

RPOS 204: Weapons of Mass Destruction and International Security

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Office Hours: Downtown Campus, Draper 118 by appointment. Or over phone/skype by appointment

Course Description

This course explores the broad policy and academic literature related to WMDs. Students will explore the numerous WMD concepts, from nuclear weapons all the way down to modern, and controversial definitions, such as the Boston Bombers. To do this, students will look at both the technical and scientific aspects of WMDs, as well as the policy and academic aspects of their use, construction, and proliferation, by both state AND non-state actors. The course will make use of IR theory, so students should be conversant in the main IR theories. The course will also look at the numerous delivery systems that WMD systems rely on, their proliferation, development, and use outside of the WMD realm. Should the US modernize its nuclear arsenal, is nuclear proliferation a stabilizing force in IR, what issues does Russia's decaying nuclear infrastructure pose to international security and deterrence, are non-state actors truly a WMD threat? These and other policy and academic questions will be addressed throughout the semester, and students will be expected to be conversant in questions related to WMDs, such as these, by the end.

The class will be structured around readings, powerpoints (sometimes accompanied by lecture videos or other videos to watch), and in depth discussions on the blackboard discussion board (see participation).

Most of the readings you can find below, they are either links, or the names of articles. If there is no link you can find the article via the UAlbany Library search services, such as Ediscover, follow the directions there. If you really can't find it after trying ediscover, email me. The readings that do not have links will be on blackboard.

A note on the content of this class: This class will focus on in depth readings, video, and discussion of highly advanced and destructive weapons, from nuclear weapons, to chemical and biological weapons, to advanced missile technology. These are real weapons that do and have inflicted untold death and destruction throughout the world. Because of this, some of the contents of this class will be disturbing to read about, discuss, and watch. In order to adequately understand the role these weapons and technologies play in the international system, through diplomacy, and war, we need to have a deep understanding and appreciation for the weapons themselves, how they work, what they do, and how they are used from both a tactical and strategic role. If you think this may bother you, I would highly recommend talking to me before starting any material.

Expectations

Students are expected to have a working knowledge of the general IR theories and be ready to apply them in both assignments and class discussions.

This is an online course that will take place from June 26th to August 4th. This is not a lot of time to fit in a lot of material. Because of this, the workload for summer courses is much heavier for a shorter period of time. This class will require a significant amount of time each day to complete both the assigned readings and discussion posts, as well as the required assignments. Make sure you schedule your time properly to keep up with readings, discussion posts, and assignments, it is very easy to fall behind in a summer online course. All assignments and discussion posts need to be submitted by 11:59 PM on the day they are assigned.

Course Objectives

By the end of the summer session, students should be able to:

- Describe the major technical challenges involved in the construction of chemical, biological, radiological, and nuclear (CBRN) weapons as well as their associated delivery systems.
- Identify what makes certain types of CBRN weapons more effective for state actors and what makes certain types more effective for non-state actors
- Explain the major issues surrounding the proliferation of nuclear weapons and the role they play in international security
- Discuss the regional security issues posed by nuclear weapons and the international efforts to prevent proliferation
- Apply their knowledge of CBRN issues to understanding contemporary events
- Understand the issues associated with, and be conversant in the broad trend of conventional and WMD proliferation.

Grading

Participation – 40%

Since this is not a traditional seminar style class we will be relying on discussion posts for our participation and discussions. Each morning at 8am on the class day I will post a handful of questions regarding the readings for that day. Students will be required to answer 1 of my questions and to either pose their own follow-up questions or their own different questions along with responding to at least 1 other student discussion questions. That makes for a total of 2 posts per day. These do not need to be papers, but they do need to be significantly thought out, well-constructed thoughts, critiques, or ideas, tangential to the topic for the day. When you relate to the readings please use quotes or page numbers and title of the text you're referring to.

There is no minimum or maximum limit for these posts, and you can post as many times as you want (the more you post the more likely you will get a 10/10, assuming they are contributing). Your total posts for each day will be graded out of ten based on the following criteria; relevance

to assigned material, clear understanding of theoretical and practical meaning of material, application to real-world events, insightfulness, creativity, openness to other perspectives, accounting for alternative explanations. This is not an exhaustive list of how I will grade the discussion posts, nor do you have to check every box to get a 10. They are simply examples of things you should strive for to ensure your posts demonstrate your understanding of the material and ability to apply it further and discuss it. These posts should take time, they should be carefully thought out and well-constructed. A poor post is obvious as is an excellent one.

I will be responding to the posts as well to help engage in further discussion and teaching on the contents of that day. I would highly recommend you go back and read all of the posts at the end of each day.

At the end of each week I will email you with your discussion post grade for the week as well as tips to improve if needed.

1 Short Exercise Write-Up – 10%

There will be a few short exercises throughout the course of the 6 weeks. They will be marked on the syllabus and will have their own folder on blackboard. You must choose 1 and do a brief (roughly 500 words) summary of the exercise and how it applies to that week's readings (and anything else you think of). These will often mirror the questions I post as discussion, feel free to use your discussion points as a foundation for the assignment. They will be due at 11:59 the night AFTER they are assigned. So if one is assigned July 10 it will be due 11:59 July 11

Pick Your Poison Brief OR Getting the Bomb Paper (Choose 1)– 20%

Students will write a 3-4 page (double space 12 font) brief paper on a chemical or biological weapons agent. This brief should be considered a primer for high-level policymakers on the particular agent, providing them with a summary description of the agent, the military and terrorism threat it poses, and the preparations the government should undertake to redress that threat. Due 7/28

Students will write a 3-4 page paper on the major obstacles that states must overcome to acquire a military nuclear program capable of producing atomic bombs. Students should write this paper from a contemporary perspective. The paper should address the technical challenges, domestic political issues, and international political issues that may serve as obstacles for states' efforts as well as a thorough explanation of the demand side factors that may play a role in the states decision to acquire or not atomic bombs. Students should choose to write on a real country. Due 7/28

“US Nuclear Arsenal Final Paper”– 30%

This project is the final exam for the class. It will be in a separate handout on blackboard that will be uploaded by the end of the second week. But will be a 3-5 page double space page paper

where you will be required to provide, based on the things you have learned, a basic intro to your own outline to how the future US arsenal should be structured. Due 8/4

Grading Policy

Any clear mistakes or errors made by the instructor will be promptly corrected.

Policy on Academic Honesty

Please familiarize yourself with the undergraduate bulletin's descriptions of cheating and plagiarism. If you are involved in plagiarism or cheating, the penalty will be failure in the course and you will be reported to judicial affairs. If you are not sure if something violates standards – feel free to ask ahead of time. In general, it's always better to err on the side of citing too much than too little in your research papers. Information on the university's policies can be found at: <http://www.albany.edu/studentconduct/appendix-c.php>. Seriously, don't cheat, I will fail you.

Accommodations

“Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning and psychiatric disabilities. If you believe you have a disability requiring accommodation in this class, please notify the Director of Disabled Student Services (Campus Center 137, 442-5490). The office will provide the course instructor with verification of your disability, and will recommend appropriate accommodations.” For the University's policy, see: <http://www.albany.edu/disability/resource.shtml>. If you wish to discuss academic accommodations for this class please inform the instructor as soon as possible.

Resources

The readings for this course will be split between book excerpts and other sources, which will be posted on the blackboard and articles that students will be required to look up themselves using the university's electronic library resources. There are no required text books.

Frank Barnaby “How to Build a Nuclear Bomb” Blackboard

Course Schedule

Introduction

Day 1 - 6/27: Critiquing the WMD Concept and Overview of Proliferation

- Wolfgang K. H. Panofsky. 1998. “Dismantling the Concept of Weapons of Mass Destruction” *Arms Control Today* (April). Access at: http://www.armscontrol.org/act/1998_04/wkhp98

- Paul Kerr. 2008. "Nuclear, Biological, and Chemical Weapons and Missiles: Status and Trends." *Congressional Research Service* (February 20). Access at: <https://fas.org/sgp/crs/nuke/RL30699.pdf>
- Joseph Cirincione, Jon Wolfsthal, and Miriam Rajkumar. 2005. "Chapter 1 and Maps." In *Deadly Arsenals*. Access at: <http://carnegieendowment.org/2005/07/10/deadly-arsenals-nuclear-biological-and-chemical-threats-second-edition-revised-and-expanded/4ry?reloadFlag=1>
- Hans Kristensen and Robert Norris. 2013. "Global Nuclear Weapons Inventories, 1945-2013." *Bulletin of the Atomic Scientists* 69(5): 75-81.

Nuclear Weapons

Day 2 - 6/28: History of Nuclear Weapons Development And How Nuclear Weapons Work and the Consequences of Their Use

- Joseph Cirincione. 2002. "Excerpt." *Bomb Scare: The History and Future of Nuclear Weapons*. New York. Columbia University Press. **(Blackboard)**
- Frank Barnaby. 2004. "Nuclear Weapons." *How to Build a Nuclear Bomb*, 15-39. **(Blackboard)**
- John Mueller. 2010. "Overstating the Effects." *Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda*. Oxford: Oxford University Press, 17-28. **(Blackboard)**
- Blow up your hometown on this website; <http://www.nuclearsecrecy.com/nukemap/> experiment with different types of nuclear weapons.

Day 3 – 6/29: Why States Acquire Nuclear Weapons

- Scott Sagan "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb." *International Security* 21(3): 54-86.
- Jacques Hymans. 2002. "Why Do States Acquire Nuclear Weapons? Comparing the Cases of India and France." In D.R. SarDesai and Raju Thomas's *Nuclear India in the Twenty-First Century*. New York: Palgrave Macmillan. **(Blackboard)**
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Day 4 - 6/30: Explaining Nuclear Restraint and Nuclear Opacity

- Ariel Levite. 2002/2003. "Never Say Never Again: Nuclear Reversal Revisited." *International Security* 27(3): 59-88.
- Jacques Hymans. 2001. "Of Gauchos and Gringos: Why Argentina Never Wanted the Bomb, and Why the United States Thought It Did." *Security Studies* 10(3): 153-185.

- Avner Cohen and William Burr. 2006. "Israel Crosses the Threshold." *Bulletin of the Atomic Scientists* (May/June): 22-30.
- David Albright. 1994. "South Africa and the Affordable Bomb." *Bulletin of the Atomic Scientists* (July/August): 37-47.
- Watch- Israel's Secret Weapon BBC Documentary: <https://vimeo.com/76901546>

Day 5 - 7/3: How to Make Nuclear Weapons

- Frank Barnaby. 2004. "What Does It Take to Make a WMD?" *How to Build a Nuclear Bomb*, 67-84. **(Blackboard)**
- Matthew Bunn and Anthony Wier. 2006. "Terrorist Nuclear Weapon Construction: How Difficult?" *The Annals of the American Academy of Political and Social Science* 607(September): 133-149. **(Blackboard)**

Day 6 - 7/5: Foreign Nuclear Assistance: Sensitive Assistance, and the Illicit Nuclear Blackmarket

- Matthew Kroenig. 2009. "Importing the Bomb Sensitive Nuclear Assistance and Nuclear Proliferation," *Journal of Conflict Resolution* 53 (April): 161-180.
- Matthew Kroenig. 2009. "Exporting the Bomb: Why States Provide Sensitive Nuclear Assistance," *American Political Science Review* 103(1):113-133
- Alexander Montgomery. 2005. "Ringing in Proliferation." *International Security* 30(2): 153-187
- David Albright and Corey Hinderstein. 2005. "Unraveling the A. Q. Khan and Future Proliferation Networks." *The Washington Quarterly* 28(Spring): 111-128.

Day 7 - 7/6: Nuclear Deterrence

- No discussion Today! Discussion will take place 7/7 for this reading, please read carefully! Thomas Schelling. 1966. "The Art of Commitment." *Arms and Influence*. New Haven: Yale University Press, 35-91. **(Blackboard)**

Day 8/9 – 7/7: Nuclear Deterrence

- Thomas Schelling. 1966. "The Art of Commitment." *Arms and Influence*. New Haven: Yale University Press, 35-91. **(Blackboard)**

Day 9 - 7/10: Nuclear Deterrence Continued

- Jeffrey Lewis. "Minimum Deterrence." *Bulletin of the Atomic Scientists* 64(3): 38-41
- Robert Powell Nuclear Deterrence Theory, Nuclear Proliferation, and National Missile Defense: <http://slantchev.ucsd.edu/courses/pdf/powell-is2003v27n4.pdf>
- Strategic Primer Missile Defense 2015 (Blackboard)
- "China Warns of Arms Race..." <https://www.nytimes.com/2017/03/07/world/asia/taad-missile-defense-us-south-korea-china.html? r=0>

- JJ Suh, Missile Defense and the Security Dilemma: THAAD, Japan's "Proactive Peace," and the Arms Race in Northeast Asia <http://apjff.org/2017/09/Suh.html>
- <http://my.ign.com/atari/missile-command> Play this Game, post a picture of your high-score on blackboard, top 3 scores get extra credit point, if you beat me you automatically get extra credit. (Exercise 1 : How accurate a portrayal of a national missile defense is this game? Use the readings to determine whether a national missile defense is in the best interests of the United States, pretend you're using the game as an example for your explanation for a friend who is not taking this course.

Day 10 - 7/11: Nuclear Coercion and Nuclear Weapons and International Conflict

- Todd Sechser and Matthew Fuhrmann. 2013. "Crisis Bargaining and Nuclear Blackmail." *International Organization* 67: 173-195.

Day 11 - 7/12: Nuclear Weapons and International Conflict Pt II

- Scott Sagan and Kenneth Waltz. The Great Debate (**Blackboard**)
- Sobek, David, Dennis M. Foster, and Samuel B. Robison. "Conventional Wisdom? The Effect of Nuclear Proliferation on Armed Conflict, 1945–2001." *International Studies Quarterly* 56.1 (2012): 149-162.
- Gray, Colin S., and Keith Payne, "Victory Is Possible," *Foreign Policy*, No. 39 (Summer,1980), pp. 14-27.
- (Exercise 2: Are Nuclear weapons good for the international system or not?)
- (Exercise 3: Is victory in a nuclear war possible?)

Day 12 - 7/13: Nuclear Weapons and International Conflict Accidental Nuclear War Pt III

- Borning, Alan (1987). "Computer System Reliability and Nuclear War," *Communications of the ACM*. Feb1987, Vol. 30 Issue 2, p112-131.
- More TBD

Day 13 - 7/14: Off Day

Nuclear Nonproliferation Efforts

Day 14 - 7/17: The Nuclear Nonproliferation Treaty and IAEA

- *The Treaty on the Non-Proliferation of Nuclear Weapons*. Full Text Available at: <http://www.un.org/disarmament/WMD/Nuclear/NPT.shtml>
- Jean du Preez. 2006. "Half Full or Half Empty? Realizing the Promise of the Nuclear Nonproliferation Treaty." *Arms Control Today* (December): 6-12.

- Nuclear Threat Initiative. 2013. “The Treaty on the Non-Proliferation of Nuclear Weapons.” Access at: <http://www.nti.org/treaties-and-regimes/treaty-on-the-non-proliferation-of-nuclear-weapons/>

Day 15 – 7/18: Other Nuclear Arms Control Treaties

- Arms Control Association. 2014. “U.S.-Russia Arms Control Agreements at a Glance.” Access at: <http://www.armscontrol.org/factsheets/USRussiaNuclearAgreementsMarch2010>
- Amy Wolf. 2014. “The New START Treaty: Central Limits and Key Provisions.” *Congressional Research Service*. Available at: <http://www.fas.org/sgp/crs/nuke/R41219.pdf>.
- Tom Z. Collina with Daryl G. Kimball. 2010. “Now More Than Ever: The Case for the Comprehensive Nuclear Test Ban Treaty.” *Arms Control Association Briefing Book*. Available at: http://www.armscontrol.org/system/files/ACA_CTBBriefingBook.pdf

Day 16: 7/19: Break Day

Day 17 7/20: UNSCR 1540 and the Multilateral Export Control Regimes

- Douglas Stinnett, Bryan Early, Cale Horne, and Johannes Karreth. 2011. “Complying by Denying: Explaining Why States Develop Nonproliferation Export Controls.” *International Studies Perspectives* 12(3): 308-326.
- “Nuclear Suppliers Group at a Glance.” 2006. Arms Control Association. Access at: <http://www.armscontrol.org/system/files/NSG.pdf>

Day 18 – 7/21: Counter-Proliferation Efforts

- Sarah E. Kreps and Matthew Fuhrmann. 2011. “Attacking the Atom: Does Bombing Nuclear Facilities Affect Proliferation?” *Journal of Strategic Studies* 34 (2): 161-187.
- Malfrid Braut-Hegghammer. 2011. “Revisiting Osirak: Preventive Attacks and Nuclear Proliferation Risks.” *International Security* 36(1): 101-132.

Day 19 - 7/24: Strategic Trade Controls and the Dual-Use Dilemma

- TBD

Day 20 - 7/25: Iran Deal, good, bad or best we’ve got?

- Bryan R. Early and Victor Asal “Nuclear Weapons and Existential Threats: A Framework for Comparative Analysis” (**Blackboard**)
- **More TBD**

Biological and Chemical Weapons

Day 21 – 7/26: Biological Weapons

- Frank Barnaby. 2004. “Biological Weapons.” *How to Build a Nuclear Bomb*, 41-53.
- Federation of American Scientists. 2010. “Biological Threat Agents Information.” Access at: <http://www.fas.org/programs/ssp/bio/resource/agents.html#rvf>

Day 22 – 7/27: Chemical Weapons

- Frank Barnaby. 2004. “Chemical Weapons.” *How to Build a Nuclear Bomb*, 55-64.
- Federation of American Scientists. 2010. “Types of Chemical Agents.” Access at: <http://www.fas.org/programs/bio/chemweapons/cwagents.html>

Day 23 – 7/28 Chemical and Biological Weapons and the Dual-Use Dilemma

- Jonathan B. Tucker. 1994. “Dilemmas of a Dual-Use Technology: Toxins in Medicine and Warfare.” *Politics and Life Sciences* 13(1): 51-62.
- Kathleen Vogel. 2006. “Bioweapons Proliferation: Where Science Studies and Public Policy Collide.” *Social Studies of Science* 36(5): 659-690.

Day 24 – 7/31 – Why States Want Chemical and Biological Weapons

- Richard Price. 1995. “A Genealogy of the Chemical Weapons Taboo.” *International Organization* 49(1): 73-103.
- Gregory Koblenz. 2004. “Pathogens as Weapons: The International Security Implications of Biological Warfare.” *International Security* 28(3): 84-122.
- Michael Horowitz and Neil Narang. 2013. “Poor Man’s Atomic Bomb? Exploring the Relationship between ‘Weapons of Mass Destruction.’” *Journal of Conflict Resolution* (Web-First).
- Pick your Poison brief due

Day 25 – 8/1 – Chemical Weapons in War

- (This is a highly graphic video of the Iraqi chemical attack in Halabja in Kuristan. The video does a good job showing the effects of a chemical weapons attack, particularly how indiscriminant chemical weapons are. While generally I feel in order to have a full appreciation for weapons one needs to know what they can do, this video is very hard to

watch, for that reason **You do not need to watch it.** If you would like to ask me about it before viewing feel free to. <https://www.youtube.com/watch?v=KNxks7LqY0w>

- “Syrian Chemical Attack What we Know”- <http://www.bbc.com/news/world-middle-east-39500947>
- “How Obama’s Syrian Chemical Weapons Deal Fell Apart”
<https://www.theatlantic.com/international/archive/2017/04/how-obamas-chemical-weapons-deal-fell-apart/522549/>

Day 26 – 8/2 – Ballistic Missiles, Cruise Missiles, Anti-Ship Missiles: Strategic Significance and Proliferation Issues (Pick your Poison Paper Due

- WMD Commission. 2006. “Chapter 6: Delivery Means, Missile Defences, and Weapons in Space.” *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*. Stockholm: WMD Commission. http://www.blixassociates.com/wp-content/uploads/2011/02/Weapons_of_Terror.pdf
- Dinshaw Mistry. 2003. “Building a Comprehensive Regime to Contain Ballistic Missile Proliferation.” *International Security* 27(4): 119-149.
- Missile Technology Control Regime. 2014. Official Website. Access at: <http://www.mtcr.info/english/>
- Lawrence Korber (Ualban alum and former Assistant Sec of Defense!)
<https://www.americanprogress.org/issues/security/reports/2016/02/03/130431/setting-priorities-for-nuclear-modernization/>
- <https://interactives.americanprogress.org/future-of-nukes/#current-arsenal?>
This is an interactive explanation of US nuclear force posture for the future. Play around with it. (Exercise 4 Complete this assignment and explain why you made the decisions you did regarding what to develop and what to cut.)

The following videos are descriptions and tests of advanced and highly destructive weapons technology. In order to properly grasp the effects of these weapons on the international systems, which is the role of this class I feel it is important to watch them. That said, if for any reason you do not wish to watch them, email me.

- <https://www.youtube.com/watch?v=8sa7ZX58Kk4> (Standard US Harpoon anti-ship missile.)
- https://www.youtube.com/watch?v=CV8sI6BRF_o (Exocet Anti-Ship Missile Test at Sinkex 2006)
- <https://www.youtube.com/watch?v=fBakzoQDd10> (Anti-Ship test of NSM)
- <https://www.youtube.com/watch?v=a1gxrDZHTKk> (Land-attack demonstration of the Norwegian Naval Strike Missile. Highly advanced missile with both anti-ship and land attack roles.)
- https://en.wikipedia.org/wiki/Multiple_independently_targetable_reentry_vehicle#/media/File:Minuteman_III_MIRV_path.svg (This is an example of a MIRV (multiple

Independently Targetable Reentry Vehicles. Essentially 1 missile can be numerous actual warheads)

- https://www.youtube.com/watch?v=dbUq_KPHzUE (Minuteman III missiles are the US land based Ballistic Missile nuclear deterrence)
- <https://www.youtube.com/watch?v=D5CBUSYJykY> (Brahmos is a very advanced supersonic cruise missile system India has developed with Russia)
- <https://www.youtube.com/watch?v=8sa7ZX58Kk4> (Old video on the standard US land attack cruise missile (LACM) This is what the US has used throughout Syria.
- <https://www.youtube.com/watch?v=Vxfk5eWlbQo> (Anti-Satellite Weapon)
- https://www.youtube.com/watch?v=jOKf5r_JMAo (Silly Movie, but a good example of the “Rod from God” A superweapon concept that uses gravity and Tungsten rods to unleash highly devastating attack on par and more destructive than nuclear weapons.

Day 27 – 8/3: Work on The “US Nuclear Arsenal Project”

Day 28 – 8/4: “US Nuclear Arsenal Project” Due 11:59PM