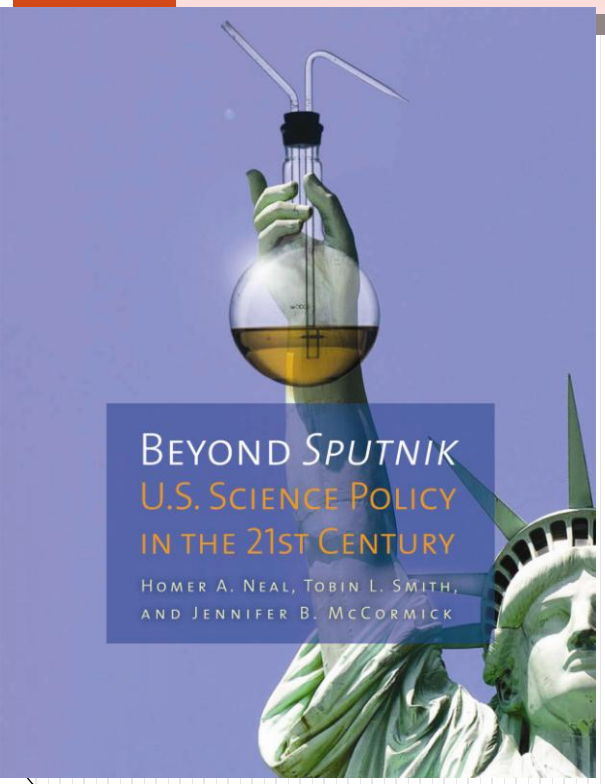
Research University

Science Policy 101: Taking Science Policy Out of Washington and into the Classroom



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The Need for Formal National Science Policy Curricular

- ….to introduce students to the manner in which science and technology issues both shape and are shaped by public policy. ….. to review the historical role of national science policy in addressing the health, welfare, and security needs of the nation ..to provide an organizational map to help students better understand how the federal government develops and executes its science policy and why it funds science… to explore how universities, national laboratories, and industry partner with the federal government to carry out scientific research, and why states are developing their own scientific and technological support structures… to examine the interactions between the scientific community and policymakers, and review the grand challenges that face science and society, including environmental preservation, advances in new technologies, transportation, power generation, and prevention and cure of diseases.

Personal Perspectives

- Service on national laboratory boards, service as vice president for research, NSB, provost, various government panels…. led to discovery of the complexity of science policy setting process
- Introduced initial university science policy course in Michigan Department of Physics in 2002
- Recommendation made to the then Vice President for Reseach and provost to set up steering committee to broaden program and involve other departments and faculty
- Resulting committee created new Graduate Certificate Program
- Completion of textbook
- This semester helped initiate the first undergraduate science policy course in the Gerald Ford School at the University of Michigan
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Example blurbs .....

"Homer A. Neal, Tobin L. Smith, and Jennifer B. McCormick have written a landmark work calling for a national effort to restore our nation's power in the fields of science, energy, and education, as we did in the remarkable year following Sputnik. The next preident should read *Beyond Sputnik* and accept this call to action as did President Eisenhower."
—Ambassador David M. Abshire, President of the Center for the Study of the Presidency, Cofounder and Vice Chairman of the Center for Strategic and International Studies, and President of the Richard Lounsbery Foundation

"At last we have a text that tells the story from where A. Hunter Dupree left off; an excellent core text for courses in science and technology policy, DC policymakers, and anyone who needs to get up to speed in the field . . . The book that we have all been waiting for."
—Christopher T. Hill, Professor of Public Policy and Technology, George Mason University

Topics Covered

Section 1 -- Overview of U.S. Science Policy

- 1. Science Policy Defined
- 2. U.S. Science Policy before and after *Sputnik*
- 3. The Players in Science Policy
- 4. The Process of Making Science Policy
- 5. Federal Funding for Research: Rationale, Impact, and Trends

Section 2 -- Federal Partners in the Conduct of Science

- 6. Universities
- 7. Federal Laboratories
- 8. Industry
- 9. The States
- 10. The Public

Section 3 -- Science Policy Issues in the Post-*Sputnik Era*

- 11. Science for National Defense
- 12. Big Science
- 13. Scientific Infrastructure
- 14. Scientific Ethics and Integrity
- 15. Science, Technology, Engineering, and Mathematics Education

Section 4 -- Science Policy in an Era of Increased Globalization

- 16. The Science and Engineering Workforce
- 17. Globalization and Science Policy
- 18. Science and Homeland Security
- 19. Grand Challenges for Science and Society
- 20. Science, Science Policy, and the Nation's Future

Where in the University Structure Should "Science Policy be Taught?"

Should it be in …….

- randomly interested university departments? (Space Sciences, Environmental Studies, Physics Department, Law School, etc.)
- in the campus "policy school", if one exists
- in a program reporting to the Graduate School?
- or …..?

What is the Student Audience?

- Those who may want to pursue careers in a science policymaker role in the federal government (committee staffers, in an agency policy division,…)
- Those who may want to serve in a non-profit entity focused on scientific research
- Those who may wish to serve in industry or academe in roles related to R/D administration
- Students who have a general interest in public policy and its intersection with technology
- Technical students who wish to learn more about the dynamics of funding for their field
- Students wishing to incorporate studies in this area as part of their overall course broadening experiences at the university

Disciplinary vs. “Broadening” pulls on Graduate Students

- Many graduate mentors want their students to focus exclusively on their Ph.D. studies
- Any expression of interest on non-disciplinary studies often raises questions about the student’s dedication to their discipline

Instructional Challenges

- "Story-telling" vs. Formal Structure
- Too many visiting lectures vs. too few
- Acquiring suitable textbook
- Balanced treatment of current events vs. historical evolution
- Care in treatment of science vs. religion
- Management of temptation to be overly nationalistic
- Avoidance of assumptions about disciplinary background of students

Summary

- Science policy is becoming increasingly important to the nation
- Universities need to make a serious attempt to educate a cadre of professionals with expertise in science policy, and to better educate the general study body on science policy topics
- Communication between scientists and policymakers is more important than ever, and they each need to learn the other's language, motivations and aspirations
- Efforts need to accelerate to determine how to best achieve the pedagogical goals of science policy instruction