INTA 8001, Science, Technology and International Affairs

Spring 2011

Spring 2011
Tuesday, 12:05 – 2:55
117 Habersham

Prof. Seymour Goodman, goodman@cc.gatech.edu
302 Habersham, 5-1461
Office Hours: Tuesday 3:00 – 4:30, and by appointment
Bernard Gourley, Bernard.gourley@inta.gatech.edu

Grades: 1) class participation and short assignments (55); 2) semester project (45). All assignments are due on the dates under which they are listed.

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
- 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.

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

This syllabus is current as of March 10, 2011. It my change as opportunities or necessities arise.

Week 1

Georgia Tech closed due to snow and ice storm

Week 2
Jan 18: The path traveled from basic scientific or engineering concepts to world changing impact. An analytic framework for studying the science/ technology/ policy/ and policy implementation dimensions in their broader political/ social/ economic/ institutional contexts.

Preview of the syllabus. Discussion of the semester projects.

Scientists and engineers as policy advisors to national and international leadership.

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 20th Century.

Read: Rhodes Chs 1-4; Davis Chs 1-2; maps distributed
Teams formed to work on the paths from the Mallory policy decision to the confrontation at Hampton Roads

Week 3
Jan 25: "Playing Our Game: Why China's Rise Doesn't Threaten theWest,"
Prof. Steinfeld, MIT, 12 noon SSC Rm A (lunch)

Regular class from approximately 1:30:
From the Mallory policy to Hampton Roads.
Tentative selection of semester projects.
Read: Davis Chs 3-6

Week 4
Feb 1: The race to Hampton Roads and beyond. The CW as a "revolution in military affairs" (technology + doctrine + institutions) and the provision of R&D and advice to political and military leadership.

Due: Team process charts and analyses
Team selections; start work on the path -> Einstein letter, Roosevelt decision
Read: Davis Chs 7-12

Feb 3: Mark Ward, U.S. Agency for International Development. Time and place TBA.
Read: Rhodes Chs 5-8

Week 5
Feb 8: Conflict in cyberspace
Final selection of semester projects
Read: Lynn; any 20 Schneier essays

Week 6

Feb 15: Dr. Herbert Lin, National Research Council

"Technology, Policy, Law…"
The National Research Council and its recent cyber studies
This class will start with a public presentation and then adjourn into a private session with Dr. Lin.
Read: Skim NRC book

Dr. Lin will also speak at 4:30 on
How the US Government makes technology policy

Week 7

Feb 22: The path to the Einstein letter and Roosevelt decision

Read: Rhodes Chs 1-10
Due: Team path charts and analyses

Week 8

Mar 1: From the Roosevelt decision to the creation of Los Alamos

Read: Rhodes Chs 11-14
Discussion of semester projects
Due: Team process charts and analyses

Week 9

Mar 8: Los Alamos to the Trinity test

Status reports on semester projects
Read: Rhodes 15-18
Due: Team process charts and analyses

Week 10

Mar 15: Trinity to the Cold War nuclear race

Status reports on semester projects
Read: Rhodes Ch 19 and Epilogue;
Due: Team process charts and analyses

Week of March 21 = Spring Break

Week 11.
Mar 29: The institutionalization of R&D for the national well being
Read: Bush, *Science, the Endless Frontier*

Week 12.
April 5: Semester Project Presentations
The Pharma R&D Puzzle (Heather and Diane)
UAVs (Todd)
Earthquake Response (Karthik)

Week 13.
April 12: Semester Project Presentations
Cyber Power (Greg)
Broadband (Ian)
International Air Pollution (Richard)

Week 14.
April 19: Semester Project Presentations (DB)
Bio-fuels (Duane)
German Energy Security vis a vis Russia (Deji)
Improved Agent Based Simulation (Tarun)

Week 15.
April 26: Semester Project Presentations
Oil Sands (Jackson)
International S&T Cooperation, Space Station (Curtis)
High Explosive Technologies and WWI (Paul)

Week 16.
May 1-5. Class trip to Washington DC.