

Emerging Technology + International Security

17.449

Erik Lin-Greenberg

Assistant Professor of Political Science

Massachusetts Institute of Technology

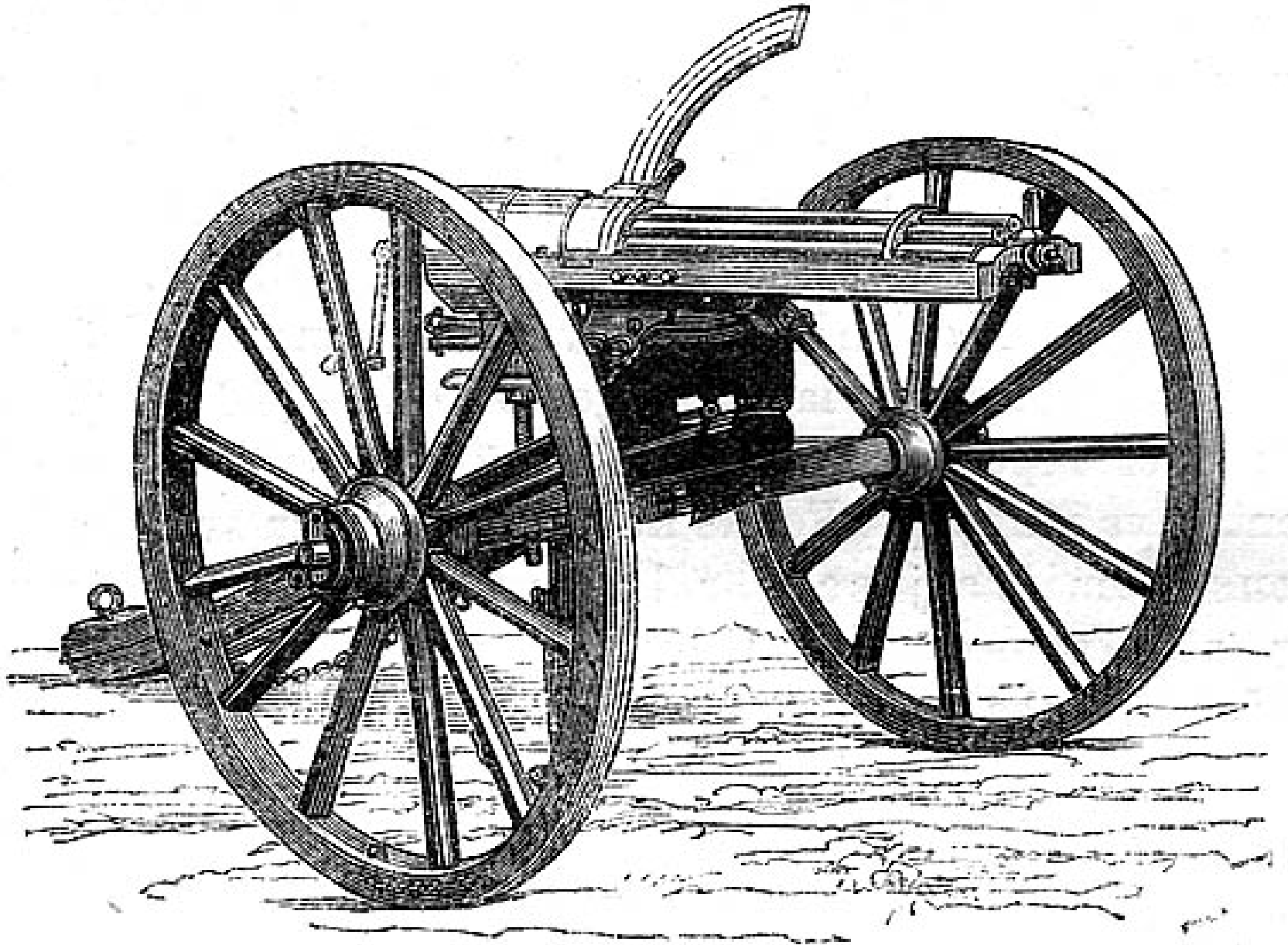




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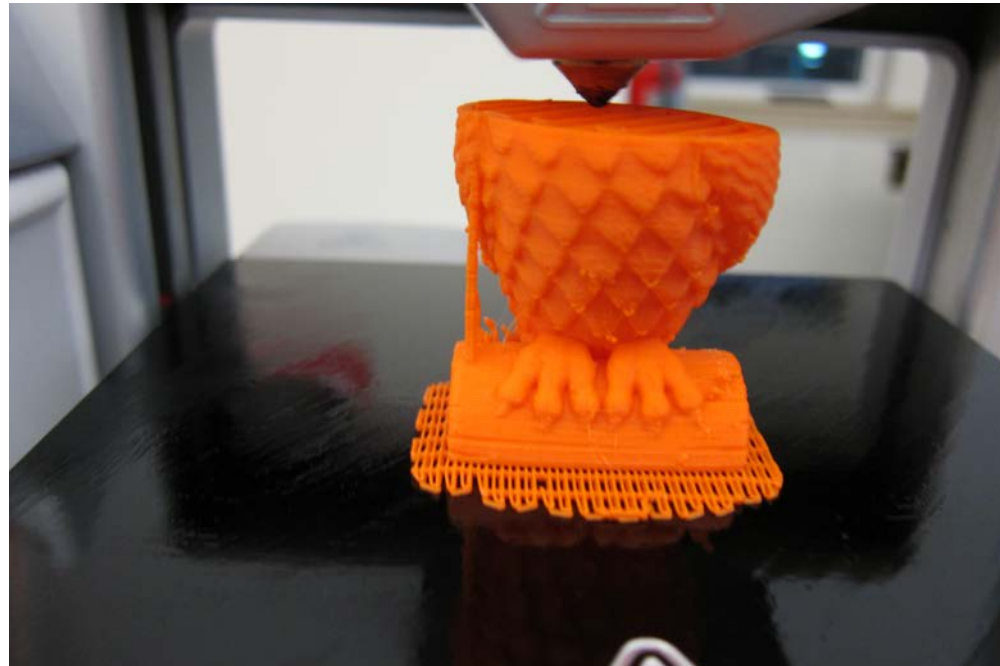


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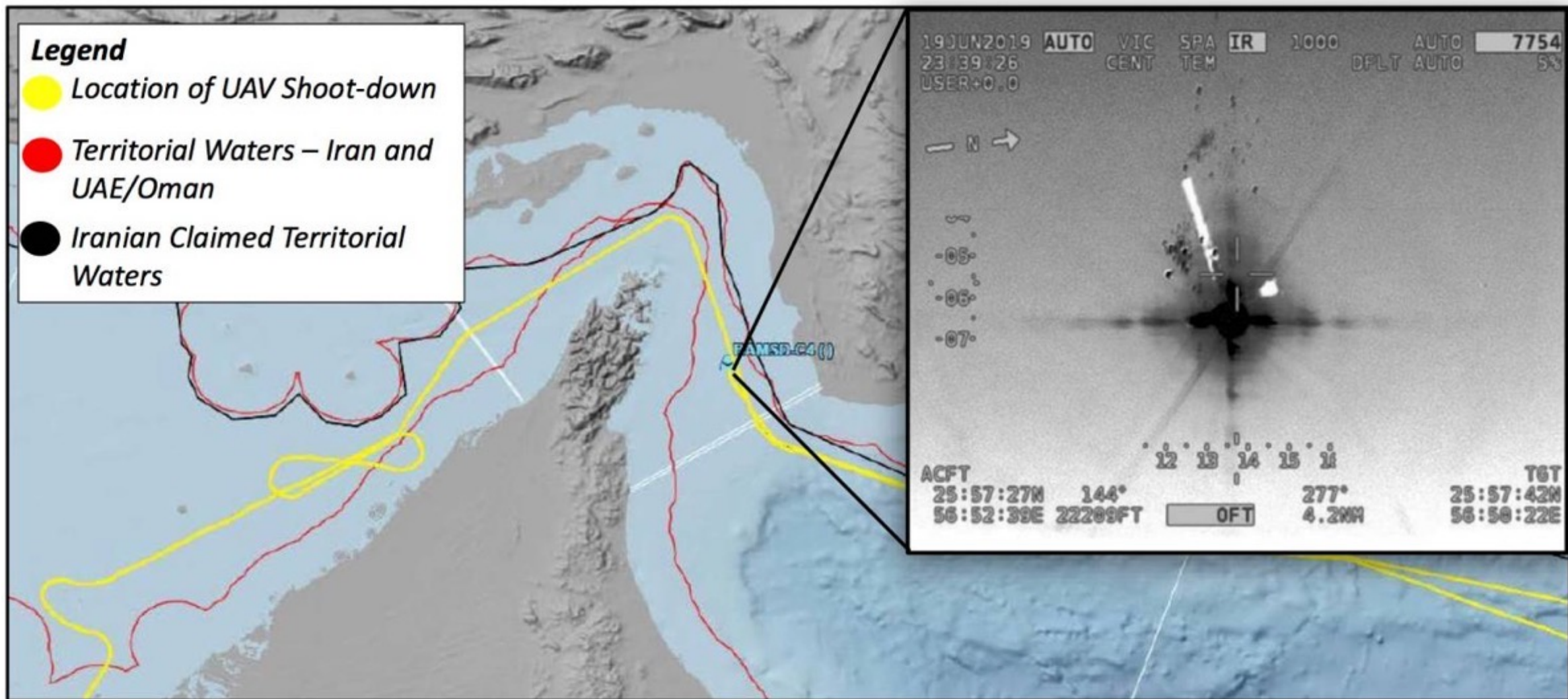


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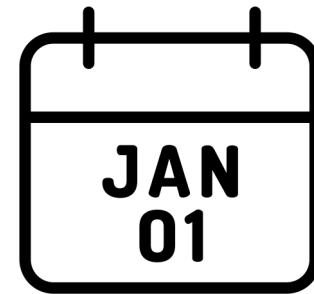


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'They're Going To Ukraine': Social Media Chatter Sheds Light On Russia's Military Mobilization



What technology from the last two decades has had
the **greatest effect** on international security?



Key Questions and Concepts

- What is an innovation? How do they diffuse?
- Successful vs. unsuccessful innovations
- How does technology affect:
 - Actors
 - Occurrence of conflict
 - Character
 - Consequences



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Key Questions and Concepts

- Foundations
 - Key Tenets of IR Theory
 - Innovation Theory
 - Defense Acquisition + R&D
- Historical Innovations
 - Stealth and Dynamite (Closed vs. Open)
- Emerging Technologies
- Application



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Key Objectives

- Deepen understanding of emerging tech and IR
 - Tie innovations to IR theory
 - Understand key theoretical and policy debates
- Practice policy writing and communication
- Better stewards of the technology that you will design and/or operate

So let's dive in...

Emerging Technologies + IR



Horowitz, Michael C. "Do Emerging Military Technologies Matter for International Politics?" *Annual Review of Political Science* 23, no. 1 (2020): 385–400. © Annual Reviews. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.



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Emerging Technologies + IR

- Technology as an Independent or Dependent variable
 - Start course with DV, transition to IV
- Technology is not deterministic; instrument of policy
 - "Weapons don't make war..."
 - Social construct
- Yet, technology has an impact on:
 - Doctrine, escalation, force employment, coercion, etc.
- Why is studying emerging technologies hard?

Emerging Technologies + IR

- Limited operational history



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Emerging Technologies + IR

- Data are often classified

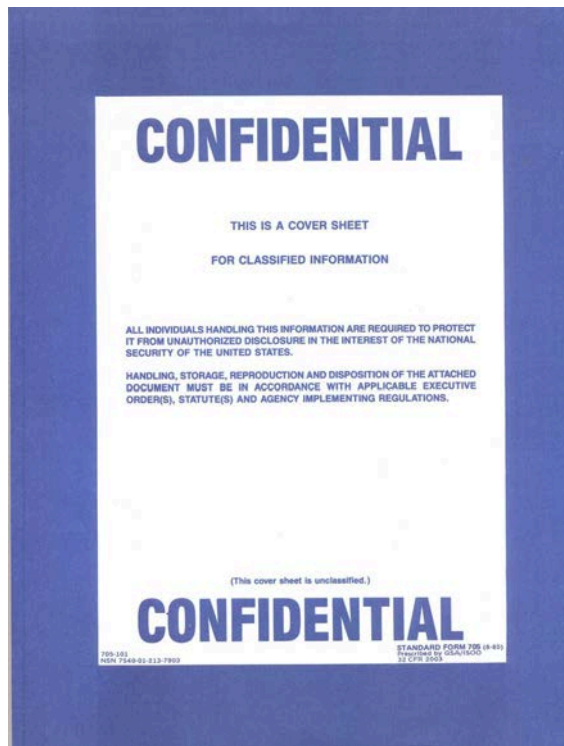


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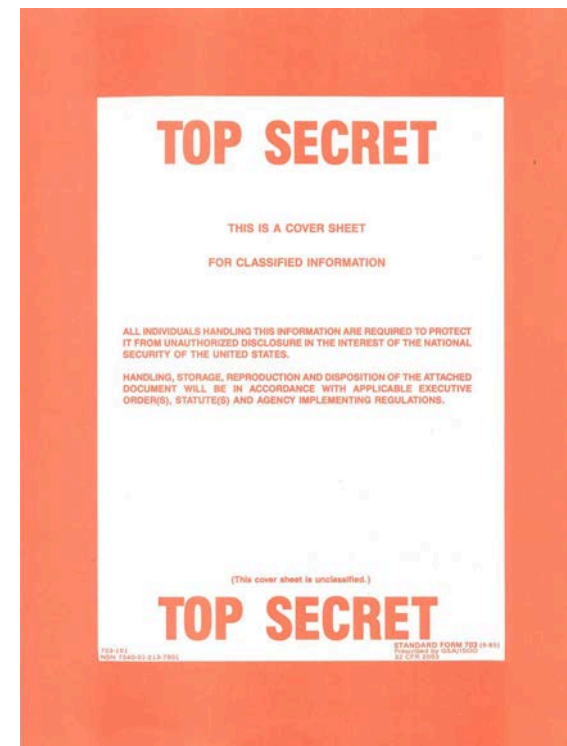


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Emerging Technologies + IR

- Confront the fundamental problem of causal inference

Emerging Technologies + IR

- Studying these issues is important
 - Policymaking
 - R&D
 - Theory
- How should scholars study these issues? (per Horowitz)
- Are new technologies transformational?
 - If so, how and why?

Emerging Technologies + IR

- Who fights? (fight=use force)
- When do they fight?
 - Eliminates information asymmetries --> Secrecy in a transparent age
 - Alters costs of fighting
- How do they fight?
- What are the consequences of fighting?
- What constitutes a "fight"?

Emerging Technologies + IR: Drones



Image courtesy of [Lt. Col. Leslie Pratt / U.S. Air Force](#). Source: Wikimedia Commons. This image is in the public domain.

Emerging Technologies + IR: Drones

- **Effectiveness** in counter-terrorism operations
 - Temporal effects
 - Target types
- Public **opinion**
 - Consequences of variation
- **Proliferation**
 - Why and where?
- Drones as a tool of **signaling/coercion**

Emerging Technologies + IR: Drones

- Confront data limitations
- Confront the fundamental problem of causal inference



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Emerging Technologies + IR: Cyber

The Cybersecurity 202 • Analysis

Countries are thinking twice about hacking an Olympics held in China



By Joseph Marks

with research by Aaron Schaffer



Yesterday at 7:36 a.m. EST

Marks, Joseph. "Countries are thinking twice about hacking an Olympics held in China," *Washington Post*, January 31, 2022. © Nash Holdings. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.



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Emerging Technologies + IR: Cyber



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Emerging Technologies + IR: Cyber

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- How should we **conceptualize** cyber warfare?
 - War or espionage
 - Military attack?
- Is cyber an **offensive** dominant technology?
- Who are the key **actors**?
 - States
 - Non-state actors
 - Who hacks back
 - New organizations
- **Deterrence** and **cross-domain** operations

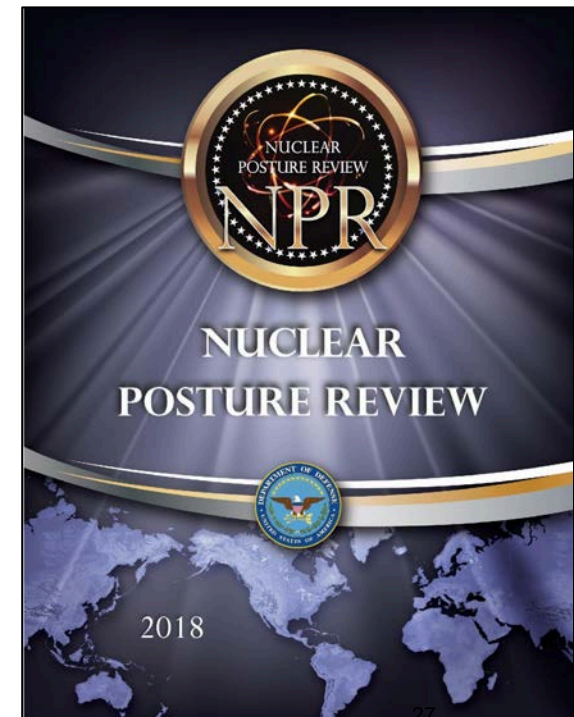


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Course Requirements + Expectations

Key Changes...

- Mid-class break—most of the time...
- More group interaction
- Assignments spaced out
- More (?) guest speakers

Course Requirements + Expectations

Participation [20%]

Quizzes [10%]

Writing and Analysis [70%]

Participation

- Attendance is mandatory (Synchronous class)
- ~75-80 minutes per session
 - Guest speakers
 - In class exercises
- Active engagement with materials/lecture
 - Please do the reading!

Quizzes

- Two in-class quizzes cover reading/lecture
 - Sessions 10 and 22
- Closed book, in class
- Short answers (3-4 sentences)
 - Define
 - Tie to theory/policy
 - Offer a short example

Writing and Analysis

- Simulated Shark Tank Pitch [5%]
- Icebreaker assignment
- <1 page bullet summary due Session 6
 - What is the product?
 - What problem will your product solve?
 - Why is it better than existing products?
 - What might it replace?
- 3 minute pitch (Sessions 6 and 7)
- Teams assigned via email

Writing and Analysis

- Response paper [10%]
- 750-1000 words
 - Should go beyond summarizing paper
 - Have an argument (e.g., what do you agree/disagree with)
 - Identify how the pieces “fit” together
- Sign up in class

Writing and Analysis

- Short form analytic article

Analyze how a specific emerging technology could impact international security

- ~2500 words (e.g., *Foreign Affairs*, *WoTR*)
- Due Session 25 [30%]
- Multi-step writing process

Writing and Analysis

- Session 9: Topic proposal
- Session 17: 1-page outline and bibliography [5%]
- Session 21: Peer Review [5%]
- Sessions 24 and 25: Presentations [30%]

Course Policies

- Mutual respect
- Deadlines
 - Make-up quizzes and extensions only in emergencies
 - Late assignments without a formal extension will be marked down one letter grade per day (A to A-, etc.)
- Academic integrity is paramount
- "Open door" policy

A final opening thought:

Should we be **optimistic or pessimistic** about the effect of technology on international security?

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