INTRODUCTION TO NUCLEAR SECURITY: HISTORY, THEORY, AND POLICY

SPRING 2021

Dr. Thomas P. Cavanna

Last updated Jan. 19

NOTE:
- Minor revisions may apply throughout the semester

Course information:
- Spring 2021
- Wed., 3:00-5:00 p.m.

Course description
- This course offers a general introduction to nuclear security. It provides a comprehensive but concise overview of the topic’s main historical, theoretical, and policy dimensions. During the first part of the semester, we will discuss key concepts (fission, deterrence, vertical proliferation, etc.) associated with the post-World War II emergence of nuclear strategy, explore the superpowers’ Cold War competition, and study the emergence of new nuclear-weapon states (Britain, China, etc.). Once these conceptual and historical foundations in place, we will investigate the theoretical debates that have divided scholars on seminal questions such as the causes of proliferation, the effectiveness of the international non-proliferation regime (and of counter-proliferation), the impact of nuclear weapons on state behavior (war/peace, coercion, etc.), and the many constraints and forms of resistance that have emerged over time (norms, disarmament, etc.). During the third section of the course, we will examine the post-Cold War emergence of the “second nuclear age,” with a specific interest for nuclear terrorism, climate change, nuclear safety, and US primacy. Finally, we will probe the nuclear challenges that have (re)emerged in East Asia (China, North Korea), the Middle East (Israel, Iran), Europe (Russia’s nuclear resurgence, NATO’s extended deterrence), and South Asia (India, Pakistan). In each class meeting, we will cover these local nuclear powers’ historical emergence, their current status, and the US response. The conclusion of the course will survey the latest trends, including prospects for disarmament, the Trump Administration’s nuclear policy, and the impact of cyber on command-and-control systems.

Learning objectives:
- knowledge of the key concepts related to nuclear security
- knowledge of the main scholarly debates on the most fundamental questions of the field of nuclear security
- in-depth knowledge of individual cases and how they fit larger developments in international history and international relations
- Ability to connect the historical, theoretical, and policy-relevant dimensions of today’s key nuclear challenges
- Optimization of analytical and writing skills

Instructor

Course structure:
- PREPARE: readings + asynchronous videos posted 1 week ahead of each class meeting (you must watch all of them before each corresponding class meeting)
- ATTEND and PARTICIPATE: synchronous online class meetings; attendance is mandatory and part of your evaluation, but those class meetings will most likely be recorded to compensate for possible technical challenges, time zone issues. If this raises any problem for you, please contact me asap

Diversity and inclusion:
- Diversity is one of the most precious assets of the Fletcher School and one of the key enablers of our learning process in this class and beyond. As such, one of my main objectives this semester is to create a truly inclusive learning environment that everyone can contribute to and benefit from regardless of race, ethnicity, gender, sexual orientation, age, religion, geographic origins, socioeconomic background, professional experience, or other criteria. Of course, each one of us will help nurture this sense of belonging and intellectual community during our meetings, based on mutual respect and kindness.

Office hours and appointments on demand (updates may apply):
- Mon: 3:00-3:20, 3:20-3:40, 3:40-4:00 p.m. (20-mn appointments)
- Register on MyFletcher
- If you are unable to make an appointment, please remove your name as soon as possible, so that others may take your spot.
- Appointments on demand: If you are unable to attend any of the time slots above, please email me with several alternative days/times (please email at least 48h in advance)
Disabilities and reasonable accommodations:

In accordance with federal and state law, Tufts University provides reasonable accommodations to students with documented disabilities. If you believe you require an accommodation, e-mail accessibility@tufts.edu or Catherine.Flynn@tufts.edu.

Readings:

The course will strive to present a (reasonably) comprehensive overview of the field of nuclear security. Although this field has characteristics that cannot be ignored (Western-centric, security-centric, etc.), you will also learn/read/discuss about alternative approaches, numerous case-studies, and diverse points of view. As you will see, scholars of nuclear security disagree on about everything and there is much that we don’t know. This is why many of our sessions will stress debates and uncertainties. From that perspective, one of the most exciting facets of your semester will be to constructively engage each of those readings (whether you fully agree with them, only partly, or not at all) and to chart your own path with academic rigor.

Readings (book chapters, scholarly articles, reports, op-eds):
- All the readings will be posted on Canvas week after week (except indicated otherwise)

Recommended books (but NOT required):

General Introductions

US Nuclear Policy

Strategy, Deterrence and Bargaining

Required readings mentioned in this syllabus:
- Students must read all the required readings ahead of class and be ready to discuss them
- During each class, students will be required to share their thoughts on the required readings

Requirements and final grade for regular Fletcher students: (updates may apply, especially once I have a better idea of class enrollment)
- Participation (+ attend all class meetings, be on time, behavior, responsiveness): 20%
- 1 mid-term paper: 15%
- 1 presentation: 15%
- 1 final paper (background policy paper): 20%
- 2 “reading response” memos (between session 2 and session 12 only): 30%

Requirements for auditing students:
- Participation (+ attend all class meetings, be on time, behavior, responsiveness): 40%
- 1 presentation: 30%
- 2 “reading response” memos (between session 2 and session 12 only): 30%

Submissions:
- All the assignments should be submitted as Word documents (no PDF)
- should be submitted to Thomas.cavanna@tufts.edu, (not Canvas)

Participation (+ attendance, delays, behavior, responsiveness, etc.): (updates may apply)
- Attendance and active participation during our class meetings will have a major impact on your final results
- Absences will be excused only if justified with documentation within a week

“Reading response” memos on the required readings (between session 2 and 12 only): (updates may apply)
- Follow the specific requirements already posted on Canvas

Presentation: (updates may apply)
- Each of you will be assigned (most likely by pairs) a presentation (10-12 minutes) on a required reading (among a list of topics that I will share very shortly)
  - Follow the specific requirements that will be posted on Canvas

Mid-term and final papers: (updates may apply)
- Deadline: TBD
- Word count: probably around 1,500 words
  - Follow the specific requirements that will be posted on Canvas

OUTLINE BELOW...

Pay close attention to the page ranges that affect many of the readings below
INTRODUCTION

CLASS 1: WORLD WAR II AND THE EMERGENCE OF NUCLEAR STATECRAFT

Questions:
- Course overview + Q&A
- What fundamental questions do historians, IR scholars, and policy-makers debate in the field of nuclear security?
- Manhattan project: how did the nuclear era start? How did the use of nuclear weapons impact WWII? What were the key ethical and strategic debates involved?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

The Field of Nuclear Security: Key Debates among Theorists, Historians, and Policy-Makers

Beginnings of the “First Nuclear Age”

WWII and America’s Use of the Bomb against Japan

Suggested readings
PART I: NUCLEAR STRATEGY DURING THE COLD WAR

CLASS 2: SUPERPOWERS’ ARMS RACE AND EMERGENCE OF NUCLEAR STRATEGY

Questions:
- How did the onset of the Cold War and nuclear weapons interact?
- How did the field of nuclear strategy emerge?
- How did the concept of deterrence inform US and Soviet nuclear doctrines in the early decades of the Cold war?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

Onset of the Superpowers’ Nuclear Competition

Nuclear Strategy in the 1950s and early 1960s

Cuban Missile Crisis

Suggested readings:

Onset of the Superpowers’ Nuclear Competition
**Nuclear Deterrence and the Balance of Terror**

**Berlin Crisis**

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**CLASS 3: HORIZONTAL PROLIFERATION AND US-SOVIE T NUCLEAR PARITY**

**Questions:**
- How did the first cases of horizontal nuclear proliferation (Britain, France, China, Israel) emerge?
- How did the superpowers aim for nuclear war victory in Europe and beyond?
- How did they come to try to minimize the risk of war and engage in arms control?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

**Required readings:**

**Nuclear Competition and Arms Control in the 1960s and 1970s**

**Nuclear Strategy in the late 1960s, 1970s and 1980s**

**Feminism and the Language of Nuclear Strategists**

**Horizontal Proliferation**

**Suggested readings:**

**US Nuclear Strategy in Europe**

**France’s Nuclear Ambitions**

**US-Soviet Arms Control**

**PART II: KEY THEORETICAL QUESTIONS**

### CLASS 4: DYNAMICS OF NUCLEAR PROLIFERATION

**Questions:**
- What are the main causes of nuclear proliferation?
- How do states go about developing nuclear weapons (or not)?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

**Required readings:**

**Why States Build the Bomb?**

*Demand Side VS Supply Side*

*Identity*
- Manjari Chatterjee Miller, “PII (Post-Imperial Ideology), Victimhood and ‘Nuclear Apartheid,’” in *Wronged by Empire: Post-imperial Ideology and Foreign Policy in India and China* (Princeton University Press, 2014), **ONLY pp. 92-100**.

*Strategic Logic*

*Regime-Type*

**Gender and Nuclear Weapons**

**How States Pursue the Bomb**

**Nuclear Reversals and Nuclear Hedging**

**Suggested readings:**

**Demand side**

**Supply Side**

**General Analytical insights**

**CLASS 5: THE IMPACT OF NUCLEAR WEAPONS ON POWER DYNAMICS AND INTERNATIONAL STABILITY**

**Questions:**
- Do nuclear weapons cause war or peace?
- Do nuclear weapons increase a state’s bargaining leverage?
- How do nuclear weapons affect states’ foreign policies?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.
Required readings:

**Nuclear Weapons and Foreign Policy Changes**

**Nuclear Superiority and Winning Nuclear Crises**

**Do Nuclear Weapons Lead to War or Peace?**

**Domestic politics and nuclear weapons**

Suggested readings:

**Nuclear weapons and force posture diversification (pros and cons)**

**Nuclear Weapons and Foreign Policy Change**

**Nuclear weapons and the Risk of War**

**Nuclear Weapons, Coercion, and Victory**
CLASS 6: EMERGENCE OF THE INTERNATIONAL NONPROLIFERATION REGIME: SUCCESS, AMBIGUITIES, AND FAILURES

Questions:
- How important is nonproliferation to the US?
- How can we assess the degree of success of the international nonproliferation regime?
- How effective is counter-proliferation?
- How do nuclear hedging and nuclear reversals fit within nonproliferation debates?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

**Debate on US Grand Strategy and Nonproliferation (Optimists)**

**Debates on US Grand Strategy and Nonproliferation (Pessimists)**

**Nonproliferation Treaty (NPT)**

**Counter-Proliferation**

Suggested readings:

**“Atoms for Peace” program and US Nuclear Exports**

**Nonproliferation and US Grand Strategy (Optimists)**


**International Non-Proliferation Regime**


**Counter-Proliferation**


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**CLASS 7: RESISTANCE TO NUCLEAR WEAPONS: CONSTRAINTS, NORMS, AND PROTESTS**

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**Questions:**

- What factors have constrained the development and the use of nuclear weapons?
- What societal movements have emerged to counter nuclear proliferation?
- Is nuclear disarmament a desirable and realistic goal?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.
Required readings:

Is there a “Nuclear Taboo”?  

Disarmament (and its Adversaries)  

Obama, Trump, and the failure of “Global zero”  

Nuclear Test Ban Treaty  

Suggested readings:

Global Zero (and its Adversaries)  

Nuclear Taboo  

Nuclear Test ban Treaty  
PART III: POST-COLD WAR ERA AND “SECOND NUCLEAR AGE”

CLASS 8: NUCLEAR TERRORISM, CLIMATE CHANGE, AND NUCLEAR SAFETY

Questions:
- What is the “second nuclear age”?
- How is nuclear terrorism different from traditional nuclear threats?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

The “Second Nuclear Age”, rogue states and “nuclear cascades”

Nuclear Terrorism (and the US Response)

Can deterrence be Applied to Nuclear Terrorism?

Is Nuclear Terrorism Overrated? Optimists VS pessimists

Pakistan and the AQ Khan network

Suggested readings:

US Nuclear Policy in the 1990s

Nuclear Terrorism

*Can Deterrence be Applied to Nuclear Terrorism?*

*Nuclear Terrorism Is Overrated*

### CLASS 9: US NUCLEAR PRIMACY: COUNTERFORCE, MISSILE DEFENSE, AND EXTENDED DETERRENCE

**Questions:**
- How has the US achieved primacy in the post-Cold War era?
- What is counterforce and how does it affect nuclear balances?
- What doctrinal and force posture changes have US leaders considered in the last two decades?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

**Required readings:**

**US Nuclear Primacy and (alleged) Counterforce since the early 2000s**

**Obama/Trump Modernization of the Nuclear Arsenal**

**2018 Nuclear Posture Review**
**US Global Extended Deterrence (and Rising Challenges)**

Suggested readings:

**US Primacy**

**Post-2018 US Nuclear Policy**

**No First-Use Doctrine**

**Under Sea Competition**

**US Ballistic Missile Defense**

**PART IV: NUCLEAR CHALLENGES: A REGION-BY-REGION APPROACH**

**CLASS 10: NUCLEAR CHALLENGES IN EAST ASIA**

Questions:
- How does nuclear proliferation affect East Asia’s geopolitical dynamics?
- How did North Korea become a nuclear-weapon state and what challenges does it pose to the region and to the US?
- What challenges does nuclear China pose to the region and the US?
- Could Japan and South Korea decide to develop nuclear weapons?
If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

**China’s Nuclear History**

**Risk of US-China Nuclear War**

**China’s Latest Nuclear Policy Developments (and the US Response)**

**North Korea (and the US Response)**

**China’s potential response to a North Korean crisis**

**North Korea and East Asia’s Nuclear Dynamics**

Suggested readings:

**China (and the US Response)**
CLASS 11: NUCLEAR CHALLENGES IN THE MIDDLE EAST

Questions:
- What are the history and the main dynamics of nuclear proliferation in the Middle East?
- What are the prospects for “nuclear dominoes” in the region?
- How has the US approach vis-à-vis Iran’s program evolved over time?
- How can we assess the Iran nuclear deal and its near-demise?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings:

Israel’s Nuclear Opacity

Iraq and the US Response

Libya’s Nuclear reversal

Iran’s Nuclear Program (and the US Response)
- Mohammed Nuruzzaman, “President Trump’s ‘Maximum Pressure’ Campaign and Iran’s Endgame,” Strategic Analysis, published online Nov. 23, 2020, pp. 1-11.
Suggested readings:

Iraq

Libya

Syria’s Nuclear ambitions (and Israel’s Preventive Strike)

US Response to Iran’s Nuclear Program

Iran Nuclear Deal

CLASS 12: NUCLEAR CHALLENGES IN EUROPE

Questions:
- How did the Soviet Union’s nuclear program evolve during the Cold War?
- What is Russia’s current nuclear strategy?
- How does Moscow’s assertiveness affect NATO and regional nuclear stability?
- How has the US responded and what are the prospects for continued arms control?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.
Required readings:

**US-NATO-Russia Nuclear Tensions**

**Soviet/Russian (VS American) Approaches to Deterrence**

**Russia’s Nuclear Strategy**

**Franco-German Nuclear Cooperation (Abandoning the US Nuclear Umbrella?)**

Suggested readings:

**Soviet Union**

**Russia’s Nuclear Strategy**

**US-NATO-Russia Nuclear Tensions**

**Prospects for arms control**
CONCLUSION

CLASS 13: NUCLEAR PRESENT AND FUTURE

Questions:
- What are the latest trends in the field of nuclear security?
- How has Donald Trump’s election impacted US nuclear strategy and the risk of war?
- What are the prospects for the US/China/Russia nuclear competition?

If any difference between the reading lists below and the list posted on Canvas, please follow the latter.

Required readings (revisions are highly likely to apply based on policy developments):

State of the Field of Nuclear Security

Nuclear futures

Growing Prospects of India-Pakistan Nuclear War

President Trump, Nuclear Weapons, and the Nuclear Lobby

The Fukushima disaster climate change (and the nuclear lobby)
Nuclear Weapons and the Rise of Cyber

Suggested readings:

President Trump and the Risk of Nuclear war
- Paul Avey, “What’s New About Trump’s Finger on the Nuclear Button,” War on the Rocks, April 4, 2016. good but splinters; remove it

Nuclear Weapons and the Return of Great Power Competition

Nuclear Weapons and 3-D Printing

Nuclear Safety