



## INTA 2040

### Science, Technology, and International Affairs

3.0 Credits

Fall 2014

Monday, Wednesday, and Friday, 3:05pm – 3:55pm

Instructional Center 105

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Office Hours: Wednesday 11:00am – 1:00pm or by appointment

#### Course Description:

Science, technology, and international affairs are intricately linked: technology development cannot be viewed apart from its political and strategic context, and international policy development will be incomplete or ineffective if awareness of relevant science and technology is lacking. This course will investigate these issues, and provide multiple examples of the ways science and technology can affect international affairs and vice versa. We will look at the role of science and technology in understanding historical development and differences among nations. We will then look at two particular international issues with strong international components as case studies. The first will examine the development of nuclear weapons, efforts at nuclear diplomacy, and current debates on nuclear weapons (non-proliferation, elimination, etc.). The second case study will focus on climate change, demonstrating the often complex relationship between science and policy and incorporating a class-wide international climate negotiation simulation. In addition, students will also have an opportunity to apply these concepts to current events and to their own interest areas as part of a small group project and presentation.

#### Course Objectives:

- Student will demonstrate the ability to describe the social, political, and economic forces that influence social behavior.
- Student will demonstrate the ability to describe the social, political, and economic forces that influence the global system.
- Students will demonstrate the ability to describe the causal and determinant relationships between science and technology (S&T) and international affairs across different topic areas.
- Students will be able to express their arguments clearly and effectively both in written reports and in their research and oral presentations.
- 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.
- Students will understand how science and technology affect (are affected by) political and strategic relationships among nations.
- Students will demonstrate the ability to identify and analyze an international science and technology issue in depth.

**Required Course Texts:**

Diamond, Jared. *Guns, Germs, and Steel: The Fates of Human Societies*. W. W. Norton & Company, 2005.

Cirincione, Joseph. *Bomb Scare: The History and Future of Nuclear Weapons*. Columbia University Press, 2008.

Nordhaus, William. *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. Yale University Press, 2013.

**Optional Course Texts:**

*We will only read a few chapters from these books, and they have been placed on reserve at the Library, so you do not need to purchase them.*

Muller, R. *Physics and Technology for Future Presidents: An Introduction to the Essential Physics Every World Leader Needs to Know*. Princeton, NJ: Princeton UP, 2010.

Additional required materials (articles, videos, etc.) will be assigned, and can be accessed online through open-access webpages, the Georgia Tech library, or the T-square course website.

**Grade Distribution:*****10% Class Participation (not just attendance!)***

This course will include discussion on a regular basis, drawing upon the readings and lecture material. The value of these discussions is entirely dependent on the preparation and engagement of the students in the class. To get full credit for class participation, you must, on a consistent basis, attend class, be prepared for discussion, and engage fully with your classmates.

***40% Two Exams (20% each)***

An exam will be given after each of the first two sections of the course, addressing the material covered in the preceding section. The exams will assess student understanding of issues covered in lecture and required readings. Exams may include multiple choice, short answer, and/or long answer questions.

***20% Group Presentation***

Students will work in small groups to investigate an international science and technology-related issue. Based on this research, each group will give a short presentation that provides a summary of the issue, including its key scientific or technical components, differing values or political positions, policy options, and implications for international relations.

***30% Final Exam***

The final exam will be cumulative, covering material from the entire course, including lectures and readings from all sections as well as student presentations. Students will be expected to demonstrate understanding of individual issues covered as well as overarching themes addressed in the course.

**Class Schedule:**

<b>Week</b>	<b>Dates</b>	<b>Topic</b>	<b>Assignments</b>
<b>Part 1: Science, Technology, and International Development</b>			
1	<b><i>Introduction to Science, Technology, and International Affairs</i></b> <b><i>Guns, Germs, and Steel: Rise and Spread of Food Production</i></b>		
	Aug. 18	Introductions	
	Aug. 20	Why is the world unequal?	Diamond: Prologue, Ch 1-3
	Aug. 22	Development of Farming	Diamond: Ch. 4-6
2	<b><i>From Food to Guns, Germs, and Steel</i></b>		
	Aug. 25	Domestication of Plants and Animals	Diamond: Ch 7-10
	Aug. 27	Germs, Language	Diamond: Ch. 11-12
	Aug. 29	Technology, States	Diamond: Ch. 13-14
3	<b><i>Around the World: Applying a Theory</i></b>		
	Sept. 1	<i>No Class, Labor Day</i>	
	Sept. 3	Oceania and Asia	Diamond: Ch. 15-17
	Sept. 5	Americas and Africa	Diamond: Ch. 18-19
4	<b><i>Science, Technology and International Development Today</i></b>		
	Sept. 8	Diamond: Questions and Criticism	Diamond: Epilogue, 2003 Afterward “Guns Germs and Steel Reconsidered,” InsideHigherEd, 2005
	Sept. 10	Exam 1	
	Sept. 12	“The Moment in Time: The Manhattan Project” (Documentary)	Documentary (online)
<b>Part 2: Nuclear Weapons and International Affairs</b>			
5	<b><i>Nuclear Weapons Technology</i></b>		
	Sept. 15	Building a Nuclear Bomb	Cirincione: Ch. 1 Muller: Ch. 5 (Reserves)
	Sept. 17	Effects of a Nuclear Bomb	Muller: Ch 4 (Reserves)
	Sept. 19	History of Nuclear Weapons and Non-Proliferation	Cirincione: Ch. 2-3
6	<b><i>Nuclear Weapons Policy</i></b>		
	Sept. 22	Why States Want Nuclear Weapons	Cirincione: Ch. 4
	Sept. 24	Today’s Nuclear World	Cirincione: Ch. 5, 6
	Sept. 26	“Countdown to Zero” (Documentary)	Documenary (online)
7	<b><i>Nuclear Weapons: Additional Challenges</i></b>		
	Sept. 29	Nuclear Weapons and Nuclear Energy	Readings on T-Square
	Oct. 1	Other WMDs	Readings on T-Square
	Oct. 3	Future of Nuclear Policy	Cirincione: Ch. 7-8
8	<b><i>Nuclear Weapon Debates</i></b>		
	Oct. 6	How Many Nuclear Weapons Should the U.S. Have?	Readings on T-Square
	Oct. 8	Can a Terrorist Get a Nuclear Weapon?	Readings on T-Square
	Oct. 10	How Should the U.S. Respond to Iran and	Readings on T-Square

		North Korea?	
9	<b><i>Nuclear Weapons</i></b>		
	Oct. 13	No Class: Fall Break	
	Oct. 15	Exam 2	
	Oct. 17	Group Presentation Work Day	
<b>Student Presentations</b>			
10	Oct. 20, 22, 24	Student Presentations	Presentations
11	Oct. 27, 29, 31	Student Presentations	Presentations
<b>Part 3: Global Climate Change</b>			
12	<b><i>Climate Change: Science, Feedbacks, Impacts</i></b>		
	Nov. 3	Science of Climate Change	Nordhaus: Ch. 1-4 Oerskes, "What is Proof"
	Nov. 5	Feedback Loops, Tipping Points	Nordhaus: Ch. 5
	Nov. 7	Impacts	Nordhaus: Ch. 6-12
13	<b><i>Climate Change Policy Options</i></b>		
	Nov. 10	Adaptation, Geoengineering	Nordhaus: Ch. 13
	Nov. 12	Mitigation	Nordhaus: Ch. 14
	Nov. 14	Policy Challenges	Nordhaus: Ch. 15-16
14	<b><i>Climate Change Politics</i></b>		
	Nov. 17	International Regime	Norhaus: Ch. 17-23
	Nov. 19	Climate Policies: U.S., China	Readings on T-Square
	Nov. 21	Climate Policies: Europe, Australia	Readings on T-Square
15	<b><i>Future of Climate Policy</i></b>		
	Nov. 24	Future of Climate Change Policy Intro to Negotiation Simulation (Countries assigned)	Readings on T-Square
	Nov. 26	Preparation for Climate Simulation	
	Nov. 28	No Class: Thanksgiving	
16	<b><i>Climate Change Negotiation Simulation</i></b>		
	Dec. 1	Climate Change Negotiation	
	Dec. 3	Climate Change Negotiation	
	Dec. 5	Wrap-up and Discussion	
<b>Final Exam</b>			
	Dec. 10	Final Exam (2:50pm-5:40pm)	Final Exam

### Academic Honesty

Students in this class are expected to abide by the Georgia Tech Honor Code and avoid any instances of academic misconduct. In particular, plagiarism of any sort, in any writing, will not be tolerated. Plagiarizing is defined by Webster's as "to steal and pass off (the ideas or words of another) as one's own: use (another's production) without crediting the source."

If caught plagiarizing, you will be dealt with according to the GT Academic Honor Code.

For any questions involving these or any other Academic Honor Code issues, please consult me or [www.honor.gatech.edu](http://www.honor.gatech.edu).