INTRO TO GLOBAL WMD ISSUES

INTA 2042

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3 credits
MW 6:00 – 7:15PM
CULC 102

Overview
This course will explore the challenges of weapons of mass destruction (WMD). We will examine the characteristics and address the problems posed by nuclear, chemical, and biological weapons. Topics covered will include history and major theoretical frameworks relating to WMD, such as the development, use, and motivations of major state weapons programs and non-state actors. We will explore efforts to control technology, material, and knowledge – to limit proliferation – via multilateral agreements, initiatives, export control, and national legislation, particularly evaluating the efforts to limit “rogue” state and terrorist acquisition. Strategies and regimes for implementing compliance and verification will be considered, along with their limitations. Counterproliferation strategies to deter, deny, and passively or actively defend against nuclear, biological, and chemical weapons will be studied. Also examined will be proliferation concerns related to emerging technologies, e.g., space weapons, biotechnology, nanotechnology, and synthetic genomics.
**Learning Outcomes**

- Students will understand causal and determinant relationships between science and technology (S&T) and international affairs across different topic areas.
- Students will understand and learn about how S&T shaped the history of WMD, promising S&T developments related to global WMD issues, and pressing S&T challenges for the future in an international context.
- Students will demonstrate ability to apply concepts and multiple methodologies to explain phenomena in WMD security related to S&T.
- Students will understand and be able to assess relationships between organizational institutions, governance entities & structures (e.g., international agreements and institutions) and WMD, including organizations with S&T missions.
- Students will be able to use their knowledge of international affairs in a practical problem-solving way to address issues of immediate international concern.

**General Education**

- Learning Goal E: Social Sciences. Student will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.

**Course Materials**

Two texts are required:


Other short articles will be required reading; these will be announced in class and posted via the Canvas course website or distributed via the required class list serv.

**Class Requirements**

1) *Last Best Chance* film discussion questions (5%)
2) 1st Mid-term exam (30%)
3) 2nd Mid-term exam (30%)
4) Final Exam (30%)
5) Attendance (5%)

**Attendance and Participation**

You are expected to make reasonable efforts to attend all classes and participate actively. Attendance will be taken randomly throughout the semester. I recognize that both anticipated and unanticipated events may overlap with the regularly scheduled class. Attendance will be taken 11 random times throughout the semester. Students may miss one of those instances without incurring any effect on your attendance grade.
Grade Change Policy

Appeals for grade changes should be reasonable both in argument and submission time, i.e., within two weeks of return. Specific detailed information on grade change will be distributed upon return of assignments.

Academic Integrity

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

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 – purchasing a term paper or copying on an exam – to the subtle – 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. 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 undergraduate students and academics. 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.

More simply put: don’t cheat.

When in any doubt, give credit.

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

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 me after class or at your earliest convenience.
THE SYLLABUS IS DYNAMIC AND IS LIKELY TO BE UPDATED THROUGHOUT THE SEMESTER.

Course Calendar and Content

WEEK 1
7 & 9 January
Overview of the class, syllabus, and class requirements.
Introduction to current issues.
Atomic physics & start of the nuclear age

Required Reading:

Required Web Subscription:
  //or//
- Nuclear Policy News: A daily email of news clips from around the world on nuclear issues from the Center for Strategic and International Studies’ Project on Nuclear Issues, https://nuclearnetwork.csis.org/news-sign-up/
  //and//
– *Health Security Headlines*: a daily update on US and global health security from the Johns Hopkins Center for Health Security,
http://www.centerforhealthsecurity.org/resources/hsh/

**WEEK 2**
14 & 16 January

The nuclear revolution
Use at the end of World War II
Nuclear weapons complex, expansion, & testing
Nuclear proliferation

**Required Reading:**
– *Deadly Arsenals*, Chapter 1-3

**Optional Podcast:**
– MIT Technology and Culture Forum with Joe Cirincione on “Bomb Scare: The History and Future of Nuclear Weapons,” 13 December 2011,

**Optional Reading:**

**WEEK 3**
23 January

Nuclear terrorism

**Required Reading:**
– *Deadly Arsenals*, Chapter 14 &15
– *Toxic Terror*, Appendix

**Required Viewing:**
– Watch: *Last Best Chance & Nuclear Tipping Point*

**Browse:**
– Movie website: http://www.lastbestchance.org/
– Documentary website: http://www.nucleartippingpoint.org/home.html
WEEK 4
28 & 30 January

Arms control, disarmament, and nonproliferation
The Nuclear Non-Proliferation Treaty (NPT) & other treaties
Cooperative Threat Reduction (CTR)
The Iran nuclear deal

Required Reading:
- *Deadly Arsenals*, Chapter 6-10
- *Deadly Arsenals*, Chapter 11-13; Appendixes A (NPT), D (Nuclear Suppliers Group), E (CTBT)

Optional Reading:

WEEK 5
4 & 6 February

Chemical Weapons – the agents, first use in WWI, non-use in WWII

Required Reading:
- *Deadly Arsenals*, Chapter 4; Appendix C (CWC), sections in state chapters on CW program (Iran, Libya, North Korea, Israel, India, US, France, Russia, China, South Africa)

Browse:
Optional Reading:


**WEEK 6**
11 & 13 February

**1st EXAM – Monday, 11 February**

Chemical Weapons
State programs after WWII
CWC

**Required Reading (continued from Week 5):**

- *Deadly Arsenals*, Chapter 4; Appendix C (CWC), sections in state chapters on CW program (Iran, Libya, North Korea, Israel, India, US, France, Russia, China, South Africa)

**Browse:**


Optional Reading:


**Interim Grades due at beginning of Week 7, i.e., 18 February**

**WEEK 7**
18 & 20 February

Chemical Weapons - terrorism

**Required Reading:**

- *Toxic Terror*, Chapters 1, 5, 6, 9, 11, 12, & 14

**Optional Reading:**


**WEEK 8**

25 & 27 February

Biological Weapons – state programs from Kaffa to Sverdlovsk

**Required Reading:**

– *Deadly Arsenals, Deadly Arsenals*, sections in state chapters on BW program (Iran, Libya, North Korea, Israel, India, US, France, Russia, China, South Africa)

**Optional Reading:**


**WEEK 9**

4 & 6 March

Biological Weapons proliferation & nonproliferation efforts

Political and technical challenges of limiting and verifying biological weapons

**Required Reading:**

– *Deadly Arsenals*, Appendix B (BWC)

**Optional Reading:**


**WEEK 10**

11 & 13 March

WMD Destruction Programs

Libya & Syria

**Required Reading:**

Intro to Global WMD Issues


Optional Reading:

2nd EXAM – Wednesday, 13 March

WEEK 11
18-22 March Spring Break

WEEK 12
25 & 27 March

Biological Weapons – terrorism from Aum Shinrikyo to Amerithrax

Required Reading:
- Toxic Terror, Chapters 7, 8, 10, & 13

Optional Reading:
US policy responses to proliferation concerns and the terrorist threat of WMD
Dark Winter & Atlantic Storm table-top exercises
DHS TOPOFF Full-scale exercises

Required Readings:

Optional Reading:

WEEK 13
1 & 3 April
Missiles & Delivery Vehicles
DPRK
Space Weapons

Required Readings:
- Deadly Arsenal, Chapters 5 & 17
Browse:

Optional Reading:

WEEK 14
8 & 10 April
- Catch-up week

Week 15
15 & 17 April

Future WMD
Emerging technologies: synthetic biology, nanotechnology, and trans-humanism

Required Reading:

Optional Reading:
- Christopher Chyba and Alex Greninger (*who was a political science undergrad at the time he co-authored the article*), “Biotechnology and Bioterrorism: An Unprecedented World,” *Survival*, January 2004, vol 46, pp 143-162,
http://cisac.stanford.edu/publications/biotechnology_and_bioterrorism_an_unprecedented_world/


**Week 16**
22 April

Review for final exam

*FINAL EXAM     Monday, 29 April 6 – 8:40 PM*
One Last 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