INTA 8000: Science, Technology & International Affairs I
SNSP Seminar
Fall 2017

Dr. Margaret E. Kosal
Associate Professor
Sam Nunn School of International Affairs

3 credits
Th 12:00-2:45 PM
Ivan Allen College/Habersham G-17

Office hours: *TBD*
& by appointment
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Overview

The course, as part of the Sam Nunn Security Program (SNSP), will explore and enable better understanding of the interactive roles; the effect of science and technology; and the economic, institutional, policy, and social contexts in which science and technology may implemented. This will be accomplished through extensive and intensive in-class discussions, guest lectures by experts, individual and group projects, and off-site visits to policy-making and policy–executing organizations, agencies, and institutions.

In this course, we will examine the relation between science and technology and international affairs, with an emphasis on national and international security. Rarely does science or technology (S&T) itself drive foreign or national security policy; the potential security, economic or other national-level consequences of the application of science to

human endeavors is where technology intersects with policy predominantly. Science & technology can be causal, intervening, or determinant factors. The ability to recognize, communicate, and identify nodes for intervention, change, or influence are strategic requirements for effective use of S&T domestically and internationally.

The ways in which governments act as proponents and sustainers, as well as consumer of S&T, vary significantly. These issues reflect important questions about the relationship between science, technology, and policy. Is scientific and technological development governable, and if so, who is responsible for governance? Is more and better science necessary for policymaking? Who is the best judge of the value of scientific research programs and the validity of scientific findings? Is the furtherance of scientific understanding and technological development always socially benign, and who decides?

Technological changes are anticipated to occur over the ensuing decades in a globalized world characterized by complex security challenges. While emerging technologies promise scientific breakthroughs, they also generate skepticism and controversies. How will these S&T developments impact stability, and what are the potential security threats? How will such emerging technologies affect the overall international security discourse?

This course introduces theories and methodologies for science and technology policy analysis. Students will learn how science and technology policy is made, with specific attention to the roles of government agencies, expert advisory committees, and the public. This analytic toolkit will be drawn from literature in a range of disciplines, including political science, public policy, economics, sociology, and history.

This course will provide:

- Background on the science & technology policy formation, with an emphasis on US systems and security policies
- A multidisciplinary toolkit for thinking about science & technology policy and security, including an understanding of social science methods, theories, and approaches to science & technology policy and security.

Learning Objectives

1. Students will demonstrate the ability to describe the causal and determinant relationships between science and technology (S&T) and security across different topic areas.
2. Students will demonstrate ability to apply concepts and multiple methodologies to explain phenomena in security related to S&T.
3. Students will understand and be able to assess relationships among organizational institutions & structures at the local, national, regional & global level and S&T.
4. Students will become familiar with multiple major governance entities (e.g., international agreements and institutions) relevant to S&T and security.
5. Students will understand and learn about how S&T shaped history, promising S&T developments (such as information and communications technology, cognitive and

biological sciences, robotics, and nanotechnology), and pressing S&T challenges for the future in an international context.

6. Students will practice effective communication skills. Students will be able to express their arguments clearly and effectively both in written reports and in their research and oral presentations.
7. Students will learn valuable team working skills. Students will be able to work in small groups in a way that demonstrates respect for their colleagues and efficiency in working collaboratively towards projects and goals.

Class Requirements

1) Attendance & participation (10%)
2) Scientist / engineer in policy (20%)
3) International agency/office/agreement (20%)
4) Group term project (50%)
    a. Proposal
    b. Status report
    c. Semester document
    d. Semester presentation

The grading rubric will be discussed during the first week of class.

Attendance and Participation

You are expected to make reasonable efforts to attend all classes and participate actively. I recognize that both anticipated and unanticipated events may overlap with the regularly scheduled class.

Academic Integrity

For all assignments, materials, and exams, you are expected to maintain the highest academic integrity.

While academic integrity takes many forms, one of the most common violations is plagiarism. Per the Georgia Tech Honor Code, plagiarism is an act of academic misconduct. The Georgia Tech Honor Code specifies: "'Plagiarism' is the act of appropriating the literary composition of another, or parts of passages of his or her writings, or language or ideas of the same, and passing them off as the product of one's own mind. It involves the deliberate use of any outside source without proper acknowledgment."

Plagiarism ranges from the blatant, such as purchasing a term paper or copying on an exam, to the subtle, e.g., failing to credit another author with the flow of ideas in an argument. Simply changing a few words from the writings of other authors does not alter the fact that you are essentially quoting from them and appropriating their ideas. Paraphrasing of this sort, where you use the words of another almost verbatim without acknowledging your source, is the most common form of plagiarism among students and in

general. When you state another author's viewpoint, theory, or hypothesis – especially when it is original or not generally accepted – you must also include a reference to the originator. In general citations are unnecessary when the information is considered common knowledge or a matter of widespread agreement or controversy.

For more information on the Georgia Tech Honor Code, please see http://www.honor.gatech.edu.

In short: just don't cheat.
This is one instance when asking forgiveness
*rather than permission is *not* a good strategy.*

Accommodations for Students with Disabilities

Per Georgia Tech policy: if you have a significant disability, special arrangements will be made to accommodate documented needs (through the ADAPTS office). Please contact the professor after class or at your earliest convenience.

THE SYLLABUS IS DYNAMIC & IS LIKELY TO BE UPDATED THROUGHOUT THE SEMESTER.

Course Calendar and Content

Readings will be assigned and distributed in hard copy or via T-Square in a timely manner throughout the semester.

Week 1

24 August

- Introductions
- Introduction to the SNSP
- Semester and academic year scope
- Framing the course, current problems, policy, doctrine, and debate; establishing process
- Subject matter overview and class organization
- Scientists and engineers as policy advisors for national and international leadership
- Discussion of project possibilities
- SNSP Challenge coin

Readings

- Browse: DNI Clapper's Statement for the Record of the Worldwide Threat Assessment of the US Intelligence Community, 9 February 2016, especially p. 9 on "Genome Editing," https://www.dni.gov/files/documents/SASC_Unclassified_2016_ATA_SFR_FINAL.pdf
- DNI Coat's Statement for the Record of the Worldwide Threat Assessment of the US Intelligence Community, 11 May 2017, https://www.dni.gov/files/documents/Newsroom/Testimonies/SSCI%20Unclassified%20SFR%20-%20Final.pdf
- Army G2, The Future Operational Environment (for the Transition Team), 25 November 2016 *(distributed in class)*
- John Marburger, "Perspective: Science's Uncertain Authority in Policy," *Issues in Science and Technology,* v 26, no 4, Summer 2010, http://issues.org/26-4/p_marburger/
- Andrew Holland, "14 Challenges in the Secretary of Defense's Inbox on Day 1," 26 November 2014, http://www.americansecurityproject.org/14-challenges-in-the-secretary-of-defenses-inbox-on-day-1/
- "CNAS Briefing: Key Questions for the Mattis Confirmation Hearing," 11 January 2017, https://www.cnas.org/press/press-release/cnas-briefing-key-questions-for-the-mattis-confirmation-hearing
- IANS, **"**Technology Key to Military Preparedness," *Free Press Journal (India),* 10 January 2015, http://freepressjournal.in/technology-key-to-military-preparedness/ *(Will be distributed in class, as link no longer works)*
- Tom Nichols, "The Death of Expertise," *The War Room* (blog), 11 December 2013, *(Will be distributed in class, as link no longer works. Also see his book on the subject, if interested in further reading, https://global.oup.com/academic/product/the-death-of-expertise-9780190469412?cc=us&lang=en&#)*

- Michele Acuto and Parag Khanna, "Nations are No Longer Driving Globalization - Cities Are," *Quartz,* 03 May 2013, http://qz.com/80657/the-return-of-the-city-state/
- James Stavridis, "The Dark Side of Globalization," *WaPo,* 31 May 2013, http://articles.washingtonpost.com/2013-05-31/opinions/39658000_1_chemical-weapons-mass-destruction-cartels

Optional/further reading

- Peter Turchina, et al., "War, Space, and the Evolution of Old World Complex Societies," *Proceedings of the National Academy of Sciences (PNAS),* 2013, pp 16384–16389, http://www.pnas.org/content/110/41/16384
- John Krige and Kai-Henrik Barth, "Science, Technology, and International Affairs," *Osiris,* 2006, 21, pp 1-21
- National Research Council, *S&T Strategies of Six Countries,* free full pdf available at http://www.nap.edu/download.php?record_id=12920

Submit bio & photo NLT 28 August 1200.

Week 2

31 August

Guest lecture: Professor Katja Weber on "IR Theory"

- Introduction to frameworks for S&T and policy interaction
- Discussion of frameworks for studying science, technology, policy, and policy implementation dimensions in their broader political, social, economic, institutional, and historic contexts
- Paths travelled from S&T conception to world-changing impact
- Role of scientists and engineers in advising and influencing policy

Readings:

- *Browse* - Vannevar Bush, "Science: The Endless Frontier," 1945 (may be found on-line in multiple places, e.g., in html at the NSF web site, https://www.nsf.gov/od/lpa/nsf50/vbush1945.htm or pdf scan of the original document, https://ia600408.us.archive.org/18/items/scienceendlessfr00unit/scienceendlessfr00unit.pdf)
- Bharat Bhushan, "Perspective: Science and Technology Policy – What is at Stake and Why Should Scientists Participate?" *Science and Public Policy,* 2015, pp 1-14, http://spp.oxfordjournals.org/content/early/2015/03/04/scipol.scv005.abstract

Optional/further reading

- Etel Solingen, "Domestic structure and the international context: Toward models of state-scientists interaction," in *Scientists and the States: Domestic Structures and the International Context*, Etel Solingen (ed), 1994, University of Michigan Press, pp 1-31
- Paul Cairney & Tanya Heikkila, "A Comparison of Theories of the Policy Process," in *Theories of the Policy Process,* 3rd edition, Paul Sabatier & Chris Weible (eds), 2014. Westview Press, pp 363-390
- Matthew C. Nowlin, "Theories of the Policy Process: State of the Research and Emerging Trends," *Policy Studies Journal*, 2011, Vol 39, S1, pp 41-60

Week 3

7 September

Guest lecture: Professor Anjali Bohlken on "IR Methods"

Group work on year-long project proposal

Week 4

14 September

IC Analytical Simulation

Optional/further reading

- Robert Kennedy, *Of Knowledge and Power: The Complexities of National Intelligence*, http://www.abc-clio.com/ABC-CLIOCorporate/product.aspx?pc=D4488C
- Jeff Richelson, *The Wizards of Langley*, https://www.amazon.com/Wizards-Langley-Directorate-Science-Technology/dp/0813340594
- H. Keith Melton, Henry R. Schlesinger, and Robert Wallace, *Spycraft: The Secret History of the CIA's Spytechs, from Communism to Al-Qaeda*, https://www.amazon.com/Spycraft-History-Spytechs-Communism-Al-Qaeda/dp/0452295475

Week 5

21 September

- US Defense establishment
- How S&T research programming and funding is done within the US federal government, the connections to strategy, and budget processes

Team and individual project proposals due electronically NLT 10AM directly to MEK with cc to snsp2017-2018@t-square.gatech.edu

- Discussion of project proposals

Readings

- OMB Memo on "FY 2019 Administration Research and Development Budget Priorities," 17 August 2017, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/m-17-30.pdf
- The U.S. National Security Strategy, https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf
- Dale C. Eikmeier, "A Logical Method for Center-of-Gravity Analysis," *Military Review,* September-October 2007, pp 62-66, http://www.armyupress.army.mil/Portals/7/military-review/Archives/English/MilitaryReview_20071031_art009.pdf
- Harry R. Yarger, "Toward A Theory Of Strategy: Art Lykke and the Army War College Strategy Model," Chapter 8 in *Guide to National Security Policy and Strategy*, 2nd edition. U.S. Army War College, June 2006, pp 107-113, http://marshallcenterciss.contentdm.oclc.org/cdm/ref/collection/p16378coll5/id/417
- "3rd Offset Strategy 101: What It Is, What the Tech Focuses Are," http://www.dodlive.mil/2016/03/30/3rd-offset-strategy-101-what-it-is-what-the-tech-focuses-are/
- Yuna Huh Wong, "Approaching Future Offsets," 21 December 2016, https://www.rand.org/blog/2016/12/approaching-future-offsets.html
- Margaret E. Kosal, *On the Role of Science Diplomacy in the 21st Century,* Remarks prepared for the 2nd Annual Neuriter Roundtable on Science Diplomacy, 18 December 2013, Washington DC *(to be distributed in class)*
- Richard A. Bitzinger, "Why China Should Fear the US Military's Third Offset Strategy," *The National Interest,* 28 August 2016, http://nationalinterest.org/blog/the-buzz/why-china-should-fear-the-us-militarys-third-offset-strategy-17505

Optional/further reading

- Robert Martinage, "Toward a New Offset Strategy: Exploiting U.S. Long-Term Advantages to Restore U.S. Global Power Projection Capability," 27 October 2014, http://csbaonline.org/research/publications/toward-a-new-offset-strategy-exploiting-u-s-long-term-advantages-to-restore
- Michael J. Mazarr, "Land Power and a Third Offset Through a Wide-Angle Lens," 21 May 2015, https://www.rand.org/blog/2015/05/land-power-and-a-third-offset-through-a-wide-angle.html
- Matthew E. Doyle, "Knowing the Center of Gravity is Not Enough: Critical Factors Analysis in the Operational Environment," 23 April 2008, http://www.dtic.mil/dtic/tr/fulltext/u2/a484350.pdf
- U.S. Army War College, *Guide to National Security Policy and Strategy,* 2nd Edition, J. Boone Bartholomees, Jr. (editor), June 2006, https://ssi.armywarcollege.edu/pdffiles/PUB708.pdf

- Lynn M. Williams & Pat Towell, "In Brief: Highlights of FY2018 Defense Appropriations Actions," Congressional Research Service, 2 August 2017, https://fas.org/sgp/crs/natsec/R44908.pdf

Week 6

28 September

Guest lecture: Dr. Jon Huang on "Explaining State Interest in and Choice of Military Investment in Emerging Sciences and Technologies"
- Scientists and engineers involved in policy creation, implementation, execution, and discussions

Readings
- Frank Gottron, "Science and Technology Issues in the 115th Congress," Congressional Research Service, 23 May 2017, https://fas.org/sgp/crs/misc/R44786.pdf
- John F. Sargent Jr., "Federal Research and Development Funding," Congressional Research Center, 14 August 2017, https://fas.org/sgp/crs/misc/R44888.pdf
- *Catch up on other readings*

Week 7

5 October
- Innovation & Institutions
- Revolutionary versus evolutionary technology development

Readings
- Secretary of Defense Ash Carter, Drell Lecture: "Rewiring the Pentagon: Charting a New Path on Innovation and Cybersecurity," http://www.defense.gov/News/Speeches/Speech-View/Article/606666/drell-lecture-rewiring-the-pentagon-chartinga-new-path-on-innovation-and-cyber
- Regina Dugam & Kaigham J. Gabriel, "'Special Forces' Innovation: How DARPA Attacks Problems." *Harvard Business Review,* October 2013, pp 75-84, https://hbr.org/2013/10/special-forces-innovation-how-darpa-attacks-problems
- J. Rogers Hollingsworth, "High Cognitive Complexity and the Making of Major Scientific Discoveries," in *Knowledge, Communication, and Creativity*, Arnaud Sales and Marcel Fournier (eds), 2007, Sage Publications, pp 129-155
- Lynne G. Zucker & Michael R. Darby, "Star Scientists and Institutional Transformation: Patterns of Invention and Innovation in the Formation of the Biotechnology Industry," *PNAS,* November 1996, pp 12709-12716, http://www.pnas.org/content/93/23/12709.full
- Mamoe Joeveer, "Estonia's Rise As A High-Tech Leader Boils Down To One Notion: Think Globally From The Start," *Forbes,* 31 December 2014,

http://www.forbes.com/sites/mamiejoeveer/2014/12/31/estonias-rise-as-a-high-tech-leader-boils-down-to-one-notion-think-globally-from-the-start/
- David H. Guston, "Innovation Policy: Not Just a Jumbo Shrimp," *Nature*, 21 August 2008, pp 940-941, http://www.nature.com/nature/journal/v454/n7207/pdf/454940a.pdf

Week 8

12 October
- Weapons of Mass Destructions (WMD), i.e., nuclear, chemical, and biological agents and weapons
- Nonproliferation, arms control, and disarmament
- International institutions

Readings
- George Shultz, William Perry, Henry Kissinger, & Sam Nunn, "Next Steps in Reducing Nuclear Risks," WSJ, 5 March 2013, http://online.wsj.com/article/SB10001424127887324338604578325912939001772.html or http://www.nti.org/analysis/opinions/next-steps-reducing-nuclear-risks-pace-nonproliferation-work-today-doesnt-match-urgency-threat/
- Keir A. Lieber & Daryl G. Press, "The New Era of Counterforce: Technological Change and the Future of Nuclear Deterrence," *International Security,* Vol. 41, No. 4 (Spring 2017), pp 9-49, https://www.belfercenter.org/publication/new-era-counterforce-technological-change-and-future-nuclear-deterrence
- Kathleen M. Vogel, "Revolution versus evolution? Understanding scientific and technological diffusion in synthetic biology and their implications for biosecurity policies," *BioSocieties,* Vol 9, No. 4 (Nov 2014), pp 365-392, http://www.ingentaconnect.com/content/pal/biosoc/2014/00000009/00000004/art00002
- GAO, "Chemical and Biological Defense: DOD Has Identified an Infrastructure Manager and Is Developing the Position's Roles and Responsibilities," GAO-17-522R, 7July 2017, https://www.gao.gov/products/GAO-17-522R
- Matthew Harries, "The Real Problem With a Nuclear Ban Treaty," Carnegie Endowment for International Peace, 15 March 2017, http://carnegieendowment.org/2017/03/15/real-problem-with-nuclear-ban-treaty-pub-68286
- M.E. Kosal, "Chemical Weapons Destruction and the Public Response," in *Towards the Elimination of the Chemical Weapons,* Haru, E. and Thakur, R. eds., UN University Press, Netherlands, 2006, pp 118-149 *(distributed in class/electronically)*

Optional/further readings
- OTA, *Technologies Underlying Weapons of Mass Destruction* (Washington, DC: OTA 1993), http://www.fas.org/spp/starwars/ota/934406.pdf

- Robert Gates, "Nuclear Weapons and Deterrence in the 21st Century," Remarks at the Carnegie Endowment for International Peace, 28 October 2008, http://carnegieendowment.org/files/1028_transcrip_gates_checked.pdf
- Sharon Squassoni, Disarming Libya: Weapons of Mass Destruction, Congressional Research Service, 22 September 2006, http://www.dtic.mil/dtic/tr/fulltext/u2/a475032.pdf
- Albert J. Mauroni, "Eliminating Syria's. Chemical Weapons," U.S. Air Force, Center for Unconventional Weapons Studies, Future Warfare Series. No. 58. June 2017, http://www.au.af.mil/au/cpc/pub/pdfs/monographs/58MauroniElimSyriaCW.pdf
- John Hart, "The Smoking Gun of Non-Compliance," *CBRNe World*, December 2015, pp 17-20, http://www.cbrneworld.com/_uploads/download_magazines/Syrias_Review_2015.pdf
- Sam Nunn, "Away from a World of Peril," Survival, February-March 2012, pp 234–244, http://www.tandfonline.com/doi/abs/10.1080/00396338.2012.657556
- Richard G. Lugar, "Nunn-Lugar: Science Cooperation Essential for Nonproliferation Efforts," Science & Diplomacy, March 2012, http://www.sciencediplomacy.org/perspective/2012/nunn-lugar
- Rich Kelly, "The Nunn-Lugar Act: A Wasteful and Dangerous Illusion," CATO Institute Foreign Policy Briefing, 18 March 1996, http://www.cato.org/publications/foreign-policy-briefing/nunnlugar-act-wasteful-dangerous-illusion
- Gregory D. Koblentz, "Pathogens as Weapons: The International Security Implications of Biological Warfare," *International Security*, Winter 2003/04, Vol 28, No 3, pp 84-122, http://belfercenter.ksg.harvard.edu/publication/346/pathogens_as_weapons.html
- Scott D. Sagan, "Why Do States Build Nuclear Weapons? Three Models in Search of a Bomb," *International Security,* Winter 1996/97, Vol 21 No 3, pp 54-86, http://www.mitpressjournals.org/doi/abs/10.1162/isec.21.3.54
- Joseph Cirincione, Jon Wolfsthal, Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, Second Edition Revised and Expanded, 2005
- *Globalization, Biosecurity, and the Future of the Life Sciences*, National Academies Press, Washington DC, free full pdf available at http://www.nap.edu/catalog.php?record_id=11567
- *Life Sciences and Related Fields: Trends Relevant to the Biological Weapons Convention,* 2011, National Academies Press, Washington DC, http://www.nap.edu/catalog.php?record_id=13130
- Richard G. Lugar, "Nunn-Lugar: Science Cooperation Essential for Nonproliferation Efforts," *Science & Diplomacy*, March 2012, http://www.sciencediplomacy.org/perspective/2012/nunn-lugar
- Ann M. Becker, "Smallpox in Washington's Army: Strategic Implications of the Disease During the American Revolutionary War," *The Journal of Military History*, April 2004, pp 381-430; http://muse.jhu.edu/journals/jmh/summary/v068/68.2becker.html

- Central Intelligence Agency, Directorate of Intelligence, "The Darker Bioweapons Future," OTI SF 2003-108, 3 November 2003, http://www.fas.org/irp/cia/product/bw1103.pdf
- Mary Beth D. Nikitin, "The Nuclear Ban Treaty: An Overview," Congressional Research Service, 10 July 2017, https://fas.org/sgp/crs/nuke/IN10731.pdf

Optional Podcast

- MIT Technology and Culture Forum with Joe Cirincione on "Bomb Scare: The History and Future of Nuclear Weapons," 13 December 2011, http://techtv.mit.edu/videos/16218-bomb-scare-the-history-and-future-of-nuclear-weapons

Week 9

19 October

Guest speaker: General Phil Breedlove, USAF (ret)

Briefing Books due noon Monday

Week 10

26 October

- WMD *(continued)*
- WMD Terrorism

Readings

- James J.F. Forest, "Framework for Analyzing the Future Threat of WMD Terrorism," *Journal of Strategic Security,* Winter 2012, pp 51-68, http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1193&context=jss
- Rolf Mowatt-Larssen, "Al Qaeda Weapons of Mass Destruction Threat: Hype or Reality?" January 2010, http://belfercenter.ksg.harvard.edu/files/al-qaeda-wmd-threat.pdf
- *Catch up on other readings*

Optional/further reading

- H. J. Jansen, F. J. Breeveld, C. Stijnis, and M. P. Grobusch, "Biological Warfare, Bioterrorism, and Biocrime," *Clinical Microbiology and Infection*, Volume 20, Issue 6, pp. 488-496, June 2014, http://onlinelibrary.wiley.com/doi/10.1111/1469-0691.12699/pdf
- Jonathan Tucker (editor), *Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons*, MIT Press, 2000
- CDC | Bioterrorism - Emergency Preparedness and Response Webpages, http://www.bt.cdc.gov/bioterrorism/

- *Biotechnology Research in an Age of Terrorism*, 2004, National Academies Press, Washington DC, http://www.nap.edu/catalog.php?record_id=10827

General resources and more readings on terrorism

- Bruce Hoffman, Inside Terrorism (2006 edition)
- Marc Sageman, Leaderless Jihad
- Jessica Stern, Terror in the Name of God: Why Religious Militants Kill
- Michael Scheuer (previously "Anonymous"), Through Our Enemies' Eyes: Osama bin Laden, Radical Islam, and the Future of America, (2006 edition)
- Jenna Jordan, "When Heads Roll: Assessing the Effectiveness of Leadership Decapitation," Security Studies, 2009, 18, pp 719-755
- Audrey Kurth Cronin, "How al-Qaida Ends: The Decline and Demise of Terrorist Groups," International Security, Summer 2006, 31, pp 7-48
- F. Gregory Gause III, "Can Democracy Stop Terrorism?" Foreign Affairs, September/October 2005, 84, pp 62-76
- Max Abrahms, "Why Terrorism Does Not Work," International Security, Fall 2006, 31, pp 42-78
- Robert F. Trager and Dessislava P. Zagorcheva, "Deterring Terrorism: It Can Be Done," International Security, Winter 2006/06, 30, pp 87-123

Week 11

2 November

- Emerging technologies

International S&T treaty, agreement, organization, or agency discussions

Readings

- David Resnik, "Neuroethics, National Security, and Secrecy," *American Journal of Bioethics*, May 2007, Vol 7, No 5, pp 15-14
- Ben Fitzgerald, Kelley Sayler, & Shawn Brimley, *Game Changers: Disruptive Technology and U.S. Defense Strategy,* CNAS Report, 27 September 2013, http://www.cnas.org/sites/default/files/publications-pdf/CNAS_Gamechangers_BrimleyFitzGeraldSayler.pdf
- Laurie Garrett, "Biology's Brave New World: The Promise and Perils of the Synbio Revolution," *Foreign Affairs,* Nov-Dec 2013, http://www.foreignaffairs.com/articles/140156/laurie-garrett/biologys-brave-new-world
- Kavita M. Berger & Jennifer Roderick, *National and Transnational Security Implications of Big Data in the Life Sciences*, AAAS Report, November 2014, http://www.aaas.org/report/national-and-transnational-security-implications-big-data-life-sciences
- Noah Shachtman, "How Technology Almost Lost the War: In Iraq, the Critical Networks Are Social - Not Electronic," *Wired,* 27 November 2007, Vol 15, http://www.wired.com/politics/security/magazine/15-12/ff_futurewar

Week 12

9 November
- Guest lecture: TBD

Week 13

16 November
- VTC with SOCOM
- Student presentations
- Spring Break DC Trip Planning

Week 14

23 November
- NO CLASS: Thanksgiving recess

Week 15

30 November
- Student Presentations
- Semester wrap-up and synthesis of topics covered
- Discussion of next semester

The CISTP conference room/library in 307 Habersham is available to members of this seminar for small group meetings, etc. The material in that room may be borrowed on an honor system basis for any purpose that interests you.

Final paper due 12 December

No Final Exam

One More Thought

Collaboration, sharing ideas, etc.

"Talk about your ideas. Help your colleagues work out their problems. Pay attention to what other people are doing, and see if you can learn something, or if you can contribute.

"Other than the mundane goal of getting your degree, you are in school to push back the frontiers of knowledge. You do this by generating and exploring new ideas. There is no way that you will ever be able to explore all of the ideas that you generate, but some of those ideas that you discard might be just what some of your colleagues are looking for.

"Human nature tends to make us want to hoard our own ideas. You have to fight against that. Human nature also tends to make us treat other people's ideas with disrespect. The closer the idea to our own area of research, the more likely some part of our brain will try to find fault with it. Fight against that even harder.

"You will find many people in academia who give in to the dark side. These Stealth Researchers never discuss what they are working on, except in vague and deceptive terms. They are experts at finding fault with the work of their colleagues. The Stealth Researcher writes papers that make very grand claims, but you can never quite figure out what they've accomplished and what they haven't. He is a master at omitting the key detail of the design or process that would enable others to follow his work. The Stealth Researcher is a knowledge diode, a roach motel for information. He has replaced the fundamental goal of discovery and publication with the twin evils of ego and empire.

"Be open about what you are working on. Be honest about what you've done, and even more honest about what you haven't. Don't ever hide an idea for fear that someone will steal it, even if you are talking to a Stealth Researcher. With patience, maybe we can cure them."

Prof Kristofer S.J. Pister
Electrical Engineering and Computer Science
UC Berkeley