Science and Technology Policy
HSS 230
Fall 2009, KAIST
Wednesday & Friday, 11:00 am - 12:15 pm
N4 Building 1124

INSTRUCTOR: Prof. Buhm Soon Park (박범순)
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- Office hour: Before or after the class or by appointment
- Course website: http://hss.kaist.ac.kr/menu3/menu3_1.html

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COURSE DESCRIPTION
Should science be a tool to be exploited for the government’s benefit, or should it be funded for its own sake? How could one facilitate the transfer of technology from university laboratories to industrial corporations? In this introductory course on science and technology policy, we will explore how the development of science and technology can influence and be influenced by public policy by examining various cases in the U.S. Students will learn the changing inter-relationship between science and politics and analyze the role played by various participants—scientists, government officials, and lay people—in the policy-making process.

This course is designed for those who do not have much experience in reading policy books and analyzing historical cases. The weekly worksheets will guide students to manage the reading assignments, and the historic photos and documentary films will be used in class to help them follow my lectures. The student participation is essential to class activities, including presentations of reading materials and research projects. The students should be prepared to answer or raise questions in class, as I will often mix lectures with discussions.

COURSE REQUIREMENTS AND GRADING
- Class attendance: 10 %
- Participation in discussion: 10 %
- Presentation as a group: 10 %
- 10 weekly worksheets: 30 %
- 2 short essays (2-3 pages, double-spaced): 20 % (each 10 %)
- Final exam: 20 %
THE ASSIGNMENTS

- **Presentation and participation in discussion:** You are required to complete the reading assignment before the start of the class. To facilitate the student’s participation, I will raise a general question about the reading or frequently ask the students to give their thought on it. You will be given an opportunity to give presentations on selected subjects. In short, you should be prepared for discussion in class.

- **Weekly worksheets (1-2 pages, single-spaced):** To help you not to be drowned in the sea of facts, I will give 3-4 keywords for you to write each item’s definition (when, who, where, what, etc.) and historical significance in 2-3 sentences. This is the first part of the worksheet. The second part is to write a paragraph-length answer to the question I pose. The third part is to raise thought-provoking, open-ended questions on readings or films. **Note:** (1) The weekly worksheet will be graded and is due by **each Wednesday in class** (the late worksheet will get a penalty); (2) **Do not plagiarize** or make an exact copy of expression from texts or internet sources.

- **Short essays (2-3 pages, double-spaced):** This is intended to improve your writing skills by analyzing the texts. I will provide the question and the reading materials in advance. Your essay should convey your **original idea**, fully edited for spelling, grammar, and others.

- **Final examination:** It covers the whole semester. Weekly worksheets will be useful for your preparation.

REQUIRED READINGS

- **Text**
  - Clark Kerr, *The Uses of the University*, 5th ed. (Harvard University Press, 2001)

- **Text materials assigned for reading will be available to purchase at the copy room in the library**

- **Additional readings will be handed out in class**
COURSE SCHEDULE

Week 1: Introduction
- 9/2: Course preview: What is science and technology policy?
- 9/4: The dilemmas of science, health, and public policy
  - Film: Typhoid Mary

Week 2: Science Policy and Government: An Overview
- 9/9: An uneasy relationship between science and politics (Worksheet #1 due)
- 9/11: Historical background: Organizing research activities before 1850

Week 3: The Transformation of the University
- 9/16: The rise of research universities in the U.S (Worksheet #2 due)
  - Reading: Kerr, “Chapter 1: The Idea of a Mutiversity,” pp. 1-7
  - Reading: Geiger, “Chapter 1: The Shaping of the American Research University, 1865-1920,” pp. 1-20
- 9/18: The federal grant university
  - Reading: Kerr, “Chapter 2: The Realities of the Federal Grant University,” pp. 35-52

Week 4: The Academic-Industrial Relations
- 9/23: Chemical engineering at MIT (Worksheet #3 due)
  - John W. Servos, “The Industrial Relations of Science: Chemical Engineering at MIT, 1900-1939,” Isis, 1980, 71:531-549
- 9/25: Inventors and scientists
  - Film on Edison

Week 5: Science Advising during World War I
- 9/30: Choosing Robert Milikan or Thomas Edison? (Worksheet #4 due)
  - Reading: Kevles, “Chapter 8: War Should Mean Research” and “Chapter 9: The War Work of the Physicists,” pp. 102-126
- 10/2: Choosuk—No class

Week 6: Technocracy and Democracy
- 10/7: Support of science during the Great Depression (Worksheet #5 due)
  - Reading: Kevles, “Chapter 17: The New Deal and Research”
- 10/9: The Manhattan project and the wartime mobilization of science

Week 7: Devising Postwar Science Policy
- 10/14: Harley M. Kilgore vs. Vannevar Bush (Essay #1 due)
10/16: Film on dropping the A-bomb

Week 8: Mid-Term Period, no class

Week 9: Science and the Cold War
10/28: The Sputnik shock (Worksheet #6 due)
   Reading: Marcus and Bix, “Chapter 1: In the Beginning,” pp. 23-42
   Film on Sputnik
10/30: The Kennedy administration
   Reading: Marcus and Bix, “Chapter 1: In the Beginning,” pp. 42-59

Week 10: The Politicization of Science
11/4: The 1960s: The end of honeymoon for science (Worksheet #7 due)
   • Reading: Kelves, “Chapter 24: New Revolt Against Science”
11/6: Policy disarray
   • Reading: Kelves, “Chapter 25: A Degree of Disestablishment”

Week 11: Environmental Policy
11/11: The creation of EPA (Worksheet #8 due)
   • Reading: Marcus and Bix, “Chapter 2: Coming Apart,” pp. 116-134
11/13: Citizens and NGOs
   • Reading: Phil Brown, “When the Public Knows Better: Popular Epidemiology Challenges the System,” Environment, 1993, 35:16-41

Week 12: Science and Risk
11/18: The recombinant DNA Controversy (Worksheet #9 due)
   • Reading: Marcus and Bix, “Chapter 2: Coming Apart,” pp. 134-151
   • Film on the development of recombinant DNA technology
11/20: The Human Genome Project
   • Greif and Merz, “Chapter 2: Big Science: the Human Genome Project and the Public Funding of Science”

Week 13: STP and Nation-Building
11/25: STP in Korea: The case of establishing KAIST (Worksheet #10 due)
11/27: STP in Russia [special lecture]

Week 14: The New Model for Science and Technology Policy
12/2: The linear model and its limits (Essay #2 due)
   • Reading: Stokes, pp. 58-70
12/4: Pasteur’s quadrant
• Reading: Stokes, pp. 70-89

**Week 15:** Conclusion
   12/9: Review of the course for the exam
   12/11: **Final Exam** in class

**Week 16:** Final Exam Period, no class

**ACADEMIC DISHONESTY**
I support KAIST’s zero-tolerance policy on academic dishonesty, especially on cheating and plagiarism, and will enforce it strictly. I believe that an important part of academic life is to learn how to conceive your own ideas, not how to copy someone else’s. You are welcome to discuss the subject materials with your friends and consult with reference books, but when you write an essay, you should organize your thoughts by yourself and make an argument in your own style. Ignorance is not an excuse. I will explain in class how to avoid plagiarism in writing.