

Course Change Request

New Course Proposal

Date Submitted: 12/01/20 10:18 pm

Viewing: **COS 510 : Introduction to Science Policy**

Last edit: 12/01/20 10:18 pm

Changes proposed by: jrosenb4

Are you completing this form on someone else's behalf?

No

Effective Term: Summer 2021

Subject Code: COS - College of Science

Course Number: 510

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Introduction to Science Policy

Banner Title: Introduction to Science Policy

Will section titles vary by semester? No

Credits: 3

Schedule Type: Lecture

Hours of Lecture or Seminar per week: 3

Repeatable: May be only taken once for credit, limited to 3 attempts (N3)

Max Allowable Credits:
3

Default Grade Mode: Graduate Regular

Recommended Prerequisite(s):

Recommended Corequisite(s):

In Workflow

1. SC Curriculum Committee
2. SC Associate Dean
3. Assoc Provost-Graduate
4. Registrar-Courses
5. Banner

**Required
Prerequisite(s) /
Corequisite(s)
(Updates only):**

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?

**Registration
Restrictions
(Updates only):**

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

**Catalog
Description:**

This course is an introduction to how science is used to inform governmental policy decisions and how policy impacts U.S. science. The course is intended for any STEM student with an interest in understanding or contributing to decision making at the federal and state level or joining the government to draft policies and legislation directly. Government policies affect all parts of society, including the scientific research enterprise. Reciprocally, science can be used to inform policy in myriad ways at different levels of government. Scientists’ lack of familiarity with policy, and policymakers’ lack of familiarity with science contributes to the longstanding gap between the production of scientific research and its perceived utility by decision-makers. This course will bridge this gap and provide new skills for scientists to contribute to this new field.

Justification:

Science policy is an important interdisciplinary field that will allow students in the sciences to put their work in a broader perspective. This is a course that will be of interest not only for college of science students but for students interested in science policy more broadly. Given our location we should be able to engage our graduate students who are interested in the connections between their work and policy and provide them with experiences to understand the impact of policy on their work and/or to engage with science policy in the future. With several science faculty who have spent time as AAAS Science and Technology Policy fellows

(all 4 of the faculty listed as people who could teach this course plus 2 more elsewhere on campus – Leah Nichols and Martin Weiner), we are well positioned to move this effort forward.

Does this course cover material which crosses into another department? No

Learning Outcomes:

- Understand the theoretical framework of science-policy
- Compare and contrast the roles of the branches of government in science
- Explain how evidence-based policy is generated and compare different approaches
- Apply STEM knowledge and skills to policy
- Recognize and contrast competing societal values on decision-making
- Understand and identify ways that science can be used to address societally impactful questions and develop methods to implement these approaches
- Synthesize disparate information to produce a technically accurate, but concise and understandable briefing document for non-scientist audiences

Attach Syllabus

[Science Policy Graduate Draft Syllabus.pdf](#)

Additional Attachments

Staffing:

Karen Akerlof
Jessica Rosenberg
Jennifer Salerno
Lee Solomon

Relationship to Existing Programs:

This is not related to any exiting programs. We are hoping to create a science policy certificate in the future.

Relationship to Existing Courses:

This is the graduate number associated with COS 310.

Additional Comments:

Reviewer Comments

Introduction to Science Policy

Lecture time: Summer 2021 (8 weeks), Tuesdays and Wednesdays, 10:00 AM - 12:40 PM

Location: TBD

Potential Course Instructors:

Jessica Rosenberg; jrosenb4@gmu.edu

Jennifer Salerno; jsalerno@gmu.edu

Lee Solomon; lsolomo@gmu.edu

Karen Akerlof; kakerlof@gmu.edu

Jim Olds; jolds@gmu.edu

Office Hours: Mondays 10 AM - 12 PM or, by appointment

Required Textbook(s) and readings:

1. *Beyond Sputnik: U.S. Science Policy in the 21st Century*, by Neal, Smith, and McCormick (referred to in this document as NSM)
2. *Using Science as Evidence in Public Policy* (National Research Council, 2012).
3. Additional readings as assigned

***Additional course information, readings, and assignments will be posted on the course Blackboard site**

Course description:

This course is an introduction to how science is used to inform governmental policy decisions and how policy impacts U.S. science. The course is intended for any STEM student with an interest in understanding or contributing to decision making at the federal and state level or joining the government to draft policies and legislation directly. Government policies affect all parts of society, including the scientific research enterprise. Reciprocally, science can be used to inform policy in myriad ways at different levels of government. Scientists' lack of familiarity with policy, and policymakers' lack of familiarity with science contributes to the longstanding gap between the production of scientific research and its perceived utility by decision-makers. This course will bridge this gap and provide new skills for scientists to contribute to this new field.

Learning Outcomes:

At the completion of this course, students will be able to:

- Understand the theoretical framework of science-policy
- Compare and contrast the roles of the branches of government in science
- Explain how evidence-based policy is generated and compare different approaches

- Apply STEM knowledge and skills to policy
- Recognize and contrast competing societal values on decision-making
- Understand and identify ways that science can be used to address societally impactful questions and develop methods to implement these approaches
- Synthesize disparate information to produce a technically accurate, but concise and understandable briefing document for non-scientist audiences

Academic Integrity:

GMU is an Honor Code university; please see the [Office for Academic Integrity](#) for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. There will be collaborative projects in this class, for those projects all contributors should be credited. For individual projects on which only your name appears, you are welcome to discuss your ideas but the end result must be yours alone. Another aspect of academic integrity is the free play of ideas. Discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. If you are ever unclear as to the expectations for a part of this class please ask for guidance and clarification.

Privacy

Student privacy is governed by the Family Educational Rights and Privacy Act (FERPA). Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not be able to respond to messages sent from or send messages to a non-Mason email address.

<https://registrar.gmu.edu/ferpa/>

Basic Course Technology Requirements

Activities and assignments in this course will regularly use the Blackboard learning system (<https://mymason.gmu.edu>) as well as web-conferencing software (Blackboard Collaborate / Zoom). Therefore, a desktop or laptop computer with a functional camera, microphone, and reliable internet access (consistent 1.5 megabits per second download speed or higher) are required to participate in this course. In an emergency, students can connect through a telephone call, but video connection is the expected norm.

Student Use of Electronic Devices

Please be respectful of your peers and your instructor and do not engage in activities

that are unrelated to the class during synchronous meeting times.

Course Recordings

All of our synchronous meetings in this class will be recorded to provide necessary information for students in this class. Recordings will be stored on Blackboard and will only be accessible to students taking this course during this semester.

Sexual Harassment, Sexual Misconduct, and Interpersonal Violence

None of the above will be tolerated in this course. George Mason University is committed to providing a learning, living and working environment that is free from discrimination and a campus that is free of sexual misconduct and other acts of interpersonal violence in order to promote community well-being and student success. We encourage students who have been sexually harassed, assaulted or subjected to sexual misconduct to seek assistance and support. University Policy 1202: Sexual Harassment and Misconduct speaks to the specifics of Mason's process, the resources, and the options available to students.

As a faculty member and designated "Responsible Employee," I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's [*Title IX Coordinator*](#) per [*university policy 1412*](#). If you wish to speak with someone confidentially, please contact the [*Student Support and Advocacy Center*](#) (703-380-1434), [*Counseling and Psychological Services*](#) (703-993-2380), [*Student Health Services*](#), or [*Mason's Title IX Coordinator*](#) (703-993-8730; titleix@gmu.edu).

Accommodations for Disabilities:

Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with your instructor. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474

Diversity and Inclusion

Diversity is one of George Mason University's core values (Mason Diversity Statement: <https://stearnscenter.gmu.edu/knowledge-center/general-teaching-resources/masondiversity-statement/>). As instructors of this course, we seek to create a learning environment that fosters respect for all people. We welcome and value individuals and their differences, including gender expression and identity, race, economic status, sex, sexuality, ethnicity, national origin, first language, religion, age and ability. We

encourage all members of the learning environment to engage with the material personally, but to also be open to exploring and learning from experiences different than their own.

Gender Identity and Pronoun Use

If you wish, please share your name and gender pronouns with us and how best to address you in class and via email. You may also choose to update your chosen name and pronouns here: <https://registrar.gmu.edu/updating-chosen-name-pronouns/>

OTHER USEFUL GMU RESOURCES:

ACADEMIC ADVISING - <https://advising.gmu.edu/>

ASSISTIVE TECHNOLOGY INITIATIVE - <https://ati.gmu.edu/>

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS) - (703) 993-2380
<https://caps.gmu.edu/>

DISABILITY SERVICES - <https://ds.gmu.edu/>

INTERNATIONAL PROGRAMS AND SERVICES - <https://oips.gmu.edu/>

LEARNING SERVICES - <https://learningservices.gmu.edu/>

LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER, AND QUESTIONING RESOURCES -
<https://lgbtq.gmu.edu/>

OFFICE OF DIVERSITY, INCLUSION, AND MULTICULTURAL EDUCATION -
<https://odime.gmu.edu/>

OFFICE OF THE OMBUDSMAN - (703) 993-3306 <https://diversity.gmu.edu/>

The Office of the Ombudsman is a confidential, impartial, informal and independent problem-solving and conflict resolution resource for all GMU students.

STUDENT HEALTH SERVICES - <https://shs.gmu.edu/>

STUDENT SUPPORT AND ADVOCACY CENTER - <https://ssac.gmu.edu/>

UNIVERSITY CAREER SERVICES - <https://careers.gmu.edu/>

UNIVERSITY LIBRARIES "Ask a Librarian" - <https://library.gmu.edu/ask>

UNIVERSITY WRITING CENTER - (703) 993-1200 <https://writingcenter.gmu.edu/>

UNIVERSITY POLICIES - <http://catalog.gmu.edu>, The University Catalog is the central resource for university policies affecting student, faculty, and staff conduct.

MASON NON-DISCRIMINATION POLICY - <https://universitypolicy.gmu.edu/policies/non-discrimination-policy/>

ADDITIONAL STUDENT SUPPORT RESOURCES -

<https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-support-resources-on-campus/>

Grading:

Weekly Assignments	15%
Congressional visit material	10%
Congressional visit report	10%
Final Project (2 parts)	40%
Policy discussion lead	5%
Participation	10%
Grad project	10%

Late Assignments:

Late assignments will not be accepted without prior approval.

Participation and Attendance:

This class is going to depend heavily on your involvement. While some of the readings will be assigned to everyone, you will be responsible for reading up on science policy issues and sharing what you have learned with the class. It is largely a discussion-based class so attendance is absolutely necessary. The assignments will also be collaborations with your peers so you will need to attend, to be involved, and a portion of your grade will depend on your participation.

Weekly Assignments:

Weekly assignments will be posted on Blackboard. The overview of assignments is included at the bottom of this document but you will need to watch Blackboard regularly for updates to the reading and the assignments. These assignments will be designed to prepare you to discuss issues in science policy since this should be more of a discussion course than a lecture course.

Congressional Hearing report:

Attend or watch a congressional hearing and report on it (more on this later). This will count as on homework assignment.

Lead discussion of policy issue:

You will get background information and prepare documents on science policy issues for both your Congressional visits and for your final project. As a group you will lead a class discussion on the issue that you have been working on.

Congressional Visit Assignment:

One of the assignments for the semester is to visit with one of your representatives (or their staff) during the semester. There are several pieces to this project:

- Identify key issues what you want to discuss with your representative
- To the best of your ability determine where the representative stands on those issues
- Make an appointment with your representative
- Write a one-pager to leave with the representative after your visit
- Visit with your representative to discuss your issue(s) (you will probably do this in pairs or possibly even in groups of 3)
- Write a report that discusses what you learned about your representative before the visit, a description of the visit, and your analysis about how to best continue working with this representative.

One-pager:

There are resources on Blackboard for putting together a one pager for your representative. We will discuss what you put together in class before your visit.

Congressional visit write-up:

This write-up should contain information about your representative and his or her positions on issues that are related to the issues you discussed with them. It should also describe your visit and the next steps you will take in working with your representative on these issues.

Final Project:

The final project will be done in groups and be a 2-part project.

Part I: Intra-office memo on policy issue (20%)

- Detailed background information on the science and the policy associated with the issue
- Detailed stakeholder analysis that includes counterarguments for opponents
 - Note that for this you will probably have to reach out to stakeholders to figure out their interests
- Discussion of the end goal and a plan for how to get there (i.e., legislation, role changes, treaties, advocacy, etc)

Part II: Follow your proposed plan of action (20%)

- Op-ed on topic (I would like each group to write one of these)
- The other pieces will depend on the plan from part one but might include:
 - Draft legislation

- Rules change suggestions
- Advocacy materials/ outreach to stakeholders

Grad Project:

As a graduate student, you have identified a scientific area of study for your thesis or dissertation. In this project, I want you to investigate the policy and funding that governs and shapes that area. Some of the questions that you should consider are:

- What Federal agencies provide funding for this area of science?
- What other organizations (state, non-profit, industry, etc) also provide funding?
- How has funding varied over time? Has the research focus shifted over time?
- Are there reports (National academies, decadal reports, NSF workshops) that discuss how this research topic fits within the larger research landscape?
- What interest has there been in this topic beyond the scientific community – op-eds and other popular articles or books?
- Have any policies or regulations been put into place to either govern this research (e.g. national security, export controls) or because of this work?
- How might this research landscape impact how you pursue the field into the future?

Please write a two-page paper that addresses these and any other relevant political aspect not covered here. (1-inch margins, Arial font size 11, name in the header).

Course Calendar

Week	Day	Reading	Assignments	Topics
Week 1	June 2	NSM chapter 1 “Science Policy Defined”		Introduction – Science for policy and

				policy for science
	June 3	NSM Chapter 2 Endless Frontier Summary “U.S. Science Policy Before and After <i>Sputnik</i> ”	Bring science policy-relevant article to discuss	History of science policy
2	June 8	NSM Chapter 3 “The Players in Science Policy”		Federal Agencies, U.S. Congress, and Judicial Branch
	June 9	NSM Chapter 4 “The Process of Making Science Policy”	Homework: locate a science-related bill of interest on congress.gov	The legislative process, Federal budget process In class budget activity
3	June 15	NSM Chapter 5 “Federal Funding for Research: Rationale, Impact, and Trends”	Congressional hearing report due	Federal grants
	June 16	No Assigned reading, you will supply your own article for this class	Homework: Bring in and discuss article about science funding in the USA	
4	June 22	NSM Chapters 6 and 7 “Federal Partners in the Conduct of Science” Part I	Homework: Research and present on assigned federal laboratories	Universities and Federal laboratories
	June 23	NSM Chapters 8 - 10 “Federal Partners in the	Homework	Industry, the states, and the public

		Conduct of Science” Part II		
5	June 29	NSM Chapter 11 and 18 “Science for National Defence” and “Science and Homeland Security”		
	June 30	NSM Chapter 12 “Big Science”	Homework: Watch recorded interview	NSF LIGO project
6	July 6	NSM Chapter 15 “Science Technology Engineering and Mathematics Education”		
	July 7	NSM Chapter 17 “Globalization and Science Policy”	Homework: Read and summarize article from Science Diplomacy	Science diplomacy International negotiation exercise
7	July 13	Congressional Visit Reports	Assessments	
	July 14	Final Project Presentations I	Assessments	
8	July 20	Last day of class - Final Project Presentations II	Assessments	