

## **INTA 4050/8803 -- International Affairs & Technology Policy**

Spring 2011

Tuesday & Thursday, 4:35 – 5:55

Instructional Center – Rm 117

Prof. Seymour Goodman, [goodman@cc.gatech.edu](mailto:goodman@cc.gatech.edu)

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Office Hours: Tuesday 3:00 – 4:30, and by appointment

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### **Objective:**

From the Industrial Revolution through the Information Revolution science and technology have generated risks and opportunities that have transformed the world. The paths from scientific discovery and technological innovation to implementations with huge impacts on nations and societies are highly dependent on social, economic, and institutional factors and policy decisions and their implementations. We will study several important and exemplary cases.

Emphasis will be placed on exercises that stress oral and written communications, critical analysis, and analysis-based advocacy.

The subject matter of this course is dynamic, and the syllabus will change during the semester. What follows is current as of March 10. Updates will be via T-Square and the class list.

### **Readings:**

Except for the NRC study, the following books are available at the Engineer's Book Store:

- William C. Davis, *Duel Between the First Ironclads*, 1975. Paperback edition. ISBN 0-8071-0868-5
- Richard Rhodes, *The Making of the Atomic Bomb*, 1988. There is a paperback edition in print. ISBN 0-671-65719-4
- Richard A. Muller, *Physics for Future Presidents*, 2008. ISBN 978-0-393-06627-2
- William A. Owens, Kenneth W. Dam, Herbert S. Lin (eds), *Technology, Policy, Law, and Ethics Regarding U.S. Acquisition and Use of Cyberattack Capabilities*, Computer Science and Telecommunications Board, National Research Council, Washington, DC, 2009. This may be viewed and obtained via the National Academies Press at [www.nap.edu](http://www.nap.edu).

The readings assigned below should be done by the date under which they are listed. Other short readings will be assigned throughout the semester. Links to two are below. Additional links may be placed on T-Square.

- Schneier, Bruce. Selected essays from Cyberwar/Cybercrime  
<http://www.schneier.com/essays-cybercrime.html>
- Lynn, William, Defending a New Domain: The Pentagon's Cyberstrategy, 2010. <http://www.foreignaffairs.com/articles/66552/william-j-lynn-iii/defending-a-new-domain>
- Bush, Vandaveer. *Science, The Endless Frontier*, 1945 (on line sources)

### **Grade Distribution:**

30% class participation  
45% short papers and team exercises  
25% Individual undertakings (to be explained)  
Graduate students will be graded on a modified scale

### **Classroom Affairs:**

In most classes, a sheet will be circulated for your signature. Signing will constitute an honor code statement to the effect that you read all of the assigned material for that class.

Attendance matters, at least partly as a basic courtesy to the people who are giving their valuable time to help educate you. Absences will be excused if it is due to a medical emergency, a religious holiday, or some other extenuating circumstance.

"By continued enrollment in the class, students agree to practice a 'click-free,' 'flicker-free' and 'noise free' environment for fellow students. They agree that mobile devices such as phones, Blackberries, etc. will be silenced and unused during class. Students agree to forebear from the use of computers during the class for e-mail, web-surfing, gaming, etc." (Baskerville)

We take the honor code seriously in this class. If you have **ANY** questions regarding plagiarism or the honor code please contact Jessica Gibson or Dr. Goodman.

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## **Week 1**

Jan 11: Georgia Tech closed, snow and ice storm

Jan 13: The path traveled from a basic scientific or engineering concepts to a world changing impact. An analytic framework for studying the science/ technology/ policy/ policy implementation in their larger politics/ social/ economic/ institutional contexts. Preview of the syllabus.

## **Week 2**

Jan 18: What is technology? Policy? The industrial revolution; technology and industry at the start of the American Civil War; USA and CSA strategies. Science and technology: impact on states and societies in the 20<sup>th</sup> Century. Atoms to atomic bombs. Fundamental science to the policy decision to pursue a nuclear weapon.

Read: Rhodes Chs 1-2; Davis Chs 1-2; maps distributed

*Teams formed to work on the paths from the Mallory policy decision to the confrontation at Hampton Roads*

Jan 20: Continuation of discussion of Jan 18 subject matter.

Read: Davis Chs 3-4

## **Week 3**

Jan 25: Recommended: "Playing Our Game: Why China's Rise Doesn't Threaten the West," Prof. Steinfeld, MIT, 12 noon SSC Rm A (lunch)

Regular class: from the Mallory policy to Hampton Roads.

Read: Davis Chs 5-9

*Due: Team process charts and analyses*

Jan 27: Continued discussion of the M&M policy process and implementation

Read: Davis Chs 10-12; Rhodes Ch 3

*Map Quiz (Davis and Rhodes)*

## **Week 4**

Feb 1: A policy analysis of our case study of the M&M?

Consequences after Hampton Roads. The Civil War as a "revolution in military affairs."

*Due: Select 2 of the 6 questions from our policy analysis list and address them together in a two page essay. You may consider either the USA or CSA, or write a comparative analysis.*

Feb 3: Completion of our M&M case study.

What is cyberspace?

Discussion of individual presentations after the Spring Break

Feb 3: CISTP Lecture. 12:30-2. Student Success Center, Mark Ward, Deputy Assistant Administrator, U.S. Agency for International Development.  
**“Humanitarian Disaster Relief: Capacity, Challenges and Opportunities for Technological Innovation”** This talk covers subject matter within the purview of what our course is about and you are encouraged (but not required, although some extra credit will be given) to attend.

### **Week 5**

Feb 8: Proposition: Cyberspace is the 5<sup>th</sup> major domain for human activity.  
Due: *1-page papers pro or con on this proposition.*  
Conflict in cyberspace  
Read: 12 Schneier essays of your choosing.

Feb 10: Conflict in cyberspace, cyberwar  
Due: *1 page talking points papers on forms of conflict in cyberspace*  
Read: Lynn article; 10 more Schneier essays;

### **Week 6**

Feb 15: Cyber crime and cyberwar  
Due: *another 1 page talking points paper on conflict in cyberspace with a focus on your thoughts on how USG policies might make a difference.*

Feb 15: Dr. Herbert Lin, National Research Council  
“Technology, Policy, Law...” noon-1:30  
The National Research Council and its recent cyber studies, 1:30-3:00.  
Both sessions will be in the SSC Press Rooms A&B  
As discussed for the Ward lecture Feb 3, since this does not meet at our designated time, attendance is encouraged but not required.

Feb 17: The path to the Einstein letter and Roosevelt decision  
Read: Rhodes Chs 1-10  
Due: *Team path charts and analyses*

### **Week 7**

Feb 22: Einstein, the Roosevelt decision and near term aftermath.  
Contrast with the German start.

Feb 24: Internet Political Dissent and Censorship lectures, 2:00- 5:30, TSRB  
Read: Rhodes Chs 11-14; Muller Ch 10.

## **Week 8**

Mar 1: Discussion of lectures on Internet and Political Dissent and Censorship

Start: Roosevelt's decision to the establishment of Los Alamos

Read: Rhodes Chs 11-14;

*Due: 1 page essay on the 2/24 Internet lectures*

*Team process charts and analyses*

Mar 3: The establishment of Los Alamos, Oak Ridge and Hanford

Read: Rhodes Chs 15-17

## **Week 9**

Mar 8: Government-driven technological development. Radar and computing: two major technological advances during WWII that had little or no pre-war precedent..

Final selection of individual presentation subjects.

Mar 10: From the establishment of the 3 labs to dropping the bombs

What makes for a good presentation?

Read: Rhodes 17-19

*Due: Team process charts and analyses*

## **Week 10**

Mar 15: Trinity to the Cold War nuclear race

Read: Rhodes Epilogue; Muller Ch 11.

*Due: Team process charts and analyses*

Mar 17: The institutionalization of R&D for the national well-being.

The classic example of a policy advocacy report

Read: Bush, *Science, The Endless Frontier*

## **Week of March 21 = Spring Break**

## **Week 11**

Mar 29: Energy: Nuclear (Ro)

Read: Muller Chs 12-14

Mar 31: Energy: Oil and Solar (Ko)

Read: Muller Chs 5-7

## **Week 12**

April 5: Conclude energy security discussion

Start civil aviation security (V&H)

Read: Muller Ch 1.

April 7: Civil Aviation Security (V&H)

Read: Muller Ch 3; readings to be assigned by V&H

## **Week 13**

April 12: Privacy in Cyberspace (Ke)

April 14: Censorship and Political Control in Cyberspace (Sa)

## **Week 14**

April 19: Space (A&B)

Read: Muller Chs 15-18

April 21: Nanotech (RJ)

## **Week 15**

April 26: Global Warming (Ho)

Read: Muller Chs 19-25.

April 28: Hot wash