

Nuclear Dilemmas: Power, Anarchy and Interests

The first lecture serves as an introduction to basic knowledge related to nuclear power. It explains the difference between a military and a civilian nuclear program, it examines the difference between a nuclear weapons state and a nuclear power state and sheds light on the dual-use nature of nuclear technology and the challenges to its governance. It also offers working definitions of concepts that will be employed throughout the seminar. Finally, it seeks to introduce students to the main debates on nuclear weapons as they will be further developed throughout the semester.

 **Key question to be debated during group discussion:** Are nuclear weapons the great stabilizer or the greatest obstacle to global peace?

Required readings:

- Bernard Brodie, ed., *The Absolute Weapon: Atomic Power and World Order*, New York: Harcourt, Brace, and Company, 1946, pp. 21-83
- Bernstein, B. J. *The Quest for Security: American Foreign Policy and International Control of Atomic Energy, 1942-1946*, *The Journal of American History*, Vol. 60 No. 4, (1974), pp. 1003-1044
- Gabrielle Hecht, *The Power of Nuclear Things*, *Technology and Culture*, Volume 51, Number 1, January 2010, pp. 1-30
- Robert Jervis, *The meaning of the nuclear revolution: Statecraft and the Prospect of*

Armageddon, Cornell University Press, 1989, Chapter 4-5


- John Holdren, *Nuclear Energy and Nuclear Weapons*, Fissile Material Group Briefing
- A Nuclear Iran: Promoting Stability or Courting Disaster? Watch the video of the conversation between Professor Scott Sagan and Professor Kenneth Waltz on two different interpretations of the role of nuclear weapons in global politics: https://www.youtube.com/watch?v=Xupuaqu_ruk
- Frances V. Harbour, *Thinking About International Ethics: Moral Theory and Cases from American Foreign Policy*, pp. 67-75
- Richard Wasserstrom, *War, Nuclear War and Nuclear Deterrence: Some Conceptual and Moral Issues*, in Russell Hardin et al, *Nuclear Deterrence: Ethics and Strategy*, Chicago: University of Chicago Press, 1985, pp. 15-35

Additional readings:

- Douglas J. MacEachin, *The Final Months of the War With Japan: Signals Intelligence, U.S. Invasion Planning, and the A-Bomb Decision* (Washington: Center for the Study of Intelligence, December 1998). Read up to appendices.
Available at: <http://www.odci.gov/csi/monograph/4253605299/csi9810001.html>
- Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966)
- Marc Trachtenberg, *History and Strategy* (Princeton: Princeton University Press, 1991), 100-152
- Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon and Schuster, 1986), p. 29-275 and 712-747
- Scott D. Sagan, *The Limits of Safety: Organizations, Accidents, and Nuclear Weapons* (Princeton: Princeton University Press, 1993), 3-155; 250-279.

Seminar #2-3: The most difficult relationship? Understanding the U.S.-Russia Nuclear Interaction

The two lectures explore the complex, multi-faceted nuclear relation between the United States and Russia. In the lectures, we will discuss the evolution of nuclear postures of the two former Cold War rivals (from mutual assured destruction - MAD - to flexible response to the current nuclear interface) and investigate how the nuclear interplay between the two countries is changing in light of efforts to modernize their respective nuclear arsenals and the geo-political crises in which they are involved.

 **Key question to be debated during group discussion:** Has the nuclear interaction between the countries changed? If so, why and how?

Required readings:

- George Kennan to George Marshall, *Long Telegram*, February 22, 1946 retrieved from the Harry S. Truman Administration File, Elsey Papers (PDF Attached)
- Robert Powell, *Crisis Bargaining, Escalation, and MAD*, American Political Science Association, Vol. 81, No. 3, August 1987
- Hans Morgenthau, *The four paradoxes of nuclear strategy*, The American Political Science Review, 1964
- Frank Gavin, *The myth of flexible response: United States strategy in Europe during the 1960s*, The International History Review, 2001
- Paul Nitze, *Assuring strategic stability in an era of détente*, Foreign Affairs, 1976
- United States Department of Defense, 2010 Nuclear Posture Review: http://www.defense.gov/Portals/1/features/defenseReviews/NPR/2010_Nuclear_Posture_Review_Report.pdf
- Russia Defense Report 2015, watch video: <http://www.globalresearch.ca/video-russias-nuclear-arsenal-moscows-strategy-of-deterrence/5498266>
- Nunn Lugar agreement: <http://armscontrolcenter.org/fact-sheet-the-nunn-lugar-cooperative-threat-reduction-program/>
- David Holloway, *Stalin and the Bomb*, New Haven: Yale University Press, 1994, pp. 150-171; 294-319


Additional readings

- Graham Allison, Conceptual models and the Cuban missile crisis, The American Political Science Review, Volume 63, Issue 3, Sep., 1969, 689-718
- Thomas C. Schelling, *Arms and Influence*, New Haven: Yale University Press, 1966;
- John Mueller, The essential irrelevance of nuclear weapons: Stability in the postwar world International Security, Vol. 13, No 2, Fall 1988

- McGeorge Bundy, George Kennan, Robert McNamara and Gerard Smith: Nuclear weapons and the Atlantic alliance, *Foreign Affairs*, Vol. 60/4, Spring 1982, 753- 768
- Robert Jervis, Why nuclear superiority doesn't matter, *Political Science Quarterly*, 1979
- Barton Bernstein, Crossing the Rubicon: A Missed Opportunity to Stop the H-Bomb?, *International Security*, Vol. 14, Fall 1989
- Nina Tannenwald, The Nuclear Taboo: the United States and the Normative Basis of Nuclear Non-Use, *International Organizations* Vol. 53, Summer 1999

Seminar #4-5: A New Cold War? China's nuclear hedging and U.S. pivot to Asia

The two lectures will examine the past and current nuclear interplay between the United States and China as emerging great power. A conventional IR theory argues that the rise of great powers is always accompanied by major wars waged by status-quo powers seeking to prevent a shift in the

 **Key question to be debated during group discussion:** How should the United States position itself so as to stabilize the nuclear triangulation with China and Russia? What principles should its nuclear posture adopt? What posture?

global distribution of power. Will we face a new cold war, this time between China and the United States?

Required readings:

- Wang Jisi, *China's search for stability with America*, *Foreign Affairs*, September/October 2005 Issue
- Lora Salmaan, *China and the U.S. Nuclear Posture Review*, Carnegie Paper accessible online, February 28, 2011: <http://carnegieendowment.org/2011/02/28/china-and-u.s.-nuclear-posture-review>
- Morton Halperin, China and the Bomb: Chinese nuclear strategy, *The China Quarterly*, Vol. 21, March 1965, pp. 74-86
- Brad Roberts, Nuclear Multipolarity and Stability, Institute for Defense Analysis, Document D -2539, November 2000


- Zalmay Khalilzad, Abram N. Shulsky, Daniel Byman, Roger Cliff, David T. Orletsky, David A. Shlapak, Ashley J. Tellis: The United States and a Rising China, RAND REPORT 1999, accessible online:
https://www.rand.org/content/dam/rand/pubs/monograph_reports/2007/MR1082.pdf
- Nicola Horsburgh, Change and innovation in Chinese nuclear weapons strategy, China Information, 26 (2) , 2012, pp. 185-204
- William Burr and Jeffrey Richelson, “Whether to “Strangle the Baby in the Cradle”: The United States and the Chinese Nuclear Program 1960-1964, International Security, Vol. 25, No. 3, Winter 2000/2001
- Fu Ying: How China sees Russia, Foreign Affairs, January/February 2016 Issue

Additional readings:

- Elbridge A. Colby and Abraham M. Denmark, Nuclear Weapons and U.S.-China Relations: A Way Forward, PONI working group, 2013, accessible here:
http://csis.org/files/publication/130307_Colby_USChinaNuclear_Web.pdf
- Robert Zoellick, Whither China: From Membership to Responsibility? , Department of State Deputy Secretary of State, Remarks delivered to the National Committee on the United States and China Relations, New York City, September 21, 2005
- Jeffrey Lewis, Chinese nuclear posture and force modernization, The Nonproliferation Review, Vol. 16, No. 2, July 2009

Seminar #6-7: Extended Deterrence, Alliances and Nuclear Guarantees

Outside of the bilateral relations with Russia and China respectively, the United States is also entangled in a series of regional and trans-national alliances, frequently reliant on the U.S. nuclear umbrella for protection and security. The two most important alliances are in Europe – through NATO and in Asia through a series of bilateral accords with Japan, Taiwan and South Korea respectively. The lecture will offer an overview of the structure of these alliances systems and will explore whether their endurance is today a driver of stability or a cause of potential conflict with great powers.

 **Key question to be debated during group discussion:** Are alliances helpful to nuclear stability or are they undermining it?

- **Required readings:**

The North Atlantic Treaty, 4 April 1949:

http://avalon.law.yale.edu/20th_century/nato.asp


- James Baker, Russia in NATO, *The Washington Quarterly*, winter 2002
- Keith B. Payne, *The Great American Gamble: Deterrence Theory and Practice from the Cold War to the Twenty-First Century*. Fairfax, VA: National Institute Press, 2009, Ch. 8: "What is New and Different? What Difference Does it Make for Deterrence and Defense?" 335-408
- Colin S. Gray, "Deterrence and the Nature of Strategy", in Max G. Manwaring, ed., *Deterrence in the 21 Century*, London: Frank Cass, 2001, 17-26
- Richard C. Bush III, Vanda Felbab-Brown, Martin S. Indyk, Michael E. O'Hanlon, Steven Pifer and Kenneth M. Pollack, *U.S. Nuclear and Extended Deterrence: Considerations and Challenges*, Brookings Report 2010, accessible: <http://www.brookings.edu/research/papers/2010/06/nuclear-deterrence>
- Nobory Yamaguchi, *The Utility of Nuclear and Conventional Forces in the Second Nuclear Age: A Japanese Military Perspective*, *Asia Policy*, No. 19, January 2015

Additional readings

- Stephen Walt, *Alliances in a Unipolar World*, *World Politics* 61:1, January 2009, pp.86- 120
- Stéfanie von Hlatky, Andreas Wenger, *The Future of Extended Deterrence: The United States, NATO, and Beyond*, Georgetown University Press, 2015, Part 1
- David Shambaugh, *China and the Korean peninsula: Playing for the long term*, *The Washington Quarterly*, 2003
- David Albright, Colin Gay, *Taiwan: Nuclear nightmare averted*, *Bulletin of the Atomic Scientists*, 1998
- T.V. Paul, *Complex Deterrence: Strategy in the Global Age*, The University of Chicago Press, 2009, Chapter 5-6-7

Seminar #8: Dangerous Nuclear Triangulations: The United States in between India and Pakistan

One of the most dangerous nuclear relationships in the world is the India-Pakistan nuclear dyad. The relationship has grown increasingly dangerous and unstable, riddled with deep-seated mistrust and rivalry. Both countries continue to expand their arsenal amid rising fundamentalist threats and geopolitical pressures. Pakistan, in particular, might soon have the third largest nuclear arsenal in the world. The United States has played a critical role in mediating between the two nuclear rivals but this strategy is becoming very costly in many ways.

 **Key question to be debated during group discussion:** What role should the United States play in the complex nuclear interplay between India and Pakistan?

Required Readings:

- Sumit Ganguly, S. Paul Kapur, *India, Pakistan, and the Bomb: Debating Nuclear Stability in South Asia*, Columbia University Press, 2010, Chapters 2-5
- Mohan Malik, *The China factor in the India-Pakistan conflict*, *Parameters* Spring 2003
- PK Singh, *The India-Pakistan Nuclear Dyad and Regional Nuclear Dynamics*, *Asia Policy*, No 19, January 2015
- Michael Krepon and Julia Thompson, *Deterrence stability escalation control in south Asia*, *Stimson Center*, April 2015, Chapter 1-2-5-6
- Todd Sechser, Matthew Fuhrmann, *Crisis bargaining and nuclear blackmail*, *International Organization*, Vol. 67, No. 1, 2013, pp. 173-195
- Paul Kapur, *India and Pakistan unstable peace: Why nuclear South Asia is not like cold war Europe*, *International Security*, Vol. 30, Fall 2005
- Ashley Tellis, *US-Indian Civilian Nuclear Cooperation and India's Nuclear Arsenal*, *Carnegie Report*: <http://carnegieendowment.org/files/atomsforwarrevised1.pdf>


Additional readings

- Paul Bracken, *The Second nuclear age*, *Foreign Affairs*, January/February 2000
- Toby Dalton, *A Normal Nuclear Pakistan*, *Report of the Carnegie Endowment for International Peace* 2015

- Marvin Miller and Lawrence Scheinman, Israel, India and Pakistan: Engaging the Non-NPT States in the Nonproliferation Regime, *Arms Control Today*, December 2003, pp. 15-20
- The U.S.-India Nuclear Deal, Council on Foreign Relations, available at: <http://www.cfr.org/india/us-india-nuclear-deal/p9663>
- Bruce Riedel, *Avoiding Armageddon: America, India, and Pakistan to the Brink and Back*, Brookings Institute, 2013, Chapters 5-8
- Viping Narang, What does it take to deter? Regional power nuclear postures and international conflict, *Journal of Conflict Resolution*, 2013
- Itty Abrahams *Contra-Proliferation: interpreting the meanings of India nuclear tests in 1974* in Scott Sagan, *Inside Nuclear South Asia*, Stanford Security Studies., Stanford University Press, 2009, Chapter 3

Seminar #9-10: Proliferation and Nuclear terrorism

The seminars focus on the strategies and policies adopted by the United States and by international organizations to prevent states from acquiring nuclear weapons. Some of these instruments include the Nuclear Non Proliferation Treaty (NPT), the IAEA Additional Protocol and the Proliferation Security Initiative and Resolution 1540. We will study the origin and function of these institutions, their strengths and shortcomings and we will explore their effectiveness in light of major proliferation crises including Libya, Iraq, Iran and Syria.

 **Key question to be debated during group discussion:** How should the next president of the United States address the problem of nuclear proliferation and terrorism?

Required readings:

- The Treaty on the Non-Proliferation of Nuclear Weapons (NPT): <http://www.un.org/en/conf/npt/2005/npttreaty.html>
- Scott D. Sagan (2011) *The Causes of Nuclear Weapons Proliferation*. *Annual Review of Political Science*. 14(1), 225–244 , ISSN 1094–2939
- Tanya Ogilvie-White (1996) *Is There a Theory of Nuclear Proliferation? An Analysis of the Contemporary Debate*. *Nonproliferation Review*. 4(1)Fall, 43–60

- Scott D. Sagan (1996/97) Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb. *International Security*. 21(3)Winter, 54–86
- Jacques E. C. Hymans (2010) When Does a State Become a “Nuclear Weapons State”? An Exercise in Measurement Validation. In Potter and Mukhatzhanova *Forecasting Nuclear Proliferation* Volume 1. chapter 6, 102–123
- William Wan (2011) Georgetown Students Shed Light on China’s Tunnel System for Nuclear Weapons. *The Washington Post*, November 29, 5, ISSN 0190–8286
- George Perkovich, *Bush's Nuclear Revolution: A Regime Change in Nonproliferation*, *Foreign Affairs* 2003
- Alexander H. Montgomery (2005) Ringing in Proliferation: How to Dismantle an Atomic Bomb Network. *International Security*. 30(2)Fall, 153–187
- Christopher Way and Jessica Weeks, Making it personal: regime type and nuclear proliferation, *American Journal of Political Science*, Vol. 58, No. 3, July 2014
- Graham Allison, *How to Stop Nuclear Terrorism*, *Foreign Affairs*, January February 2004
- Emma Belcher, *The Proliferation Security Initiative: Lessons for Using Nonbinding Agreements*, *Council on Foreign Relations*, July 2011:

[file:///C:/Users/fgiovannini/Downloads/IIGG_WorkingPaper6_PSI%20\(1\).pdf](file:///C:/Users/fgiovannini/Downloads/IIGG_WorkingPaper6_PSI%20(1).pdf)

Additional readings:


- Jacques E. C. Hymans (2012) Empirical extensions: Libya, Pakistan, North Korea, Iran. In Hymans *Achieving Nuclear Ambitions*. chapter 7, 239–261
- Chaim Braun and Christopher Chyba (2004) Proliferation Rings: New Challenges to the Nuclear Nonproliferation Regime. *International Security*. 29(2)Fall, 5–49
- Matthew Bunn (2007) Bombs We Can Stop. *American Scientist*. 95(5)September-October, 452–454
- Gaurav Kampani (2002) Second Tier Proliferation: The Case of Pakistan and North Korea. *Nonproliferation Review*. 9(3)Fall-Winter, 107–116
- Siegfried S. Hecker and William Liou (2007) Dangerous Dealings: North Korea’s Nuclear Capabilities and the Threat of Export to Iran. *Arms Control Today*. 37(2)March, 8
- George Bunn, *The Nuclear Non Proliferation Treaty History and Current Problems*, *Arms Control Association*, December 2003

- Avner Cohen and Marvin Miller, Bringing Israel’s Bomb out of the basement, Foreign Affairs September/October 2010
- The Proliferation Security Initiative: <http://www.psi-online.info/>
- Martin Kalinowski and R. Scott Kemp, “Detection of Clandestine Fissile Material Production,” Chapter 9 in International Panel on Fissile Materials, Global Fissile Materials Report 2007 (Princeton: IPFM, 2007), pp. 101-109:
http://www.fissilematerials.org/ipfm/site_down/gfmr07.pdf IGA-232 Syllabus, August 8, 2015 8
- David Albright and Corey Hinderstein, Unraveling the A. Q. Khan and Future Proliferation Networks, The Washington Quarterly Vol. 28, Spring 2005, pp. 111–128
- Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, Advancing Nuclear Security: Evaluating Progress and Setting New Goals (Cambridge, Mass.: Project on Managing the Atom, Belfer Center for Science and International Affairs, Harvard University, March 2014).

<http://belfercenter.ksg.harvard.edu/files/advancingnuclearsecurity.pdf> (pp. 49-60)

Seminar #11: The Nuclear Renaissance and its consequences

Since 1999, emerging countries such as Vietnam, the United Arab Emirates, Malaysia, Ghana, Nigeria, Jordan and Turkey, among others, have sought to acquire nuclear technology for energy production. The race to establish nuclear power plants around the world has been defined as the “Nuclear Renaissance.” While the nuclear industry has been stagnating in developed countries, it has found renewed enthusiasm among developing and energy shortage-stricken countries. The spread of nuclear technology around the world brings with it critical consequences in terms of nuclear proliferation and nuclear terrorism risks.

 **Key question to be debated during group discussion:** According to the NPT, access to nuclear technology is an inviolable right of state parties to the treaty. How can the spread of nuclear technology be made more proliferation resistant?

Required Readings:

- International Atomic Energy Agency, Climate Change and Nuclear Power 2015, available at: <http://www-pub.iaea.org/MTCD/Publications/PDF/CCANP2015Web-78834554.pdf> (skim through the report)

- Scott D. Sagan (2010) Nuclear Latency and Nuclear Proliferation. In Potter and Mukhatzhanova Forecasting Nuclear Proliferation Volume 1. chapter 5, 80–101
- Jacques Hymans, Veto Players, Nuclear Energy and nonproliferation domestic institutional barriers, International security vol. 36, No. 2, 2011
- Matthew Kroenig (2009) Importing the Bomb: Security Threats, Sensitive Nuclear Assistance, and Nuclear Proliferation. Journal of Conflict Resolution. 53(2)April, 161–180
- Matthew Fuhrmann, Atomic Assistance: How “Atoms for Peace” Programs Cause Nuclear Insecurity. Ithaca: Cornell University Press, 2012, Part II
- Paul Joskow, The future of nuclear power after Fukushima, MIT Report 2012: <http://web.mit.edu/ceepr/www/publications/workingpapers/2012-001.pdf>
- Mohammed ElBaradei, “Nuclear Energy: The Need for a New Framework,” remarks to the International Conference on Nuclear Fuel Supply: Challenges and Opportunities, 17 April 2008, <http://www.iaea.org/NewsCenter/Statements/2008/ebsp2008n004.html>
- United States Institute of Peace, the Iran Primer, <http://iranprimer.usip.org/resource/timeline-irans-nuclear-activities>
- The Joint Comprehensive Plan of Action (JCPOA)/The Iran Agreement Text
- Gabrielle Hecht, Africa and the Nuclear World: Labor, Occupational Health and the Transnational Production of Uranium, Comparative Studies in Society and History, Vol. 51, No. 4, October 2009, pp. 896-926

Additional Readings:

- Matthew Kroenig, Time to Attack Iran: Why a Strike is the Least Bad Option, Foreign Affairs, January/February 2012
- Colin Khal, Not Time to Attack Iran, Foreign Policy, March/April 2012
- Scott Sagan, Nuclear Latency and Nuclear Proliferation, Forecasting Nuclear Proliferation, Stanford University Press, July 2010, available: http://cisac.fsi.stanford.edu/publications/nuclear_latency_and_nuclear_proliferation
- Avner Cohen and Marvin Miller, Bringing Israel’s Bomb Out of the Basement: Has Nuclear Ambiguity Outlived its Shelf Life?, Foreign Affairs, Vol. 89, No. 5, September/October 2010
- Sarah Kreps, Shifting Currents: Changes in National Intelligence Estimates on the Iran Nuclear Threat, Intelligence and National Security, Vol. 23, No, 5, October 2008, pp. 608-628

Seminar #12: Into the future: cyber, space, and conventional capabilities in an already fragile nuclear order

In the 21st century, nuclear risks are increasingly coupled with risks from other emerging sophisticated technologies such as cyber and bio ones. These technologies might further destabilize an already fragile nuclear order.

 **Key question to be debated during group discussion:** What should cyber-strategists learn from the Nuclear Order?

Required readings

- Richard A. Clarke, *Cyber War: The Next Threat to National Security and What to Do About It*, Ecco, 2010, Chapters 3 and 6 (“The Battlespace” and “How Offensive?”)
- James P. Farwell and Rafal Rohozinski, The New Reality of Cyber War, *Survival*, 54 (4), August/September 2012, pp. 107–120
- Gary McGraw, “Cyber War is Inevitable (Unless We Build Security In),” *Journal of Strategic Studies*, 36 (1), February 2013, pp. 109–119
- Erik Gartzke, “The Myth of Cyberwar,” *International Security*, 38 (2), Fall 2013, pp. 41–74
- Steven Lambakis, *On the Edge of Earth: The Future of American Space Power*, University Press of Kentucky, 2001, Part II and Part III
- WC Martel, T Yoshihara, *Averting a Sino-US space race*, *Washington Quarterly*, 2003

Additional readings

- Thomas Rid, “Cyber War Will Not Take Place,” *Journal of Strategic Studies*, 35 (1), February 2012, pp. 5–32
- United States, 2016 Cyber Security Strategy
- Dennis Gormely, *Winning on Ballistic Missiles But Losing on Cruise: The Missile Proliferation Battle Arms Control Today*, 2009
- Dennis Gormely, *The Path to Deep Nuclear Reductions: Dealing with American Conventional Superiority*, IFRI Proliferation Papers, Fall 2009

Seminar #13: What will the global nuclear order look like in 20 years?

The final seminar will look at how new conventional military capabilities and increasing competition in space might affect the current global nuclear order and the defense policies of major nuclear weapons states.

Required Readings:

- Hugh Gusterson, Nuclear Weapons and the Other in the Western Imagination, Cultural Anthropology, Vol. 14, No. 1, pp. 111-143
- President Obama, The Prague Speech, April 5, 2009: [**https://www.whitehouse.gov/the-press-office/remarks-president-barack-obama-prague-delivered**](https://www.whitehouse.gov/the-press-office/remarks-president-barack-obama-prague-delivered)
- George Shultz, William Perry, Henry Kissinger and Sam Nunn, Deterrence in the Age of Nuclear Proliferation, [**http://www.wsj.com/articles/SB10001424052748703300904576178760530169414**](http://www.wsj.com/articles/SB10001424052748703300904576178760530169414)
- **Jeffrey Rathke and Simon de Galbert**, NATO'S Nuclear Policy as Part of a Revitalized Deterrence Strategy, January 2016: <http://csis.org/publication/natos-nuclear-policy-part-revitalized-deterrence-strategy>;

ANNEX 1 – LIST OF NUCLEAR INSTITUTIONS TO RESEARCH

- The Treaty of Non Proliferation of Nuclear Weapons (NPT)
- The Nuclear Supplier Group (NSG)
- The International Atomic Energy Agency Charter (IAEA)
- The Fissile Material Cut-Off Treaty (FMCT)
- The Comprehensive Nuclear Test Ban Treaty (CTBT)
- The UN Resolution 1540 on Nuclear Terrorism
- The Proliferation Security Initiative (PSI)
- The Strategic Arms Reduction Treaty (START) 2010
- The Strategic Arms Limitation Talks (SALT) 1967

Questions:

- 1) What type of threat does the nuclear institution seek to address? Is the threat related to nuclear weapons, nuclear energy, the control of nuclear material, state-actor driven threat?
- 2) What type of cooperation does the nuclear institution seek to enforce? Bilateral? Regional? Transnational?
- 3) What are the elements of strengths of the nuclear institution? And why should they be considered strengths in this current geo-political context?
- 4) What are the elements of weaknesses? And how can they be addressed given the current geo political landscape?