

**PLCY 798C: Science, Technology, and International Security
Fall 2017**

Instructor: Professor Kathleen Vogel
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 Course day/time: Tuesdays, 7:00-9:30 pm
 Course location: 1101 Van Munching Hall
 Office Hours: By appointment; please email to set an appointment.

Course Description:

This course will examine the roles of science and technology (S&T) and the production of technical knowledge as they relate to the development of conventional (e.g., missiles, bombs) and unconventional (e.g., nuclear, chemical, and biological) weapons and their associated threats to U.S. and international security. The course will also examine contemporary S&T security issues and will introduce students to new ways of thinking about the interaction of technology and security. The course will draw primarily on literature from political science and the science and technology studies (S&TS) field.

Learning Objectives

- To learn how to read, comprehend, and write about the social and technical dimensions that structure security problems and to learn to evaluate how social context and technical knowledge/objects are mutually constituted.

Learning Outcomes: By the end of this course, you should be able to:

- Identify and explain key concepts and terms regarding the social and technical aspects of security presented in the course.
- Develop critical thinking, research, and analysis skills about the framing and mutual shaping of science, technology, and security across different topic areas, and how to propose recommendations at which policy might intervene successfully.
- Learn how to work and communicate effectively as part of a team in class discussions.
- Sharpen oral communication skills through dissection of arguments and response to constructive critiques of your position in written reports, class discussions, and in oral presentations.
- Prepare detailed and properly formatted writing assignments, keeping to fixed deadlines.

Required Texts:

Course materials will be available through e-link in the syllabus or via course reserve. Students should read required sources in preparation for class discussion on the day they are listed. The syllabus and other course assignments and materials may be accessed through ELMS at: <https://elms.umd.edu/> and enter your user name and password (the same ones that you use to access your University of Maryland email account), and then click on PLCY 798c.

Academic Policies:

Academic Integrity is expected at all times. Cheating and plagiarism are clearly defined by the Academic Integrity policy and will not be tolerated. Students will maintain the highest standards of professional behavior and will adhere to the University of Maryland's Code of Academic Integrity (www.shc.umd.edu) at all times. Students with disabilities should make an appointment with the instructor to arrange academic accommodations.

COURSE SCHEDULE

August 29th: 1st Day of Class

- Introduction to the course
- No assigned readings

September 5th: Introduction to the Social and Cultural Shaping of S&T

- Reading:
 - John Ellis, *The Social History of the Machine Gun* (Baltimore: Johns Hopkins University Press, 1986).
- Weekly Assignment: See posting on ELMS

September 12th: Technological Determinism and the RMA: The Role of Technology in Future Combat/Conflicts?

- Readings:
 - H. Bruce Franklin, "Introduction: Imagining our Weapons," in *War Stars: The Superweapon and the American Imagination* (Oxford: Oxford University Press, 1988): 3-6, available on course reserve.
 - Stephen Biddle, "Speed kills? Reassessing the role of speed, precision, and situation awareness in the Fall of Saddam," *Journal of Strategic Studies*, vol. 30, iss 1 (2007): 3-46, available on course reserve.
 - HR McMaster, "On War: Lessons to be Learned," *Survival*, vol. 50, no 1 (2008): 10-30, available on course reserve.
- Weekly Assignment: Regular Reading Response

September 19th: Micro-level Factors Shaping Weapons Development: Tacit Knowledge

- Readings:
 - Donald MacKenzie and Graham Spinardi, "Tacit Knowledge, Weapons Design, and the Uninvention of Nuclear Weapons," *American Journal of Sociology* vol. 101, no. 1 (July 1995): 44-99, available on course reserve.
 - J. Douglas Beason, "Our endangered nuclear weaponeers," *The Wall Street Journal* (May 30 2013), available on course reserve.
 - Michael A. Dennis, "Tacit Knowledge as a Factor in the Proliferation of WMD: The Example of Nuclear Weapons," *Studies in Intelligence*, vol. 57, no 3 (September 2013):1-9, available on course reserve.
- Weekly Assignment: Regular Reading Response

September 26th: No class

- Readings: No assigned readings
- Final Paper Assignment #1: Brainstorming Exercise. See posting on ELMS for further details. Due by **10 pm on Tuesday, September 26, 2017** to kvogel12@umd.edu

October 3rd: Micro/Macro-level Factors Shaping Weapons Development: Socio-Technical Networks

- Reading:
 - Maggie Mort, *Building the Trident Network* (Cambridge: MIT Press, 2002).
- Weekly Assignment: See Posting on ELMS

October 10th: Macro-level Factors Shaping Weapons Development: Political-Economic Factors

- Readings:
 - Sonia Ben Ouagrham-Gormley, "Barriers to Bioweapons: Intangible Obstacles to Proliferation," *International Security* vol. 36, no. 4 (Spring 2012): 80-114, available on course reserve.
 - Jacques E.C. Hymans, "Botching the Bomb: Why Nuclear Weapons Programs Often Fail on Their Own -- and Why Iran's Might, Too," *Foreign Affairs*, vol. 91, no. 3 (May/June 2012): 44-53, available on course reserve.
 - Vipin Narang, "Strategies of Nuclear Proliferation: How States Pursue the Bomb" *International Security*, vol. 41, iss 3 (Winter 2016-2017): 110-150, available on course reserve
- Weekly Assignment: Regular Reading Response
- Final Paper Assignment #2: Narrowing Down the Topic, **due at 11:59 pm on Sunday, October 15, 2017 to kvogel12@umd.edu**. See ELMS for more detailed guidance.

October 17th: Putting It All Together: Cruise Missile Case Study

- Reading:
 - Dennis M. Gormley, *Missile Contagion: Cruise Missile Proliferation and the Threat to International Security* (Annapolis: Naval Press Institute, 2008).
- Weekly Assignment: See posting on ELMS.

October 24th: Putting it All Together: Terrorism and Technology Case Study

- Readings:
 - David C. Rapoport, Fear and Trembling: Terrorism in Three Religious Traditions, *The American Political Science Review*, vol. 78, no. 3 (September 1984): 658-677, available on course reserve.
 - Milton Leitenberg, "Aum Shinrikyo's efforts to produce biological weapons: A case study in the serial propagation of misinformation," *Terrorism and Political Violence*, vol. 11, no. 4 (1999): 149-158, available on course reserve.
 - Brian Michael Jenkins, "Middle East Turmoil and the Continuing Terrorist Threat—Still No Easy Solutions," House Armed Services Committee Meeting, "The Evolving Threat of Terrorism and Effective Counterterrorism Strategies," February 14, 2017, available on course reserve.
 - Jytte Klausen, "Tweeting the Jihad: Social Media Networks of Western Foreign Fighters in Syria and Iraq," *Studies in Conflict & Terrorism*, vol. 38, no. 1 (2015): 1-22, available on course reserve.
- Weekly Assignment: Regular Reading Response
- Final Paper Assignment #3: Detailed Literature Review. See ELMS for more detailed guidance. Assignment **due at 11:59 pm on October 29, 2017 to kvogel12@umd.edu**

October 31st: The Challenge of Visual Evidence: A Picture is Worth a Thousand Words?

- Readings:
 - Malcolm Gladwell, “The Picture Problem: Mammography, Air Power, and the Limits of Looking,” *The New Yorker* (13 December 2004), available on course reserve.
 - Dino A. Brugioni, “The Unidentifieds,” in *Inside CIA’s Private World: Declassified Articles from the Agency’s Internal Journal, 1955-1992*, ed. H. Bradford (Westerfield, New Haven: Yale University, 1995): 8-26, available on course reserve.
 - Central Intelligence Agency/Defense Intelligence Agency, *Iraqi Mobile Biological Warfare Agent Production Plants*, (May 28, 2003), unclassified, available on course reserve.
 - De Vasconcelos Cardoso, Bruno, “The Paradox of Caught-in-the Act Surveillance Scenes: Dilemmas of Police Video Surveillance in Rio de Janeiro,” *Surveillance and Society*, vol. 10, no. 1 (2012): 51-64, available on course reserve.
- Weekly Assignment: Regular Reading Response

November 7th: Simulations, Scenarios, and the Security State

- Readings:
 - Micah Zenko, “Millennium Challenge: The Real Story of a Corrupted Military Exercise and its Legacy,” *War on the Rocks* (November 5, 2015), available on course reserve.
 - Monica Schoch-Spana, “Bioterrorism: US Public Health, and a Security Apocalypse,” *Anthropology Today*, vol. 20, iss 5 (October 2004): 8-13, available on course reserve.
 - Sean Lawson, “Beyond Cyber Doom: Cyber Attack Scenarios and the Evidence of History” (January 2011): 1-38, available on course reserve.
- Weekly Assignment: Regular Reading Response.
- Final Paper Assignment #4: Engaging with Course Literature. See ELMS for detailed guidance. Assignment due **at 11:59 pm on November 12, 2017** to kvogel12@umd.edu

November 14th: Technological Disasters I: Fukushima

- Readings:
 - David Lochbaum, Edwin Lyman, Susan Q. Stranahan, The Union of Concerned Scientists, *Fukushima: The Story of a Nuclear Disaster* (New York: The New Press, 2014).
- Weekly Assignment: See posting on ELMS

November 21st: Technological Disasters II: Ebola

- Readings:
 - Heinz Feldmann, “Ebola—A Growing Threat?” *New England Journal of Medicine*, vol. 371 (October 9, 2014): 1375-1378, available on course reserve.
 - Gian Luca Burci, “Ebola, the Security Council and the securitization of public health,” *Questions of International Law*, vol 10 (December 23, 2014): 27-39, available on course reserve.
 - Paul Farmer, “Diary,” *London Review of Books*, vol. 36, no 20 (October 23, 2014), available on course reserve.
 - Alice Street, “Rethinking Infrastructures for Global Health: A View from West Africa and Papua New Guinea,” *Ebola Fieldnotes*, (5 pages), available on course reserve.
- Weekly Assignment: Regular Reading Response

November 28th: Student Presentations

- Final Paper Assignment #5a: In-class student presentations. See posting on ELMS for detailed guidance on presentation.

December 5th: LAST DAY OF CLASS

- Wrap-up.
- Final Paper Assignment #5b: Annotated outline. See posting on ELMS for detailed guidance on outline.

Final Papers (Assignment #6) due by December 13, 2017 at 10 pm to kvogel12@umd.edu

COURSE ASSIGNMENTS AND EXPECTATIONS

Class Participation and Attendance

Regular attendance and participation in class are required. Students are expected to be prepared to talk knowledgeably about the readings, and to participate in class discussions. If you come unprepared to class, this will decrease your class participation grade. The participation part of your grade will consist of two components: (1) attendance and participation in class discussion; (2) leading class discussions on the assigned reading(s). More guidance on these student-led discussions will be given in class; students will have a meeting with Dr. Vogel prior to class to discuss how they will lead these discussions. The student co-led sessions will begin on September 12th. The leaders will guide and shape our conversation on the week's readings by raising questions and insights from the readings. You may miss one class without penalty to your grade. After that, each missed class will result in a one-third letter grade reduction in your final course grade. It is expected that students will be on time for class, not leave early, and notify the instructor in advance if they are unable to attend any session. Any arrival 15 minutes or more past the start of class counts as a 0.5 absence.

Reading Responses

Each week, students will write one reading response that will take the form of a reaction paper on the assigned readings. These aim to prepare you for the weekly class discussions, and will also be used for research for your final report. Regular Response Papers have three required components: (1) *brief* summary of the *key* arguments, evidence, and analytic methods in **each** of the readings; (2) your view of what the author's approach brings to the table—problems, challenges, insights (or if you disagree with the author, why you disagree); (3) identification of at least two questions for discussion generated by the readings. On certain days, however, you will have special Reading Response assignments as posted on ELMS and in the syllabus. These Response papers should be no more than 2 single spaced, typed pages in length. The submission of reading responses will start for class on September 5th.

You should come prepared to share your responses aloud in class. Reading responses are due **in hard copy form in class**. These responses will not be graded for grammar or mechanics (although I do expect to be able to understand and follow your writing), but ***are expected to show thoughtful engagement with the reading(s) and follow the response guidelines***. If they do, then you will receive a mark of a “√”, denoting full credit for that response. Responses that demonstrate a lack of effort will be deemed “unacceptable” and will be given a “0”. In general, unless a response is given a “0”, no written comments will be given. If you receive a “0”, you may re-do the response, and if done properly, you can receive a “√”. The revised responses must be submitted within one week after you receive the grade to receive consideration for a re-grade.

Final Paper

For the final paper, students will select a topic and evaluate the socio-technical dimensions of a S&T/security problem. Students will be responsible for submitting six components that will constitute the grade for the final paper. For the final paper, you will be evaluated on: content, style, and analysis: (1) Content: how good your information is, how well did you research your topic; (2) Style: how well is your paper written in terms of organization, spelling, grammar, punctuation, and citation; (3) Analysis: how well have you brought your critical analytical skills to bear in preparing your argument that reflect course learning. Your final paper will also have a required in-class oral presentation of your findings to be held in class on the last day of class, December 5, 2017. More detailed guidance about the final paper will be posted on ELMS. Your final paper will be reviewed by Turnitin or similar platform.

Grading

Your final grade will be determined as follows:

- Class participation and attendance: 20%
- Weekly Reading Responses: 30%
- Final Paper 50%
 - Note: Final paper percentage breaks-down into 6 components as noted in the syllabus
 - Assignment #1: 10%
 - Assignment #2: 10 %
 - Assignment #3: 10%
 - Assignment #4: 20%
 - Assignment #5: 30% (10% presentation; 20% outline)
 - Assignment #6 (complete final paper): 20%

For all written assignments, late papers will be marked down immediately after they are posted as being due. The deduction will be a half grade per day (e.g., B+ →B). No exceptions. If you need to be away on the due date, then you must arrange to turn in your paper early.

Overall course and the final paper grades will be computed on an A-F continuum as follows:

A+ = 97-100	C+ = 77-79	F = 59 or below
A = 93-96	C = 73-76	
A- = 90-92	C- = 70-72	
B+ = 87-89	D+ = 67-69	
B = 83-86	D = 63-66	
B- = 80-82	D- = 60-62	

Digital Etiquette

Our class is an occasion to think together about a particular problem or text. We need to be able to engage with each other, and so it matters how you treat other people and how you focus while in class.

Phones & other electronic devices: This should go without saying, but let's say it anyway: you should turn off your cellphone and/or other electronic devices before you enter the classroom. If your phone rings once during class this semester, we'll all laugh and I'll ask you to turn it off. If your phone rings again during class this semester, we'll need to have a talk. You will learn more if you can concentrate on the course while you're in the course.

Laptops: You may not use a laptop in this class, unless I give you permission to use it for an in-class exercise. Our time together in class will be focused on discussions on the readings and other in-class exercises, with little need for a laptop. Taking notes during lecture portions of the course can be done with pencil and paper; please make sure you come to class with these materials. If we need to look up material on the computer, we will use the computer in the classroom.

Because I realize that we all need a break during class, I will schedule ~ a 10 min break during class in which students can use are allowed to use their phones or laptops; otherwise, these devices will remain off during class.