INTA/NRE 6720: Politics, Tech & Proliferation

Course Syllabus Spring 2025
Mondays & Wednesdays 12:30 – 1:45pm
Mason 3132
Canvas.gatech.edu

Faculty Contact Information:
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Course Description

How should the international community respond to changes that have taken place in the nuclear landscape since the end of the Cold War? There are new nuclear states, growing nuclear arsenals, dying arms control and verification measures, and significant technological advancements, all of which challenge deterrence and nonproliferation frameworks that have governed international politics for the last decades. Is the current regime that relies primarily on deterrence, verification, and detection the best one for the evolving environment? Creative solutions are needed, and they require an interdisciplinary undertaking.

To that end, this seminar course is designed to encourage new thinking and creative effort on nuclear deterrence and strategic stability for our global future. It is project based, where students will work in interdisciplinary teams to design, execute, and present projects that speak to the next generation of deterrence, detection, and verification.

The course is comprised of three parts. The first part offers an introduction to key concepts in both nuclear engineering and international security. Part two offers a deeper dive into relevant treaty, detection, and verification frameworks, including details on the potential implications of emerging technology on the nuclear nonproliferation regime and deterrence in the global political environment. Finally, part three includes a look at the current nuclear proliferation landscape and student independent group project presentations.

Learning Outcomes

By the end of the course, students will be able to:

1. Identify and explain fundamental concepts in nuclear engineering and international security
2. Interpret a variety of emerging technologies and their implications for international security and global proliferation
3. Effectively apply oral communication tools to demonstrate knowledge and make cogent arguments at the intersection of technology and security
4. Effectively apply written communication to showcase knowledge, especially but not exclusively in the policy writing styles

5. Design and execute an independent research project of interest to scientific, engineering, and international security communities

Course Readings

There is no book to purchase in this class. Instead, students will have access to course materials via both the Canvas course website and through Georgia Tech Library databases. The professors maintain discretion to modify readings and topics as necessary. Students are responsible for completing readings PRIOR to coming to class.

Course Requirements and Student Evaluation

Participation - 20%

Students will come to class prepared to engage with the reading material and the lectures. They will ask and answer questions and pose topics for discussion based on the reading material.

Individual Policy Memos - 20%

Twice during the semester (February 24th & April 9th), students will individually prepare short writing assignments designed to engage course topics. Memos must be uploaded to Canvas prior to the class session for which they are due, and students should be prepared to discuss them as part of the session's discussion. Memos must engage some topic germane to the section of the course in which they are due. Additional details will be forthcoming.

Group Project - 60%

Following the introductory sessions and by the fourth week of the semester, students will be organized into interdisciplinary groups to undertake projects designed to problematize and potentially transform the nuclear regime as it exists. Projects will substantively speak to technical and strategic issues; methodologically, groups have wide latitude to conduct their analysis using all necessary methods. Possible topics might include but are not limited to: transforming the nuclear energy landscape; transforming domestic political opinion on nuclear power; transforming arms control in a multiple challenger nuclear environment; transforming the National Nuclear Security Agency for a new nuclear era; and transforming nuclear detection or verification with novel technology.

Group project grades will include both a long form (~2500 word) written analysis, a group policy memo, and an oral presentation. The content of these projects will vary substantively, but all will produce the same deliverables.

Note that each group will receive a grade for this project, though there will be an opportunity for peer evaluation, which can positively or negatively influence your individual grade. The best project will receive a prize and an opportunity to virtually brief the leadership from the Nuclear Threat Initiative and both the Sam Nunn School of International Affairs and the Department of Nuclear and Radiological Engineering here at Georgia Tech.

Additional details will be forthcoming throughout the semester, though note that you have the following deliverables to produce, which together sum to 60 points.

Group Project Deliverables:

- Proposal document, **Monday, February 17th**: 3-page narrative uploaded to Canvas including aspects of the nuclear nonproliferation regime your project will address and your plans for the project over the course of the semester. (5 points)
- Proposal presentation, **Monday, February 17th**: ~15-minute (10-minute remarks + 5-minute Q&A) group presentation of your proposal. Exact schedule to be determined. (5 points)
- Mid-semester project outline, **Wednesday, March 12th**: provide as much detail as possible about how your project will address the strategic, political and technical obstacles to nuclear nonproliferation based upon your vision of a new or improved regime. (10 points)
- Group policy memo, **Monday, April 17th**: single, group policy memo addressed to an appropriate U.S. policy maker of your choosing, describing the policy problem encountered in your project, the policy options, the evaluation thereof, and the recommendation(s). (5 points)
- Final presentations, **Wednesday, 16th**: ~20-minute (15-minute remarks + 5minute Q&A) group presentation of the project and results. (15 points)
- Final paper, **Friday, April 25th**: a full report including the required components as outlined in class. (20 points)
- Peer evaluation to be completed individually and turned into the professors alongside the final project, **Friday, April 25th**.

Summary of Course Grades and Breakdown

Participation: 20 points
Individual Memos: 20 points
Group Project: 60

Final Grade: out of 100 total points
We use a traditional grading scale with assignments totaling 100 points:
100-90 A │89-80 B│79-70 C │69-60 D│50-0 F
No curves should be anticipated for this class.

Late Papers / Penalties / Unexcused Absences

The dates of the course activities and paper assignments are set. Unless you have an approved accommodation, assignments turned in after the deadline will be penalized 10% for each day or fraction thereof where it is late. This means that if you turn in the paper at 5:00 pm instead of 1:45 pm on the day that it is due, you will automatically lose 10% of the total possible points; if you turn it in at 9am on the day after it was due, you will lose 20% and so on and so forth.

Accommodations can be sought in advance of a valid conflict, including, but not limited to, illness such as Covid-19, family or religious obligation, or approved university business, including travel or athletic competition that constitutes "approved Institute activities." Religious

holidays and regular sporting competition are both already on the calendar, so these should be brought to the instructors during the first two weeks of the semester. Subsequently, should an unforeseen, new conflict arise, please contact the instructors immediately and provide the necessary documentation, as offered by the Office of Student Life or relevant healthcare professional. In short, please contact us as soon as possible regarding any conflicts or absences when assignments are due.

Covid-19, Masks, and Illness

Attendance and participation are important to your success in this course. However, we recognize that elements of the global pandemic remain, so we are going to be gracious with ourselves as the situation requires. If you are sick, have been exposed to Covid-19, or your health precludes your from participating in class meaningfully, please stay home. Coming to class sick only risks spreading illnesses. We urge you to do your part to engage in healthy behaviors by abiding by CDC and WHO guidelines, which include getting vaccinated for Covid-19, including booster shots, and staying home when sick.

Georgia Tech encourages students to get vaccinated and boosted against Covid-19 to protect against severe disease and to wear a mask according to personal preference and risk tolerance. Additionally, visit https://health.gatech.edu/coronavirus/institute-operations for updated school policies regarding Covid-19.

Should circumstances necessitate a return to a virtual environment, additional instructions will be provided. Nevertheless, students will engage with each other respectfully whether in a virtual or in-person format.

Class Discussion Policy

This class is a forum for personal growth, curious discussion, and lively intellectual debate. It is crucial that the spirit of discussion remain open, honest, and respectful even when we disagree. We will always be polite with each other and recognize that even those with whom we disagree have something to contribute to the conversation. Your reflections or suggestions on how to ensure an inclusive learning environment for you individually or for others are always welcome.

University Diversity Statement

This course is offered by the Ivan Allen College of Liberal Arts and the Woodruff School of Mechanical Engineering. The Ivan Allen College and Woodruff School support Georgia Tech's commitment to creating a campus free of discrimination on the basis of race, color, religion, sex, national origin, age, disability, sexual orientation, gender identity, or veteran status. We further affirm the importance of cultivating an intellectual climate that allows us to better understand the similarities and differences of those who constitute the Georgia Tech community, as well as the necessity of working against inequalities that may also manifest here as they do in the broader society. If you have any concerns about inclusive diversity in this course, please don't hesitate to raise them to the instructors.

Academic Integrity and University Statement on Plagiarism

According to the Georgia Tech Student Affairs Code of Conduct, plagiarism "[includes] submission of material that is wholly or substantially identical to that created or published by another person or persons, without adequate credit notations indicating the authorship."[1] It is the act of appropriating the work of another, or parts of passages of his or her writings, or language or ideas of the same, and passing them off as a product of one's own. It involves the deliberate or accidental use of any outside source without proper acknowledgment. Plagiarism is scholarly misconduct whether it occurs in any work, published or unpublished, or in any application for funding. There is a zero-tolerance policy for plagiarism and penalties will be doled out per university regulations. The GT Honor Code is available online.

Writing Services

If you are concerned about your writing, or seek to improve it, we highly recommend contacting the GT Communication Center located in Clough Commons 447. They offer several services from CV development to peer tutoring and are a great resource for all kinds of assignments – oral, written, visual, etc.

Students with Disabilities

Georgia Tech is committed to providing accommodation for all students with disabilities through the Office of Disability Services. Any student in this course who has a disability that may prevent them from fully demonstrating their abilities should contact us via appropriate channels as soon as possible to discuss necessary accommodations to ensure full participation and facilitate their educational opportunities. Students with disabilities must be registered with the Disability Services Program prior to receiving accommodations in this course and provide appropriate documentation attesting to their registration. The Disability Services Program is located in Smithgall Student Services Building, phone 404-894-2563 or TDD 404-894-1664.

Additional Student Resources

The Center for Academic Success offers a variety of academic support services to help students succeed academically at Georgia Tech (e.g., tutoring, peer-led study groups, study skills, etc.). The Division of Student Life – often known as the Office of the Dean of Students – offers resources and support for all students in the Tech community. The Counseling Center offers free mental health services, as well as stress management and wellness workshops to all currently enrolled students. The Counseling Center is located in Smithgall, Suite 238 and are offering virtual and in-person resources.

Email Policy

As a matter of policy, instructors will cease responding to emails weekdays at approximately 6:00 pm. Students should not expect regular weekend communication and should note that they may take up to 36 hours to reply to regular correspondence. To facilitate conducting business via email, please be sure to write your emails professionally and include all relevant information when emailing. Keep in mind that for extensive or nuanced substantive matters, a meeting during office hours may be more productive.

Office Hours:

Dr. Whitlark**:** Mondays and Wednesdays 2:00-3:00 pm; and by appointment

Dr. Erickson: Mondays and Wednesdays 11:00 am - 12:00 pm; and by appointment

Students are welcome and encouraged to arrange meetings with the professors during office hours for questions, clarifications, or further assistance with course content and assignments.

Technology Policy

Laptops can be a distraction both to ourselves and to our classmates. We are all guilty of multitasking in meetings and otherwise. Please be mindful of your classmates, and come to class prepared to work, discuss, and engage with the material. All cell phones and other devices that make noise must be silenced and put away as soon as class begins.

Course Outline: Subject and Readings Schedule

Background materials are to be learned prior to the course session for which they are listed. Students should be prepared to discuss assignments in the class session on their due date.

N.B.: This schedule and the course content is subject to revision at the professors' discretion. Should modifications become necessary, we will provide as much advanced warning as is possible.

Part I: Introduction and Fundamentals

Week 1

Monday, January 6 – Course Introduction

- Drs. Anna Erickson and Rachel Whitlark
- Syllabus review and project requirements overview

Wednesday, January 8 – Brief History of Nuclear Weapons

- Rachel Whitlark, Sam Nunn School of International Affairs, Georgia Tech
- Background Materials:
    - Freedman, Lawrence. 2003. "The Arrival of the Bomb" in *The Evolution of Nuclear Strategy*. 3rd London: UK: Palgrave Macmillan: Pages 3-20. (Available on Canvas under ***Files***)
    - Narang, Vipin. 2014. Chapter 1 in *Nuclear Strategy in the Modern Era: Regional Powers and International Conflict*. Princeton, NJ: Princeton University Press: Pages 1-12. (Available on Canvas under ***Files***)
    - "Planning Armageddon," episode 1 of the podcast, *A Most Terrible Weapon*, available here: https://warontherocks.com/2020/10/planning-armageddon/ and anywhere else you get your podcasts.

Week 2

Monday, January 13 – Fundamentals of Nuclear Technology Part I

- Anna Erickson, Department of Nuclear and Radiological Engineering, Georgia Tech
- Nuclear technology and reactor types
- Background Materials:
    - Introduction into basic physics (1-hr lecture) by Prof. Steve Biegalski, Georgia Tech: https://eti.gatech.edu/eti101/

Wednesday, January 15 – Introduction to Group Project Assignment and Skills Session: How to Write (and Read) a Policy Memo; How to Brief

- Rachel Whitlark, Nunn School of International Affairs, Georgia Tech
- Anna Erickson, Nuclear and Radiological Engineering, Georgia Tech
- Background Materials:
    - Mastro, Oriana. "Teach What You Preach." *Journal of Political Science Education* (2021).
    - On briefing TBD.

Week 3

Monday, January 20 – MLK DAY

- No Class

Wednesday, January 22 – Fundamentals of Nuclear Technology Part II

- Dr. Abdalla Abou Jaoude, Advance Reactor Core Analyst at Idaho National Laboratory *Advanced Reactor Design and Proliferation*
- Background Materials:
    - General Background on Advanced Nuclear Reactors: https://www.world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-power-reactors/generation-iv-nuclear-reactors.aspx
    - VTR Project: https://www.sciencemag.org/news/2019/02/department-energy-moves-forward-controversial-test-reactor
    - ARDP Award: https://www.powermag.com/doe-picks-more-ardp-winners-one-or-more-advanced-nuclear-demonstrations-will-be-in-washington-state/
    - Microreactor - Civilian Use:
        - https://inl.gov/trending-topic/microreactors/#:~:text=A%20microreactor%20is%20a%20small,provide%20heat%20for%20industrial%20applications
        - https://www.energy.gov/ne/articles/what-nuclear-microreactor
    - Microreactors - Military Use: https://www.defense.gov/Newsroom/Releases/Release/Article/2105863/dod-awards-contracts-for-development-of-a-mobile-microreactor/
    - Nuclear Rockets - Civilian Use: https://www.cnn.com/2021/02/03/world/nuclear-powered-rocket-scn-spc-

intl/index.html#:~:text=Seattle%2Dbased%20company%20Ultra%20Safe,Mars%20in%20just%20three%20months.&text=%22Nuclear%20technology%20will%20expand%20humanity's,space%2C%22%20he%20tells%20CNN

- Nuclear Rockets - Military Use: https://www.darpa.mil/program/demonstration-rocket-for-agile-cislunar-operations

Week 4

Monday, January 27 – Fundamentals of Nuclear Deterrence Part I

- Rachel Whitlark, Sam Nunn School of International Affairs, Georgia Tech
- Background Materials:
  - Deterrence 101, Module 1 CSIS: https://www.youtube.com/watch?v=g1th_3vlLd4
  - Deterrence 101, Module 2 CSIS: https://www.youtube.com/watch?v=BTedg2Ya0ZQ
  - Biddle, Tami Davis. "Coercion Theory: A Basic Introduction for Practitioners (Spring 2020)." *Texas National Security Review* (2020).

Wednesday, January 29 – Fundamentals of Nuclear Deterrence Part II

- Rachel Whitlark, Sam Nunn School of International Affairs, Georgia Tech
- Background Materials to review:
  - Deterrence 101, Module 1 CSIS: https://www.youtube.com/watch?v=g1th_3vlLd4
  - Deterrence 101, Module 2 CSIS: https://www.youtube.com/watch?v=BTedg2Ya0ZQ
  - Biddle, Tami Davis. "Coercion Theory: A Basic Introduction for Practitioners (Spring 2020)." *Texas National Security Review* (2020).

Part II: Treaties, Safeguards, Verification, and Technology

Week 5

Monday, February 3 – International Treaties

- Sarah Bidgood, Monterey Institute of International Studies
- Background Materials:
  - Lee, Manseok and Michael Nacht, "Challenges to the Nuclear Non-Proliferation Treaty," *Strategic Studies Quarterly*, Fall 2020, Vol. 14, No. 3: 95-120.
  - Rebecca Davis Gibbons, "The nuclear ban treaty and competing nuclear norms," *The Bulletin of Atomic Scientists*, October 30, 2020 https://thebulletin.org/2020/10/the-nuclear-ban-treaty-and-competing-nuclear-norms/

- "North Atlantic Council Statement as the Treaty on the Prohibition of Nuclear Weapons Enters Into Force," December 15, 2020 https://www.nato.int/cps/en/natohq/news_180087.htm

Wednesday, February 5 – In-Class Group Project Work

- Project guidelines document will be available on Canvas in ***Files***

Week 6

Monday, February 10 – Safeguards

- Anna Erickson, Department of Nuclear and Radiological Engineering, Georgia Tech
- Background Materials:
  - Familiarize yourself with the following:
    - Statute of the IAEA https://www.iaea.org/about/statute
    - INFCIRC/153(Corr.) https://www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf
    - INFCIRC/540 (Corr.) https://www.iaea.org/sites/default/files/infcirc540c.pdf
    - UN Charter https://www.un.org/en/charter-united-nations/
- Readings:
  - Brian Boyer and Mark Schanfein, "International Safeguards Inspection: An Inside Look at the Process," in *Nuclear Safeguard, Security, and Nonproliferation: Achieving Security with Technology and Policy*, James E. Doyle, Los Alamos National Laboratory
  - Rockwood Laura, "The IAEA's State-Level Concept and the Law of Unintended Consequences," Arms Control Association, https://www.armscontrol.org/act/2014-08/iaea%E2%80%99s-state-level-concept-law-unintended-consequences
  - "VCDNP Report on the Impact of the Model Additional Protocol from a State Perspective," Vienna Center for Disarmament and Non-Proliferation, October 31, 2018, https://vcdnp.org/vcdnp-report-on-the-impact-of-the-model-additional-protocol-from-a-state-perspective/
  - "VCDNP Report on IAEA Safeguards: Staying Ahead of the Game," Vienna Center for Disarmament and Non-Proliferation, September 18, 2019, https://vcdnp.org/vcdnp-report-on-iaea-safeguards-staying-ahead-of-the-game/#:~:text=To%20stay%20ahead%20of%20the,turn%20these%20challenges%20into%20opportunities

Wednesday, February 12, Hypersonics & International Security

- Jeff McNabb, Research Engineer, GT AE, ASDL
- Background materials:

- "U.S. Hypersonic Weapons and Alternatives," Congressional Budget Office, January 2023, pages 1-17 (summary and Chapter 1), https://www.cbo.gov/publication/58924.
- Carrie. E. Lee, "Technology Acquisition and Arms Control: Thinking Through the Hypersonic Weapons Debate," *Texas National Security Review*, Fall 2022, https://tnsr.org/2022/09/technology-acquisition-and-arms-control-thinking-through-the-hypersonic-weapons-debate/
- Dominika Kunertova, "Hypersonic Weapons: Fast, Furious...And Futile?" RUSI, October 2021, https://rusi.org/explore-our-research/publications/rusi-newsbrief/hypersonic-weapons-fast-furiousand-futile

Week 7

Monday, February 17 – Group Project Presentations

- No reading assignment
- ***Assignment:*** Each group to brief class on project proposal; proposal document due to canvas at start of class period

Wednesday, February 19 – Comprehensive Test Ban Treaty

- Dr. Kendra Biegalski
- Background Materials:
  - Comprehensive Nuclear Test Ban Treaty (CTBC) available on Canvas in ***Files***
- ***Assignment:*** Individual Policy Memo Due – Upload via Canvas

Week 8

Monday, February 24 – Discussion - Reconceptualizing the Existing Regime Part I

- Background Materials:
  - Mueller, John. "The essential irrelevance of nuclear weapons: Stability in the postwar world." *International Security*13, no. 2 (1988): 55-79.
  - Roberts, Brad, "Ban the Bomb? Or Bomb the Ban? Next Steps on the Ban Treaty," GLOBAL SECURITY POLICY BRIEF, March 2018 https://www.europeanleadershipnetwork.org/wp-content/uploads/2018/03/180322-Brad-Roberts-Ban-Treaty.pdf
  - Davis Gibbons, Rebecca. Addressing the Nuclear Ban Treaty, The Washington Quarterly, 42:1 (2019): 27-40.
  - George P. Shultz, William J. Perry, Henry A. Kissinger, and Sam Nunn, "A World Free of Nuclear Weapons." *The Wall Street Journal*, January 4, 2007. https://www.wsj.com/articles/SB116787515251566636
  - Schelling, Thomas C. "A world without nuclear weapons?" *Daedalus* 138, no. 4 (2009): 124-129.

Wednesday, February 26 – Fusion

TBD

Week 9

Monday, March 3 – Nuclear Energy Landscape

- TBD
- Background Materials:
    - Laura S. Holgate & Sagatom Saha, "America Must Lead on Nuclear Energy to Maintain National Security," *The Washington Quarterly*, Vol. 41, No. 2 (July 5, 2018), pp. 7-25.
    - Matthew Furhmann, "Spreading Temptation: Proliferation and Peaceful Nuclear Cooperation Agreements," *International Security*, 34, No. 1 (Summer 2009), pp. 7–41.
    - Nicholas L. Miller, "Why Nuclear Energy Programs Rarely Lead to Proliferation," *International Security*, Volume 42, Number 2 (Fall 2017), pp. 40-77.
- Additional background for those interested:
    - Jane Nakano, "The Changing Geopolitics of Nuclear Energy: A Look at the United States, Russia, and China," Center for Strategic and International Studies, March 2020 https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf?heOTjmYgA_5HxCUbVIZ2PGedzzQNg24v

Wednesday, March 5 – Detection and Materials Accounting

- TBD
- Background Materials:
    - Nuclear material accounting handbook https://www-pub.iaea.org/MTCD/Publications/PDF/svs_015_web.pdf
    - Safeguards techniques and equipment publication https://www-pub.iaea.org/MTCD/Publications/PDF/nvs1_web.pdf

    - Note: **SKIM** both documents for big picture, big ideas, key terms, etc.

Part III: Contemporary Proliferation Landscape and Project Work

Week 10

Monday, March 10 – Discussion - Reconceptualizing the Existing Regime Part II

- Background Materials:
    - The Risks and Rewards of Emerging Technology in Nuclear Security, https://media.nti.org/documents/THE_RISKS_AND_REWARDS_OF_EMERGING_TECHNOLOGY_IN_NUCLEAR_SECURITY.pdf

- IAEA Nuclear Security Recommendations (INFCIRC/225): The Next Generation, https://www.stimson.org/wp-content/uploads/2020/07/IAEA-225-Recommendations.pdf
- Nuclear Security in Times of Crisis, https://www.stimson.org/2021/nuclear-security-in-times-of-crisis/
- Hannah Notte and Sarah Bidgood, "What Would Russia's Break with the West Mean for Nuclear Arms Control?" War on the Rocks, Febuary 14, 2022, https://warontherocks.com/2022/02/what-would-russias-break-with-the-west-mean-for-nuclear-arms-control/
- Nancy Gallager, "Re-Thinking the Unthinkable: Arms Control in the 21st Century," The Nonproliferation Review Vol. 22, Issue 3-4 (2015), pp. 469-498, https://doi.org/10.1080/10736700.2016.1149279.
- Jessica Rogers, Matt Korda & Hans M. Kristensen (2022) The long view: Strategic arms control after the New START Treaty, Bulletin of the Atomic Scientists, 78:6, 347-368, DOI: 10.1080/00963402.2022.2133287

Wednesday, March 12 – Dedicated Time to Work on Projects

- Mentors from previous years' course to work with groups
- Lunch provided

- ***Assignment***: Mid-semester project outline - document outlining the nonproliferation regime areas your project will cover - upload to Canvas.

Week 11

Monday March 17 – University Spring Break

- NO CLASS

Wednesday, March 19 – University Spring Break

- NO CLASS

Week 12

Monday, March 24 – Dedicated Group Project Time

- No new course materials

Wednesday, March 26 – Iran

- TBD
- Background Materials:
  - "Iran: Nuclear Intentions and Capabilities," National Intelligence Estimate, ODNI, November

2007: https://www.dni.gov/files/documents/Newsroom/Reports%20and%20Pubs/20071203_release.pdf

- **"**Annex: Possible Military Dimensions to Iran's Nuclear Programme," in Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran, November 8, 2011 (pgs. 11-25): https://www.iaea.org/sites/default/files/gov2011-65.pdf
- "Road-map for the Clarification of Past and Present Outstanding Issues regarding Iran's Nuclear Program," IAEA, July 14, 2015: https://www.iaea.org/sites/default/files/gov-inf-2015-14.pdf
- "Final Assessment on Past and Present Outstanding Issues regarding Iran's Nuclear Programme, IAEA, December 2, 2015: https://www.iaea.org/sites/default/files/gov-2015-68.pdf
- "Islamic Republic of Iran," in Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments, State Department, June 2020 (pgs. 35-42) https://www.state.gov/wp-content/uploads/2020/06/2020-Adherence-to-and-Compliance-with-Arms-Control-Nonproliferation-and-Disarmament-Agreements-and-Commitments-Compliance-Report-1.pdf
- "Iran," in Annual Threat Assessment of the U.S. Intelligence Community," ODNI, February 6, 2023 (pgs. 17-19): https://www.dni.gov/files/ODNI/documents/assessments/ATA-2023-Unclassified-Report.pdf

Week 13

Monday, March 31 – Contemporary Nuclear Landscape: China and North Korea

- In-class video lecture - Dr. Tong Zhao, Senior Fellow, Nuclear Policy Program, Carnegie Endowment for International Peace
- Background Materials:
  - Evan Braden Montgomery & Toshi Yoshihara (2022), "The Real Challenge of China's Nuclear Modernization," The Washington Quarterly, 45:4, 45-60, DOI: 10.1080/0163660X.2022.
  - "Is it time to accept North Korea is a nuclear power?" | CNN, https://www.cnn.com/2022/10/28/asia/north-korea-nuclear-threat-solution-analysis-intl-hnk/index.html
  - Chronology of U.S.-North Korean Nuclear and Missile Diplomacy | Arms Control Association, https://www.armscontrol.org/factsheets/dprkchron

Wednesday, April 2 – Contemporary Nuclear Landscape: US Nuclear Modernization

- Background Materials:
  - Amy Woolf, "U.S. Strategic Nuclear Forces: Background, Developments, and Issues," Congressional Research Service, December 10, 2020: Introduction and pp. 9-47, "Strategic Nuclear Delivery Vehicles: Post-Cold War Reductions and Current Modernization Programs," https://crsreports.congress.gov/product/pdf/RL/RL33640

- Chapter 4: Nuclear Force Posture and Nuclear Command, Control, and Communications (pp. 51-72): https://carnegieendowment.org/files/Perkovich_Vaddi_NPR_full1.pdf
- "Reducing U.S. Nuclear Weapons Excess," pp. 6-9: https://www.armscontrol.org/sites/default/files/files/Reports/ACA-Report_First100Days_NuclearChallenges_FINAL_2%20%281%29.pdf
- Against a change in policy: https://warontherocks.com/2019/07/assessing-the-risks-of-a-nuclear-no-first-use-policy/
- For a change in policy: Admiral Richard at STRATCOM: https://www.usni.org/magazines/proceedings/2021/february/forging-21st-century-strategic-deterrence

Week 14

Monday, April 7 – Contemporary Proliferation Landscape - Russia

- Background materials:
  - Amy F. Woolf, "Russia's Nuclear Weapons: Doctrine, Forces, and Modernization" (Congressional Research Service, July 20, 2020), https://crsreports.congress.gov/product/pdf/R/R45861
  - Pavel Podvig, "Russia's Current Nuclear Modernization and Arms Control," Journal for Peace and Nuclear Disarmament 1, no. 2 (July 3, 2018): 256–67, https://doi.org/10.1080/25751654.2018.1526629
  - Russian Nuclear Coercion in Ukraine, https://www.nato.int/docu/review/articles/2022/11/29/russias-nuclear-coercion-in-ukraine/index.html?fbclid=IwAR00avfHuzn9MVueYexVqV50VgBr_7e8gZTHBLPVpBlyO3LucFlyDbMoW7w
  - President of Russia, "Presidential Address to the Federal Assembly," March 1, 2018, http://en.kremlin.ru/events/president/news/56957. Starting at "Now, on to the most important defence issue." http://en.kremlin.ru/events/president/news/56957#sel=170:1:Qx3,170:8:rmr
  - Pavel Podvig, "Nuclear Weapons in Europe after the INF Treaty," Deep Cuts Issue Brief #10, June 2020. https://deepcuts.org/files/pdf/Deep_Cuts_Issue_Brief_10-NW_Post-INF_Europe.pdf
  - Jill Hruby, Russia's New Nuclear Weapon Delivery Systems, NTI, November 2019, pp 17-28 https://media.nti.org/pdfs/NTI-Hruby_FINAL.PDF

Wednesday, April 9 – The Evolving Nuclear Environment

- TBD

Week 15

Monday, April 14 – Discussion – Reconceptualizing the Existing Regime Part III

- Background materials:

- Watch video lecture "Deterrence and Arms Control in a Multi-Polar Global Environment" by Brad Roberts, Director, Center for Global Security Research, Lawrence Livermore National Laboratory
- Roberts, Brad, "On Adapting Nuclear Deterrence to Reduce Nuclear Risk," Daedalus, the Journal of the American Academy of Arts & Sciences, Spring 2020, Vol. 149, No. 2, https://cgsr.llnl.gov/content/assets/docs/Daedalus_Sp20_5_Roberts.pdf
- Brad Roberts, "Toward New Thinking About Our Changed and Changing World: A Five-Year CGSR Progress Report," Center for Global Security Research Lawrence Livermore National Laboratory, October 2020, https://cgsr.llnl.gov/content/assets/docs/CGSRfiveDIGITAL.pdf
- ***Assignment:*** Second Individual Policy Memo Due – Upload to Canvas

Wednesday, April 16 – Final Presentations – all teams

- ***Assignment:*** Group presentations of final project in class

Week 16

Monday, April 21 – Last Day of Class

- Winning Group Presentation to university guests

Final Group Papers Due: Friday, April 25th 2:10pm – Upload to Canvas

[1] "Student Code of Conduct." https://policylibrary.gatech.edu/student-life/student-code-conduct Links to an external site.(Accessed January 5, 2022).