

COURSE SYLLABUS

INTRO TO SCIENCE POLICY IN METER (4970.053/5970.053)

Science Policy and Its Significance to Weather, Water and Climate

Class time - Monday and Wednesday from 2:00 pm to 2:50 pm

Location – NWC Room 5930

Taught by: Shree Mishra

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Synopsis

In modern society, science and policy are two processes that have a symbiotic relationship to each other. Policy dictates the direction of science while science shapes the future of policy. Although the policy side is often ignored in scientific environments, the rate of scientific advancement is heavily influenced by policy. Science policy is very different from the conduct of science itself and future scientists need to be aware of the issues and factors that dictate the present and future direction of science.

The objective of this class is to introduce students to the world of science policy and to give them a general overview of what science policy is. In this regard, classes will be designed to increase awareness of the students in various realms of science policy with a special emphasis on policy related to weather, water and climate. Students will be introduced to the manner in which science directs public policy and in turn how the direction of scientific endeavor is shaped by public policy. My intention here is not to have students simply attend lectures on science policy but to actively engage in the process through discussions, questions and debates.

What to expect?

Students should be aware that numerous distinguished speakers with expertise in specific areas of science policy will be invited to give guest lectures throughout the semester. As such, it will be hard to follow a rigid course structure. A wide range of topics will be covered during the course of the semester but they may not be in any specific order. Students must plan to attend all classes.

Course Material and Textbook

Text - "Beyond Sputnik: US Science Policy in the 21st Century" - by Neal, Smith and McCormick.

Reference texts

1. "Working with Congress: A practical guide for Scientists and Engineers" - by William G. Wells

2. “The Honest Broker: Making sense of Science in Policy and Polictics” – by R. A. Pielke Jr.

Other resources

<http://www.ametsoc.org/atmospolicy/index.html>

http://www.aaas.org/programs/science_policy/

http://www.agu.org/sci_pol/

Grading and Coursework

The objective of the class is to make science students aware of the policy process. In this regard, the requirement is that students actively engage in class interactions and participate in class activities. Students will also be required to give a classroom presentation (15 minute) on any science policy topic that is of interest to them. Please let me know if you will not be able to attend a class for any reason.

Grading Weights

Class attendance – 40%

Engagement in classroom discussions – 30%

Class presentation – 30%

Topics to be covered (open to student suggestions)

Although the following topics are what I plan to cover during the semester, I am open to new ideas from students. Please feel free to suggest a topic of interest that may not be included in the list.

1. Broad overview of the relationship between science and policy and the objective of the class (raise awareness about the policy process and equip future scientists with better knowledge of both worlds).
2. Policy fundamentals
3. An overview of the organizational bodies that formulate science policy including but not limited to the executive office of the President (OSTP, OMB and others), the Senate, the Congress and the federal agencies.
4. Roles of the public sector, the private sector and federal labs in formulation of science policies. Reflection on issues that come up in meetings like the AMS community meeting which brings together the public sector (universities), the government (federal labs) and the private industry (independent private companies).

5. Science diplomacy and its importance. An overview of historical perspectives on how science has influenced international policies including the invention of the atomic bomb, the space race, climate issues and globalization. Discussion about bills such as the International Science and Technology Cooperation Act, the Global Conservation Act, etc.
6. Scientific leadership and its connection to the policy world. OU and NSSL faculty and scientists will be invited to share their views.
7. Impact of the current economic state on science and science policy
8. Effective communication between scientist and policy makers
 - Effective communication exercises in collaboration with the AGU communications group
 - Ethics and integrity (concept of the Honest Broker of Science)
9. Hot topics in science policy – clean air act, climate change (reduction of green house gases, adaptation and mitigation). Policy implications related to the latest IPCC reports will be discussed including topics like geo-engineering, cap and trade, carbon tax, climate change education, etc.
10. Careers in science policy that include the AAAS (American Association for the Advancement of Science) fellowships and several other fellowships and career options.
11. Fifteen-minute student presentations on policy relevant issues. Each student can select a topic of interest related to science and policy.