


ASTR 4800 - Space Science: Practice & Policy

Today's Class: **Science Policy in the 21st Century**

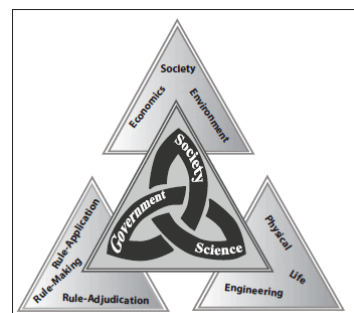
- Next class at **Fiske Planetarium**: *Why do we explore space?*
 - Read *SpaceNews* Op Ed linked to Schedule for Aug. 29.
- Sign-up for class PowerPoint presentations or participating in debates.
- Sign-up for "Space in the News".
- Class notes are on class website (<http://lunar.colorado.edu/~jaburns/astr4800>).



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The Actors in Science Policy



Source: Turton et al.⁴
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Who makes science policy?

The Executive Branch

- The President
 
- The President's Science Advisor (Dr. Arati Prabhakar has been nominated & will be part of Cabinet)
 
- Office of Science & Technology Policy

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Who makes science policy?

The Executive Branch

The Office of Management & Budget

The Office of Management and Budget oversees the implementation of the President's vision across the Executive Branch. OMB carries out its mission through five main functions across executive departments and agencies:

1. Budget development and execution;
2. Management, including oversight of agency performance, procurement, financial management, and information technology;
3. Coordination and review of all significant Federal regulations from executive agencies, privacy policy, information policy, and review and assessment of information collection requests; and
4. Clearance and coordination of legislative and other materials, including agency testimony, legislative proposals, and other communications with Congress, and coordination of other Presidential actions.
5. Clearance of Presidential Executive Orders and memoranda to agency heads prior to their issuance.



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Federal Departments & Agencies

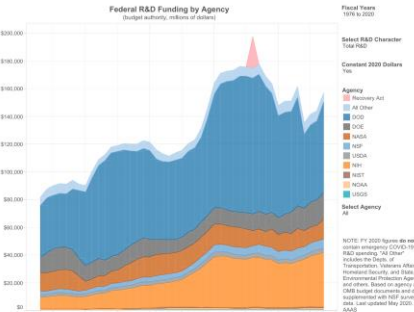
- **National Science Foundation** - The NSF is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..." NSF supports basic research and people to create knowledge that transforms the future. Budget is about \$8 billion.
- **National Aeronautics & Space Administration** - Created in 1958, NASA is America's civil space program and the global leader in space exploration. Budget is about \$25 billion.
- **Department of Defense** - DOD is the largest sponsor of R&D in the federal government (nearly 50%). Mostly devoted to development of new and improved weapons systems.
- **Department of Energy** - The mission of the DOE is to ensure America's security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.
- Other federal departments with science-related missions include: **Dept. of Commerce (NOAO), Dept. of Homeland Security, Dept. of Agriculture, Environmental Protection Agency, Department of State.**



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Federal Agency R&D Funding



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Class Exercise: Who are the Stakeholders for Science Policy?

- Private industry
- Taxpayers
- State universities
- Politicians, especially looking for reelection.
- Grant recipients
- Any researchers.

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Stakeholders for Science Policy

- **Universities & Their Top Issues**
 - Public funding of higher education
 - Federal funding of university research (CU System received \$1.45 billion in total grants & contracts)
 - Export controls (ITAR = International Traffic in Arms Regulation)
 - Visa controls
 - Transfer of Intellectual Property
 - Recruitment of students into the STEM fields



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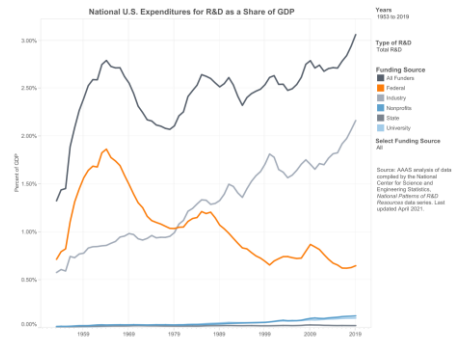
Stakeholders for Science Policy

- **Federal Laboratories** – 700 operated by federal government which adapt basic knowledge to specific government needs (e.g., nuclear weapons, energy research, public health).
- **Industry** – mostly applied research with a practical focus (e.g., Aerospace industry, auto industry, IT, Pharma, Life Sciences).
- **The States** – economic growth, homegrown industries, regional clusters
- **The Public** – public understanding of scientific research influences assignment of federal research funding, amount devoted to specific research areas, content of K-12 curriculum.

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Government vs. Industry Funding



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