INTRO TO GLOBAL WMD ISSUES
INTA 2042

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

3 credits
MW 11AM – 12:15PM
IC 209
Office hours TBD & by appointment
Habersham 303
nerdgirl@gatech.edu

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 Mantra**

Semper Gumby, aka always flexible.

**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) Weekly writing prompts and exercises (50%)
2) Analytical Essays 1 (15%)
3) Analytical Essays 2 (15%)
4) Analytical Essays 3 (20%)

**Attendance and Participation**

You are expected to make reasonable efforts to attend all classes. I recognize that both anticipated and unanticipated events may overlap with the regularly scheduled class time. If you’re sick, please stay home.
**COVID-19 Adjustments**

Masks are required in class. Social distancing is required. Attendance will be taken due to the global pandemic for potential contact tracing, if needed. We will have a seating chart to enable contact tracing. If you are not feeling well, don’t attend class physically. No doctor’s note will be required. I reserve the right to make changes throughout the semester. Semper Gumby.

**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.

**Arriving Late and Departing Early**

While I recognize that both anticipated and unanticipated events may overlap with the regularly scheduled class, if you have an ongoing conflict that occurs at the same time as this class, perhaps you should reconsider. Repeated tardiness reflects poorly on you and can disrupt the entire class. If you ask to depart my class early for another event, you are communicating what is your priority. I reserve the right to make attendance a portion of the grade and penalize for lateness if it is a reoccurring problem.

**Electronic Devices**

They are allowed. My right to rescind is reserved. It has been found that use of electronic devices can hinder learning and impact your grade, see e.g., “Checking phones in lectures can cost students half a grade in exams” and primary data included therein, https://phys.org/news/2018-07-students-grade-exams.html. The other problem is rudeness or the unintended perception of rudeness, which is especially bad when/if we have guest speakers. Unfortunately, this has been a problem in the past on multiple occasions, so it now gets a section in the syllabus.

**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 at your earliest convenience.

THE SYLLABUS IS DYNAMIC AND IS LIKELY TO BE UPDATED THROUGHOUT THE SEMESTER.
Course Calendar and Content

WEEK 1
17 & 19 August
Overview of the class, syllabus, and class requirements.
Introduction to current issues.
Atomic physics & start of the nuclear age

Required Reading:
- Director of National Intelligence (DNI) Coat’s Statement for the Record of the Worldwide Threat Assessment of the US Intelligence Community, [This is the most recently available document. The testimony (& accompanying report), which was scheduled for February 2020, was delayed by the administration.] https://www.dni.gov/files/ODNI/documents/2019-ATA-SFR---SSCI.pdf

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//

WEEK 2
24 & 26 August
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
- Albert Einstein’s Letter to Pres FD Roosevelt, 2 August 1939, https://www.osti.gov/opennet/manhattan-project-history/Events/1939-1942/einstein_letter.htm *(ne sure you look at the actual letter, not just the DOE write-up)*

Optional Podcast:

Optional Reading:


WEEK 3
31 August & 2 September

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

Required Reading:

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

Optional Readings:

WEEK 4
7 & 9 September

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/
- Movie available: https://youtu.be/_ivuqILMeRI
- Documentary website: https://www.nti.org/about/projects/nuclear-tipping-point/

WEEK 5
14 & 16 September

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
21 & 23 September
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:

*Analytical Essays #1 due NLT Monday, 21 September 12:15PM*

*Interim Grades due at beginning of Week 7, i.e., 28 September*
WEEK 7
28 & 30 September
Chemical Weapons - terrorism

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

Optional Reading:

WEEK 8
5 & 7 October
Biological Weapons – state programs from Kaffa to Sverdlovsk

Required Reading:
- *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
12 & 14 October
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
19 & 21 October

WMD Destruction Programs
Libya & Syria

Required Reading:


Optional Reading:


WEEK 11
26 October

Analytical Essays #2 due NLT Monday, 26 October 12:15PM
28 October
<catch-up day>

**WEEK 12**
2 & 4 November

Biological Weapons – terrorism from Aum Shinrikyo to Amerithrax
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 Reading:**
- *Toxic Terror*, Chapters 7, 8, 10, & 13
- FoxNews.com, “Smallpox Attack Exaggerated,” 10 July 2003,
  https://www.foxnews.com/story/smallpox-attack-exaggerated
  http://www.sciencemag.org/cgi/content/summary/296/5573/1592

**Optional Reading:**
- Tara O’Toole, Michael Mair, and Thomas Inglesby, “Shining Light on ‘Dark Winter’,” *Clinical Infectious Diseases*, April 2002, vol 34, pp 972-983,

**WEEK 13**
9 & 11 November

Missiles & Delivery Vehicles
DPRK
Space Weapons

**Required Readings:**
- *Deadly Arsenals*, Chapters 5 & 17

Browse:

Optional Reading:

WEEK 14
16 & 18 November
Future WMD
Emerging technologies: synthetic biology, nanotechnology, and more!

Required Reading:

Optional Reading:
Week 15
23 November

Wrap up & review

*Analytical Essays #3 due NLT Friday, 4 December 2:10 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