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PUP 4503-Science & Government

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Course Home Page

Government & Science

PUP 4503

Fall 2017

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Overview

Science and technology (S&T) have become major factors through which ec and social change occurs in most societies. For a long time, government bersus s and technology were considered two very different areas with little real interaction. no longer the understanding. In fact, government has become extremely importan regards to S&T policy; lagging in the area of science and technology means that a is noncompetitive with the more advanced economies in the world. Falling behind technologically becomes particularly devastating for advanced states since it unde other facets of the state's activities including military and diplomatic. Government i form represents the society's organized authority for achieving social goals. Thos can be domestic including public health, safety and welfare, military, or internation nature. Therefore, modern states have became aggressive in insuring that scienc technology is harnessed for the greater good within the society. That can result in system of very loose government control to the former socialist states such as Rus China where science and technology were totally controlled by the government or something in between. In the former, science and technology activities are largely conducted in the nongovernmental sector whether for profit or not for profit althou government normally reserves the power to intervene if necessary. Intervention ca due to potential hazard (environmental pollution) or because the private sector is r too slowly or need economic or political support in order to proceed.

Despite the rhetoric, S&T politics is generally over companies, universities or indiv seeking government aid to carry out whatever project they have in mind. For exam federal government is expected to help fund development of alternative cars to the present gas driven vehicles. This was for example supported to the tune of $25 bil program initiated under the George W. Bush administration but now moving forwa Bush administration was considered anti-government but it supported a number of initiatives in S&T policy that aided private sector players. The new Donald J. Trum administration may prove to be an interesting test of this commitment as the new administration budget cuts dramatically many S&T agency budgets but Congress less supportive since the cuts will impact their constituents. Even the budget reque changed, the dynamic of federal government activity is likely to slow down with un consequences for US standing in the world where its S&T communities are well re

and often world leaders. The building of those assets took decades of work and bu support but can be quickly dissipated as scientists and engineers migrate to other including to other countries. US scientific dominance is built firmly on new arrivals fresh perspectives and energy. State governments may take up some of the slack most lack resources especially if the new administration shifts many ongoing progı the states to fund.

The lone inventor in the garage still exists but modern S&T is more likely the large organization whether private or public doing the work. UCF for example is doing o\ $125 million in sponsored research – moneys received from government, foundati corporate sponsors. For the former socialist states such as the defunct Soviet Unic private sector existed with regards to science and technology since all sectors of tl society were under state control. Even in democracies, the role of government wit regards to S&T policy can become intrusive and possibly disruptive of advances ir field. The argument is over "picking winners," the reality is that such choices have been made despite and because of limited resources.

Within the United States, the system for considering science and technolog has grown into a hybrid containing both private and public sector activities, which i and complement/compete with each other. The American system is one based on government power normally (i.e. peacetime) with the potential for total governmen during an emergency such as depression or war. For example, stimulus funds duri Great Recession went to roads and highways for jobs but some portion went to the science agencies to fund research projects already approved but for which there h been no funding. However, in certain areas, nuclear energy and genetic engineerir example, the U.S. government aggressively regulates what is deemed possible.

In this course, we will look initially at the development of the American science anc technology system and how public policy has been developed and implemented a doing so examine the international ramifications of S&T policy. The initial material on the background that has led the U.S. to its present system of governance, its in processes, relationship to the public, and how that relationship impacts how S&T p made and implemented. Several specific policy areas will be considered subsequ examples of American policy in the area of science and technology. All of this is

potentially in flux so there may be uncertainty about the future. One difficulty is the administration's slowness in nominating individuals for many agency jobs that requ Senate approval means career civil servants are in those positions, meaning there push for change rather the job becomes maintaining the status quo until the new appointees arrive.

In this course, the terminology "S&T" for science and technology and "R&D research and development will be employed to describe the subject. S&T refers to broader relationship between science and technology for the society while R&D re the relevant activities engaged in when advancing science through researching an developing technological applications. The concepts of applied and fundamental F often used but one should be aware that the dividing line between the two is very v and applied research often leads to fundamental research outcomes. In order to b technology, fundamental scientific processes often need to be discovered and und first or failure will be the only outcome.

Also, in this course, students will be presented examples drawn from acros spectrum of S&T policy. For example, research conducted on health care problem as AIDS or cancer treatments demands that fundamental knowledge be gathered molecular level regarding the chemical and biological processes underlying those pathologies. Science and government is our topic but that covers the range of S& policies from education, environmental, space, energy, health or whatever become socially important for the society. The course will also incorporate materials from comparative experience, situations where S&T policy is moving from a totally state dominated system to a mixture of institutions and policies often still in flux.

Developing states in particular struggle with S&T policies due to their human and c shortages. There is nothing automatic in S&T policy – the entire edifice is built on l educated work forces and substantial investment from whatever source private or government. Successful policy builds on investments in education – an issue for th United States due to our growing deficiency in scientifically and technically trained workers. The United States cannot afford to cut off immigration at least at the high educated level since native born American students are uninterested and unmotiva enter science and engineering disciplines. This approach however leads to conflic

American values regarding those potential immigrants who are less educated are
or deferred for long periods of time. This accelerates the growth of illegal immigrat
among groups not normally thought of as illegal immigrants such as Irish and Engl
blend in well due to their English skills and race but come and stay when their visa
expire.

Course Objectives:

Students will acquire a general understanding of the historical foundations, presen
context and future development of S&T as an arena for human activities. As part
process, students will

1. Develop understanding of the field's historical development including ongoing
processes.
2. Understand the influence of science and technology policy upon the developme
the American education and economic system.
3. Develop an understanding of the international implications of science and techr
activities.
4. Become aware of the organizational forums and processes (public, private and
international sectors) through which S&T policy is developed and exploited for
benefit.
5. Develop an appreciation for the human and economic developmental potential
in S&T activities even for advanced societies but especially underdeveloped so
where the needs are so great.
6. Analyze the changing parameters of S&T policy as we move through the 21st c
especially the rapidly changing nature of global scientific activities with regards
genetic engineering, the environmental and economic development including
international economic competitiveness.
7. Demonstrate the ability to access useful information regarding ongoing S&T ac
and proposed future R&D activities.

Communicating within the Course

In this class our official mode of communication is through email located inside Ca
All communication between student and instructor and between student and stude

should be respectful and professional. It is the student's responsibility to check the "course mail" frequently. You must create a Knight's Email account at www.knightsemail.ucf.edu (http://www.knightsemail.ucf.edu) for separate official communication from the university and instructor. It is my understanding that Knigl Email is the address used by the university and is the one in the course mail and c be eliminated. If you wish to use another email as your primary email, you will nee forward communications from Knight's Email to your other email address but to communicate with the instructor use your Knights email account.

Textbook:

Homer A. Neal, Tobin L. Smith, and Jennifer B. McCormick, *Beyond Sputnik: Science Policy in the 21st Century*

The importance of the Sputnik satellite launch in October 1957 in U.S. S&T can be seen in the title to the text – it was a transforming event in that it changed t dynamics of how U.S. S&T policy would be implemented in the future. We still see next Sputnik moment in order to recapture that sense of energy and direction that appears lost over the ensuing nearly 60 years.

Grade Structure:

Grades are determined through a variety of student activities including two examinations taken on line through the quiz function, two assignments completed web, an introductory assignment for extra credit, a course project proposal and a c project submitted on line through a drop box. The overall weight assigned to each is shown below with a brief description provided for each facet. Due dates are pro the assignments and quiz sections and the course schedule found on the syllabus A total of 1000 points will be assigned across the semester with each graded segn assigned a point value. Final grades will be recorded as A, B, C., etc rather than incorporating pluses and minuses. Grades are posted through the course website accessible as soon as the materials are graded.

Plagiarism and Cheating of any kind on an examination, quiz, or assignment will re least in an "F" for that assignment (and may, depending on the severity of the case

to an "F" for the entire course) and may be subject to appropriate referral to the Of Student Conduct for further action. See the *UCF Golden Rule* for further informatic assume for this course that you will adhere to the academic creed of this Universit will maintain the highest standards of academic integrity. In other words, don't che giving answers to others or taking them from anyone else. I will also adhere to the standards of academic integrity, so please do not ask me to change (or expect me change) your grade illegitimately or to bend or break rules for one person that will apply to everyone.

Examination – 200 points

Examination – 200 points

Assignments – 200 points total (total of two assignments across the term)

Course project proposal – 100 points

Course project – 300 points

Introductory Assignment – 50 points - extra credit – this is the only opportu extra credit provided during the term, once closed, no more extra credit opportuniti be offered, do not ask. Participation in forums in a significant manner will be used instructor to make any grade adjustments for students on the border line between grades.

NOTE: All assignments and other submissions must be done in MS Word foı otherwise, I am unable to open the document. This may lead to a delay in grı the materials while you resubmit the assignment. A second occurrence will ı in a "zero" for the assignment. This restriction means no WordPerfect, MS W or other word processing programs are accepted. This is not optional.

Examinations can incorporate both essay and short answer formats. Students will queried as to their understanding of the processes engaged in developing S&T po The assignments will test student understanding of different information and conce discussed in the modules and in the readings. The Introductory Assignment involv students answering several course-related questions, completing a web annotatioı demonstrating certain techniques related to successfully completing the course. It

only extra credit assignment available during this course so do not ask for addition opportunities.

The Web Link Annotation as part of the extra credit Introductory Assignme involves students locating Internet links not already identified in the course. Their assignment becomes annotating (describing and evaluating) in general terms the particular site's content, usability and then make some assessment as to its validit usefulness and reliability as a possible source of information. Simply put, is the w you found worth accessing or not? Much of the material on the Web is of dubious reliability, becoming a critical content evaluator and consumer of information is an important part of the course. You will also be asked to answer two questions relate syllabus. **See information below regarding formatting for this assignment an others.**

Course Project

In this segment of the course, all students complete a course project. The s based upon agreement with the instructor, chooses a specific project from the list provided or another topic approved by the instructor. In either case, the proposal n approved by the instructor. The possibility exists depending upon the number of s in the course that individual students will produce duplicate projects. This situatior provides the opportunity for instructor comparison between the individual projects. Individual students are graded on the originality and thought of the project for whic are responsible.

The list of possible topics is as follows:

1. An examination of how the Environmental Protection Agency is being changed arrival of the Trump administration. This requires that you identify a specific set policies, develop a picture of what the EPA is doing in that area, and identify an discuss the changes being made by the present EPA Administration. In this ana you must identify the political justifications presented supporting the new policy direction.
2. The supply of trained scientists and engineers has become a major political cor with regards to science and technology policy. Too few Americans are complet

basic course work in science and math necessary for advanced technical trainii similar situation arose in the late 1950s and early 1960s when the United State: perceived itself as falling behind the Soviets in production of trained scientific a engineering personnel. This became particularly an issue after the *Sputnik* wa launched in October 1957. Your analysis here should first describe the present situation with regards to science and engineering personnel in the United State regards to numbers, national origin, and level of education and in what fields of Then, describe programs that are being implemented to boost the numbers anc successful have those programs been improving the situation or will the United remain dependent upon other states for our scientists and engineers. The Nati Science Foundation (NSF), the National Academy of Sciences (NAS), and the American Association for the Advancement of Science (AAAS) are among the locations you might visit to begin your research. All provide extensive statistics commentary.

3. Embryonic stem cell research has been controversial due to its links to the abo and right to life controversy. The George W. Bush administration prohibited fede funded research with regards to embryonic stem cell research, a decision parti reversed by President Obama when he entered office in 2009. The question fo is whether they can support such research and what economic impact do they resulting from their efforts. This situation becomes more complicated with the fe government back in the game but many states initiated programs fostering suc research. Even Florida with its restrictions on state funding of embryonic stem research pursued the goal of using adult stem cells to achieve the same outcor embryonic stem cell. The topic is: what is meant by stem cell research, what is U.S. policy, and where do individual states stand within that spectrum of progra possibilities, ranging from total prohibition of any stem cell research to use only stem cells to use of embryonic stem cell research. Journals such *Science*, *Nat* various medical and policy journals, and materials from the National Institutes c Health can provide information on this issue. This is an issue where states had opportunity earlier to move forward in the absence of the federal government (2001-2008), the situation is changing with the Trump administration but no one the likely future of government activity in this field. Private activity has been criti sustaining the field but the research costs are so high, their impact is likely to b

limited in the long run.

4. Evaluate the commercialization plans being developed by the state of Florida w regards to space industry. Identify the opportunities and problems inherent for commercialization of space industry. Florida began with the advantage of being two major spaceports, a fact that brought industry to the state along with NASA Eastern Test Range and the Kennedy Space Center. However, with the end of t War and the slump in NASA budgets symbolized by the 2010 shuttle shut dowr Florida has entered a period of decline. Florida in the late 1980s with the establ of the Spaceport Florida was on the cusp of staking out a strong state position i commerce. Spaceport Florida was replaced by Space Florida but Florida appea have missed the boat on space tourism and became in danger of completely lo edge in commercial space activities. More recently, the state appears to have recovered somewhat with new commercial space activities. The topic is to expl what choices were made that have undermine Florida's position and how Florid responded and your evaluation of future prospects for continued growth.
5. Other topics can be pursued with instructor approval. The alternative topic mus spelled out specifically and in some detail, see instructors below for format and

Course project proposals must be chosen **by 2300 hours, 19 September 2013 ar posted to the drop box on the course website.** The project proposal involves a prospectus of at least 1,000 words explaining what the student proposing to do an sources (minimum of five) have been preliminarily found available to complete the successfully. Provide a word count.

Course projects must be a minimum of 3,000 words, 15 references, only half solely web although library journal articles accessed through the web are nc considered web only. Text book does not count as a reference. Provide a wo count. For assignment, project and proposal formatting, see below. After rev the instructor, students should begin their project. **Failure to turn in an acceptab proposal will result in an "F" for the entire project. Changing your topic afte accepted must be done by the closing date of the First Examination. Any ch topic must be approved by the instructor; otherwise, the changed topic will ı accepted. Other changes in the original topic in terms of scope or focus but the same general topic, for example, should be emailed to the instructor for**

approval. NO CHANGES WILL BE ACCEPTED AFTER 1 NOVEMBER AT 230(HOURS. This is in order that sufficient time exists to complete your project. I projects or assignments are graded down a letter grade a day until an F grad reached. However, failure to complete a satisfactory project will result in an ' the course regardless of the number of points earned in other portions of th course.

Formatting for Assignments, proposals and papers:

For assignment formatting, you must use the referencing system used by th American Political Science Review which is available on line at this location: http://uncg.libguides.com/apsr (http://uncg.libguides.com/apsr) **or you can go for the style guide.** Proper citation is important especially since I reserve the rig check on your cite as to relevance and accuracy. Do not list references you have r

- Modules (https://webcourses.ucf.edu/courses/1257199/pages/modules)
- Russian Chapter (https://webcourses.ucf.edu/courses/1257199/modules)
- state spaceports (https://webcourses.ucf.edu/courses/1257199/modules)
- Syllabus (https://webcourses.ucf.edu/courses/1257199/modules)
- Support Resources (https://webcourses.ucf.edu/courses/1257199/modules)
- Webcourses@UCF Student Orientation (https://webcourses.ucf.edu/courses/1257199/modu

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Course Syllabus

Jump to Today Edit

PUP 4503

Government & Science

Assignments – Fall 2017

Module #	Module name	Date Open	Date Close	Assignment*
Module 0	Getting Started	21 August	5 September at 2300 hours	Complete assignments in Module 0 i
Module 1	Introduction – Historical Context & Ideology	21 August	September 17th at 2300 hours	Read Materials and respond to Discussion Group: "Should Government Control Scientific Research or Let Science follow where ever it lead?"
Project Proposal	Picking your topic	21 August	14 September at 2300 hours	Submit project proposal
Module 2	S&T Policy Processes:	17 September	5 October at 2300 hours	Complete Assignment 1

	Executive-Legislative			
Module 3	S&T Policy Processes: State and Private	5 October	17 October at 2300 hours	Read materials and respond to Discussion Group "Is the Distinction Between Private and Public Obsolete in S&T Activities"
First Examination	Test	18 October	21 October at 2300 hours	Complete examination on line
Module 4	Public Opinion	22 October	31 October at 2300 hours	Read materials and respond to discussion group: "Should the public has a say in S&T policy choices? If, how would their input be done?"
Module 5	What is	31 October	7 November	Complete

	Innovation and How Do You foster it?		at 2300 hours	readings
Module 6	National Security Issues	8 November	15 November at 2300 hours	Read materials and respond to discussion group: "Can the U.S. Control the Flow of Knowledge in the World?" Complete Assignment 2
Module 7	International Economic Competition	16 November	26 November at 2300 hours	Complete Readings
Project	Project	18 November	25 November at 2300 hours	Turn project report
Module 8	International S&T Policy	25 November	1 December at 2300 hours	Complete readings & Respond to "Does the U.S. have a moral responsibility not to steal the best and the brightest

				From the UDCs?"
Second Examination	Test	2 December	5 December at 2300 hours	Complete exam on line

*Reading assignments for text materials are listed in the modules where also additional readings are provided throu the information presented in the modules themselves.

Course Summary:

Date	Details
Mon Aug 28, 2017	Financial Aid Verification (https://webcourses.ucf.edu/courses/1257199/assignments/5296953)
Tue Sep 5, 2017	Introductory Assignment (https://webcourses.ucf.edu/courses/1257199/assignments/5176518)
Thu Sep 14, 2017	Project Proposal (https://webcourses.ucf.edu/courses/1257199/assignments/5176519)
Thu Oct 5, 2017	Assignment 1 (https://webcourses.ucf.edu/courses/1257199/assignments/5176515)
Sat Oct 21, 2017	Exam 1 (https://webcourses.ucf.edu/courses/1257199/assignments/5176512)
Wed Nov 15, 2017	Assignment 2 (https://webcourses.ucf.edu/courses/1257199/assignments/5176516)
Mon Nov 20, 2017	Course Project (https://webcourses.ucf.edu/courses/1257199/assignments/5176517)
Tue Dec 5, 2017	Exam 2 (https://webcourses.ucf.edu/courses/1257199/assignments/5176514)