

PS 196: Nuclear Weapons and International Security
Fall 2019
TuThu 3:30 - 4:45PM
Girvetz Hall 2320

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Syllabus

This course addresses contemporary issues of nuclear security. While it reflects on the past, it focuses on the present and future. Questions we will examine include:

- Why should we care about nuclear weapons today? What is the history of nuclear weapons development, beginning with the decision to build the very first nuclear bomb? What is the science and technology behind nuclear weapons, and what is the nature of the dual-use problem?
- Why do countries seek nuclear weapons? What causes some nations to pursue these weapons while others do not? Why do some countries remain latent nuclear powers rather than acquire nuclear weapons, and why do some countries that acquire nuclear weapons ultimately give them up? What multilateral and bilateral policy options are available to states that seek to curb the spread of nuclear weapons? What role do norms play with respect to the proliferation and use of nuclear weapons? Is a world with zero nuclear weapons possible?
- What are the consequences of nuclear weapons for international war, strategy, alliance politics and other outcomes, including human security?
- What new challenges exist from rogue states and nonstate actors? What unique challenges and risks do recent proliferators pose, including India, Pakistan, Iran and North Korea? Finally, what future policy challenges will emerge with respect to nuclear weapons?

The course will proceed in four parts. In Part One of the course, we will lay a foundation for analyzing important dimensions of nuclear security by exploring the history of nuclear weapons development, and by introducing the science and important technological challenges linked to nuclear weapons programs. In Part Two of the course, we will outline the causes of nuclear weapons proliferation by exploring the factors that may affect the supply and demand of nuclear weapons in the international system. In Part Three of the course, we will focus on the consequences of nuclear weapons proliferation for various security outcomes, including the likelihood of war, national strategy, alliance politics, and other foreign policy outcomes. Finally, in Part Four of the course, we will explore topics that are likely to be important for the future of nuclear security: we will examine the risk from rogue states and non-state actors, and we will discuss the challenges posed by recent proliferators like India, Pakistan, Iran and North Korea.

Importantly, this course is structured around a series of guest lectures delivered by policy practitioners, researchers, and academics. The central role of guest lectures in this course means a certain amount of flexibility will be called for. I appreciate your understanding if speakers are delayed or must reschedule.

Readings

There are no books required for purchase. All assigned readings will be posted on the course site on GauchoSpace or they can be located online for download using Google Scholar. In most cases, you will need to use a UCSB internet connection to utilize the University's online subscription to academic journals. The reading list is subject to change, and I will announce any changes in class or via email. I have included optional resources below the list of required readings for some class meetings. These do not have to be read for class, but you may find them helpful to refer to when writing your assignments. We will also make some use of videos and podcasts.

A number of the assigned readings use statistics or the language of game theory to make their arguments. Don't worry about the details of the methodology or mathematical proofs in these papers—although we will spend some time in class discussing this—instead, focus on the broader arguments and findings.

Some tips for the readings:

- For empirical articles (whether they use statistics or historical case studies), consider the set of data or facts that the findings are based on. Would we expect these findings to hold up for other cases or data? Does the research really constitute a test of the theory?
- For theoretical articles (whether they use game theory or more informal language), consider the assumptions that lead to the article's conclusions. Is the logic of the argument internally consistent? What facts in the world would cause us to doubt the article's conclusions?
- For policy documents, consider the political, bureaucratic, and security context of the document. Who is the author? What is the author's purpose in writing and releasing the document? What message does the document send to foreign and domestic audiences?

Course Requirements

I expect you to attend lectures, complete the readings before the class session for which they are assigned, participate in class discussion, and complete course assignments on time.

Attendance and Participation (20%): Because this class is structured around a series of guest lectures, attendance and participation are absolutely essential to your learning in the course, and are thus required elements. Attendance will be taken at the start of each class. Missed classes may be excused only after a Doctor's note is submitted explaining why you were too ill to attend. Additionally, all students are required to have completed all readings assigned in each session before the class session, and all students should come prepared to participate in discussion of the readings and lectures.

Midterm Exam (40%): The midterm will be a 6-8-page take-home essay due on Thursday, October 31. Students will submit an electronic copy for plagiarism analysis and evaluation by the start of class at 3:30p through GauchoSpace. The midterm exam topic will be distributed at least one week in advance of the due date. Late submissions will be accepted only after a Doctor's note is submitted explaining why you were too ill to submit the exam. No exceptions.

Final (40%): The final exam will be a 6-8-page take-home essay due on Thursday, December 12. Students will submit an electronic copy for plagiarism analysis and evaluation by 7:00p through GauchoSpace. The final exam topic will be distributed during the last week of class. Late submissions will be accepted only after a Doctor's note is submitted explaining why you were too ill to submit the exam. No exceptions.

Course Grade:

Attendance	10%
Participation	10%
Midterm	40%
Final	40%

Note that all registered students must physically attend both class sessions in the first week of class or else they will be dropped from the course. We will take role and pass around a sign up sheet in both classes.

Course Webpage

Additional copies of this syllabus and appropriate links are available on the course webpage on Gauchospace. Lecture notes will also be posted on Gauchospace after class when appropriate. The slides are not a substitute for lecture.

UCSB Academic Integrity Policy

Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind.

All suspicions of academic misconduct will be reported to the Office of Judicial Affairs according to University policy. Academic misconduct is not just blatant cheating (e.g., copying off another student during an exam), but what you might have thought of as "minor cheating" in high school, for example: copying other students' papers or homework; copying or using old papers/report; working with others on individual assignments; forgetting to cite material you took from an outside resource; turning in work completed in total or part by another. The Policy on Integrity of Scholarship (<http://judicialaffairs.sa.ucsb.edu/AcademicIntegrity.aspx>) lists some of the standards by which you are expected to complete your academic work, but your good ethical judgment (or asking me for advice) is also expected as we cannot list every behavior that is unethical or not in the spirit of academic integrity.

Those students found to have committed academic misconduct will face administrative sanctions imposed by their college Dean of Student Affairs and academic sanctions imposed by me. The standard administrative sanctions include: the creation of a disciplinary record; disciplinary probation; suspension and dismissal from the University. These sanctions are not at my discretion. Academic sanctions can range from an F on the assignment to an F in the class. The appropriate sanctions are determined by the egregiousness of the Policy violation. Students who assist in or are complicit with cheating could also be in violation of the Policy. Thus, students who become aware of their peers either facilitating academic misconduct or committing it should report their suspicions to me for investigation.

Schedule of Topics and Readings

Note: While we will make every effort to follow the schedule below, it is unlikely that we will stick to the exact dates listed for each topic. The Midterm and Final exam due dates will not change, but please be prepared to be somewhat flexible in terms of what topics we cover on what days.

I. Introduction, History, and Background

Sep. 26: ***Introduction: Why We Care about Nuclear Weapons***

- Ernest J. Moniz speech on Global Nuclear Risks at CSIS on January 11, 2018
- NUKEMAP The Effects of a Nuclear Bomb

Oct. 1 & Oct. 3: ***The History of Nuclear Weapons Development***

- Stanley Goldberg. 1992. "Inventing a climate of opinion: Vannevar Bush and the decision to build the bomb," *Osiris*. 83:429-452
- Gar Alperovitz, "Hiroshima: Historians Reassess," *Foreign Policy*, 99 (1995).
- J. Samuel Walker, "Recent Literature on Truman's Atomic Bomb Decision: A Search for Middle Ground," *Diplomatic History*, Vol 29, No. 2 (2005), 311-334.
- Alex Wellerstein. "A Brief History of the Nuclear Triad". Available online at: <http://blog.nuclearsecrecy.com/2016/07/15/brief-history-nuclear-triad/>

Oct. 8: ***A Technical Background to Nuclear Energy and Nuclear Weapons***

- Charles D. Ferguson, *Nuclear Energy: What Everyone Needs to Know* (2011), Chapters 1 and 4.
- The Atomic Archive, "The Effects of Nuclear Weapons," pp. 1-24, available online at <http://www.atomicarchive.com/Effects/index.shtml>. Click "Introduction" for pages.
- Joseph Cirincione, Jon Wolfsthal, and Miriam Rajkumar, "Nuclear Weapons and Materials," in *Deadly Arsenals*, pp. 45-57.

Optional

- *Climate Change and Nuclear Power 2013*, International Atomic Energy Agency, available at <http://www-pub.iaea.org/books/IAEABooks/10625/Climate-Change-and-Nuclear-Power-2013>. Introduction, Chapters 3, 5.
- Matthew Fuhrmann, "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements," *International Security*, Vol 34, No. 1 (Spring 2009), 7-41.
- Paul Joskow and John Parsons, "The Future of Nuclear Power after Fukushima," MIT Center for Energy and Environmental Policy Research. February 2012, available at <http://dspace.mit.edu/handle/1721.1/70857>

II. The Causes of Nuclear Weapons Proliferation

Oct. 10: *Why do Countries Pursue Nuclear Weapons: Demand and Supply Side Explanations*

- Scott D. Sagan, "Why Do Countries Build Nuclear Weapons: Three Models in Search of a Bomb," *International Security* (1996/97)
- Dong-Joon Jo and Erik Gartzke. 2007. "Determinants of Nuclear Weapons Proliferation: A Quantitative Model." *Journal of Conflict Resolution* 51(1): 167–194.

Optional

- Jacques E.C. Hymans. 2006. "Theories of Nuclear Proliferation: The State of the Field." *Nonproliferation Review* 13(3): 455–465. Etel Solingen, *Nuclear Logics: Contrasting Paths in East Asia and the Middle East* (Princeton: Princeton University Press, 2007), Chapters 1 and 2.
- William C. Potter and Gaukhar Mukhatzhanova, eds., *Forecasting Nuclear Proliferation in the 21st Century: A Comparative Perspective* (2010), Chapters 1, 3, and 5
- Henry Sokolski, "The Baruch Plan," *Best of Intentions*.
- Nuno P. Monteiro and Alexandre Debs, "The Strategic Logic of Nuclear Proliferation," *International Security* Vol. 39, No. 2 (Fall 2014), pages 7-51.
- Binyamin Pinkus, "Atomic Power to Israel's Rescue: French-Israeli Nuclear Cooperation, 1949-57," *Israel Studies*, Vol. 7, no. 1 (2002): 104-138.
- Graham Spinardi, "Aldermaston and British Nuclear Weapons Development: Testing the 'Zuckerman Thesis,'" *Social Studies of Science*, vol. 27, no. 4 (August 1997): 547-82.
- Albert Wohlstetter, "Is there a Strategic Arms Race?" *Foreign Policy*, No 15 (Summer 1974), 3-20.
- Graham Allison, "Conceptual Models and the Cuban Missile Crisis," *American Political Science Review*, Vol 63, No. 3 (1969), 689-718.

Oct. 15: *Nuclear Latency and the Causes of "Deproliferation"*

Latency

- Scott Sagan, "Nuclear Latency and Nuclear Proliferation," in *Forecasting Nuclear Proliferation*, available at http://iis-db.stanford.edu/pubs/23281/Sagan_Latency_Potter_Volume.pdf
- Rupal N. Mehta and Rachel Elizabeth Whitlark. 2017. "The Benefits and Burdens of Nuclear Latency." *International Studies Quarterly* 61(3): 517–528.
- Tristan Volpe. 2017. "Atomic Leverage: Compellence with Nuclear Latency." *Security Studies* 26(3): 517–544.

Denuclearization

- Julio Carasales, "The Argentine-Brazilian Nuclear Rapprochement," *Nonproliferation Review*, (Spring/Summer 1995), 39-48.
- Etel Solingen, "Middle East Denuclearization? Lessons from Latin America's Southern Cone," *Review of International Studies* 27 (2001): 375-394.

Optional

- 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 (Sept/Oct 2010).
- John R. Redick, *Nuclear Illusions: Argentina and Brazil* (Washington, DC: Stimson Center, 1995), available at <http://www.stimson.org/pub.cfm?id=152>

Oct. 17: ***Multilateral and Bilateral Policy Responses to Nuclear Weapons Proliferation***

- Joseph S. Nye Jr, “Arms Control and International Politics,” *Daedalus*, Vol. 120, No. 2 (1991), 145-165.
- Bernard Brodie, “On the Objectives of Arms Control,” *International Security*, Vol. 1, No. 1 (Summer 1976), pp. 17-36.
- Mark P. Hilborne, “The Non-Proliferation Treaty: Foundation of Disarmament Policy.” In Harsh V. Plant. *Handbook of Nuclear Proliferation* (New York: Routledge, 2012), pages 251-260
- Sarah E. Kreps and Matthew Fuhrmann, “Attacking the Atom: Does Bombing Nuclear Facilities Affect Proliferation?” *Journal of Strategic Studies* (2011), Vol. 34, No. 2, pgs. 161-187.

Optional

- George Smoke, “Strategy and Arms Control in the Early 1980s,” in *National Security and the Nuclear Dilemma*, blackboard. Paul Doty, “Strategic Arms Limitation after SALT I,” *Daedalus*, Vol. 104, No. 3 (Summer 1975), 63-74.
- Goldblat, Jozef. 1997. "Nuclear Weapon Free Zones: A History and Assessment." *The Nonproliferation Review* 5 (spring/summer):18–32. Download available at cns.miis.edu/npr/pdfs/goldbl43.pdf
- Robert Jervis, “Cooperation Under the Security Dilemma,” *World Politics*, 1978.

Oct. 22: ***New and Emerging Proliferation Risks***

- Tristan A. Volpe, “Dual-Use Distinguishability: How 3D-Printing Shapes the Security Dilemma for Nuclear Programs,” *Journal of Strategic Studies* 42, no. 6 (Sept 19, 2019): 814–40, <https://doi.org/10.1080/01402390.2019.1627210>.
- Eric Brewer, “Will Nuclear Weapons Make A Comeback? Why the Global Nonproliferation Regime Is Fraying,” *Foreign Affairs*, 9/23/2019, <https://www.foreignaffairs.com/articles/2019-09-23/will-nuclear-weapons-make-comeback>.
- Alexander Lanoszka, “Alliances and Nuclear Proliferation in the Trump Era,” *The Washington Quarterly* 41, no. 4 (Oct. 2, 2018): 85-101, <https://doi.org/10.1080/0163660X.2018.1557976>.

Oct. 24 and Oct. 29: ***Norms of Nonuse and Global Zero***

- Nina Tannenwald (1999) *The Nuclear Taboo: The United States and the Normative Basis of Nuclear Non-Use*. *International Organization*. 53(3)Summer, 433–468.
- Ward Wilson, “The Winning Weapon? Rethinking Nuclear Weapons in Light of Hiroshima,” *International Security*, Vol. 31, No. 4 (Spring 2007), pp. 167-179.
- Remarks by President Barack Obama in Prague, April 5, 2009
- David Cortright and Raimo Vayrynen, “Towards Nuclear Zero,” *Adelphi Papers*, Vol. 49, No. 410 (2009), pages 13-32
- Joseph Joffe and James Davis, “Less than Zero” and response: *Foreign Affairs*.

Optional

- Kenneth Waltz, “The Spread of Nuclear Weapons: More May Be Better,” *Adelphi Papers*, Number 171 (London: International Institute for Strategic Studies, 1981), available at <https://www.mtholyoke.edu/acad/intrel/waltz1.htm>
- Stephen Schwartz, *Atomic Audit*, chapter 1, available at <http://books.google.com/books?hl=en&lr=&id=safduT80AHMC&oi=fnd&pg=PR7&dq=ste>

[phen+schwartz+nuclear+weapons&ots=fBesBDUQj1&sig=2VbrG220dO2t8Xm-ANgPGHQzliY#v=onepage&q=stephen%20schwartz%20nuclear%20weapons&f=false](https://www.nbr.org/publications/element.aspx?id=698)

- Thomas C. Schelling, “A World Without Nuclear Weapons?” *Daedalus* Vol. 138, No. 4 (2009), pages 124-129
- Donald MacKenzie and Graham Spinardi, “Tacit Knowledge, Weapons Design, and the Uninvention of Nuclear Weapons,” Vol 101, No. 1, *American Journal of Sociology*, 1995), 44-99.
- Ashley Tellis, “No Escape: Managing the Enduring Reality of Nuclear Weapons,” *The National Bureau of Asian Research*, available at <http://www.nbr.org/publications/element.aspx?id=698>

III. The Consequences of Nuclear Weapons Proliferation

Oct. 31 (**Midterm Due**) and Nov 5: ***Nuclear Weapons and War***

- Kenneth N. Waltz, “More May Be Better,” in *The Spread of Nuclear Weapons: An Enduring Debate* (New York: W.W. Norton 2013), 3-40
- Scott D. Sagan, “More Will Be Worse,” *The Spread of Nuclear Weapons*, pages 41-81.

Nov 7: ***Nuclear Weapons, Alliances and other Security Outcomes***

- Mark S. Bell, “Beyond Emboldenment: How Acquiring Nuclear Weapons Can Change Foreign Policy,” *International Security*, Vol. 40, No. 1 (2015), pages 87-119
- Gartzke, Erik, and Dong-Joon Jo. "Bargaining, nuclear proliferation, and interstate disputes." *Journal of Conflict Resolution* 53.2 (2009): 209-233.
- Mehta, Rupal N., 2019. “Extended Deterrence and Assurance in Multiple Domains,” in *Cross-Domain Deterrence: Strategy in an Era of Complexity*, edited by Erik Gartzke and Jon Lindsay, Oxford, UK: Oxford University Press, 2019.
- Narang, Neil and Rupal N. Mehta. The Unforeseen Consequences of Extended Deterrence: Moral Hazard in a Nuclear Protégé,” *Journal of Conflict Resolution*, September 2017.

Nov. 12: ***Consequences of Nuclear Weapons***

- Sagan, S.D. and Valentino, B.A., 2017. Revisiting Hiroshima in Iran: What Americans really think about using nuclear weapons and killing noncombatants. *International Security*, 42(1), 41-79.

Nov. 14: ***Nuclear Strategy***

- Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), pp. 92-125
- George Kennan, *The Long Telegram*, available at <http://www2.gwu.edu/~nsarchiv/coldwar/documents/episode-1/kennan.htm>
- Lawrence Freedman, “The First Two Generations of Nuclear Strategists,” in Peter Paret, Gordon Alexander Craig, Felix Gilbert, *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, (Princeton, NJ: Princeton University Press, 1986), 735-778.
- Richard Pipes, “Why the Soviet Union thinks it Could Fight and Win a Nuclear War,” *Commentary*, 64 (1977), 21-34.

Optional

- Thomas M. Nichols, *No Use: Nuclear Weapons and U.S. National Security* (Philadelphia: University of Pennsylvania Press, 2014), pages 16-43
- Vipin Narang, "What Does It Take to Deter?" *Regional Nuclear Postures and International Conflict*, *Journal of Conflict Resolution* Vol. 57, No. 3 (2012), pages 478- 508

Nov. 19: ***The Essential Irrelevance of Nuclear Weapons***

- John Mueller. "The Essential Irrelevance of Nuclear Weapons: Stability in the Postwar World." *International Security* 13, no. 2 (1988): 55-79.
- John Mueller. "Nuclear Weapons Don't Matter: But Nuclear Hysteria Does." *Foreign Affairs*. November/December 2018.
- <https://politicalscience.osu.edu/faculty/jmueller/FAnukes2018final4.pdf>

Nov. 21: ***India and Pakistan***

- David Albright, "The Shots Heard 'Round the World: India Conducted Three Nuclear Tests on May 11 and Two on May 13," *Bulletin of the Atomic Scientists*, Vol 53, No. 4 (Jul/Aug 1998), 20-25.
- Ashley Tellis, *US-Indian Civilian Nuclear Cooperation and India's Nuclear Arsenal*, <http://www.carnegieendowment.org/files/atomsforwarfinal4.pdf>
- Alex S. Paul Kapur, "India and Pakistan's Unstable Peace: Why Nuclear South Asia is Not Like Cold War Europe," *International Security*, Fall 2005.

Dec. 3: ***Iran and North Korea***

Iran

- Matthew Kroenig, "Time to Attack Iran: Why a Strike is the Least Bad Option," *Foreign Affairs*.
- Colin Kahl, "Not Time to Attack Iran," *Foreign Affairs*.
- Mark Fitzpatrick. 2015. "Iran: A Good Deal." *Survival* 57(5): 47–52.
- Mark Fitzpatrick. 2017. "An Order of Priorities in Confronting Iran." *Survival* 59(2): 25–29.
- Matthew Kroenig. 2016. "How to Unwind the Iran Nuclear Deal." *The American Interest*.

North Korea

- Pollack, Jonathan D. *No exit: North Korea, nuclear weapons, and international security*. International institute for strategic studies, 2011 Chapter 1
<http://www.iiss.org/en/publications/adelphi/by%20year/2010-3b16/no-exit--north-korea--nuclear-weapons-and-international-security-80c3>
- Max Fisher. 2018. "7 Big Things to Understand About Trump's Talks with North Korea." *New York Times*.
- Bruce Jones. 2017. "Averting Catastrophe: US Policy Options for North Korea." *Brookings Institution*.
- Jonathan D. Pollack. 2018. "North Korea's Nuclear and Missile Programs: Strategies, Directions, and Prospects." *Brookings Institution Conference Paper*.
- Evans J.R. Revere. 2018. "Endgame: A reflection on US strategic choices and the North Korean threat." *Brookings Institution Conference Paper*.

Dec. 5: ***Future Policy Challenges***

Nuclear Terrorism

- J. Carson Mark et al. (1987) Can Terrorists Build Nuclear Weapons? <http://www.nci.org/k-m/makeab.htm>
- Graham Allison, How to Stop Nuclear Terrorism. *Foreign Affairs*. January/February 2004.
- John Mueller, Atomic Obsession: Nuclear Alarmism from Hiroshima to Al-Qaeda (Oxford: Oxford University Press, 2010), pages 161-198

Nuclear Networks and the Case of AQ Khan

- William Langewiesche, “The Wrath of Khan,” *Atlantic Monthly*, 23 November 2005, available at <http://www.theatlantic.com/doc/print/200511/aq-khan>
- Chaim Braun and Christopher Chyba, “Proliferation Rings: New Challenges to the Nuclear Proliferation Regime,” *International Security*, Vol 29, No. 2 (2004), 5-49.

Optional

- Alexander H. Montgomery (2005) Ringing in Proliferation: How to Dismantle an Atomic Bomb Network. *International Security*. 30(2)Fall, 153–187.
- William Dunlop and Harold Smith (2006) Who Did It? Using International Forensics to Detect and Deter Nuclear Terrorism. *Arms Control Today*. 36(8) October, 6.

Dec. 12 (Thursday), 7 PM: ***Final Exam Due***