Roger Handberg

PUP 4510-Space Policy

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Course Home Page

Space Policy

PUP 4510

Fall 2017

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Overview

Space policy remains a field that stands astride both the future and history in its scope, both idealistic and in very p terms. That means the quest to reach and explore outer space began many years ago as futuristic dreams and vis presently being pursued as an everyday reality in the commercial sector. This course focuses upon the developme human activity across all its manifestations: civil, scientific, commercial, and military. The primary focus here is upo scientific and commercial aspects. Another course, INR 4774 – Military Space Policy, deals explicitly with military s

– a field of burgeoning interest to a multitude of states. Space policy as a field arose out of the dreams of visionarie to its first fruition as part of the now defunct Cold War competition between the United States and the former Soviet now the Russian Federation.

That international political and military competition created a policy dichotomy between military and nonmilitary that impacts the field when people ask whether a specific space application is dual use or not? That is: can the same te with minimal modifications be employed for both military or civilian purposes? For example, the same rocket can se launch vehicle taking a satellite to orbit or a ballistic missile carrying a warhead to a distant target. Most space appl clearly have this dual use nature. The original launch vehicles used by NASA for example were converted military r launchers, the Redstone, Juno and Atlas for example. This however does not mean the technologies involve weap example, the Global Positioning System (GPS) is a technology of tremendous economic value for the commercial s though its original purposes were clearly military in nature. Related to this concern with the possible military implica related question of cost/benefit: are space activities worth their high cost when there exist so many social/economic to be solved on Earth?

At one time, the thought was that space activities were mostly a cost rather than a benefit once you moved away fr obvious military applications. For that reason, the initial assumption was that only economically developed states w participate although all states regardless of level of economic development might benefit. In pursuit of the latter poi efforts were made to provide satellite based communications for less developed states through the International Telecommunications Satellite Consortium (INTELSAT). The Soviets and their allies created another organization si purpose but with less coverage called Intersputnik. INTELSAT also became the organization through which the Uni retained control over access to earth orbit by other allied states for commercial purposes. Military applications were considered one of a kind and not relevant for societal purposes. Since the end of the Cold War in 1991, the answer changed based on past performance and current results including even poorer states especially because future sp applications hold the potential to become an even more useful one for broader societal purposes. Poorer societies due to the ability of earth orbiting satellites to provide disaster warnings such as identifying growing droughts or the disease or weather patterns likely damaging such as hurricanes. Remember the first images from space of weathe formations such as hurricanes did not become available until the 1960s.

What is so particularly challenging for the United States currently is that the vision that sustained the 1960s Apollo and the International Space Station (ISS) has politically run its course. This issue is best symbolized by the 2011 e Space Shuttle program with no immediate successor flight program on the horizon. Where the U.S. space program here is being intensely debated but any definitive decision is not coming quickly because any government led prog demands long term funding and commitment by Congress and the U.S. people. In an era of deficits, battles over n debt, and partisan gridlock a large scale civil space program is unlikely unless the aliens show up on our door step. can only propose but only Congress and ultimately the public decide how far things will go. The public remains sup only in a general sense. International competitors exist at least rhetorically to the U.S. and Russia but the test will b willingness to continue expending large amounts of precious capital for increasing less political advantage. China a have made that commitment. Private sector solutions flounder on the fact that the companies must make a profit. G Mars while intriguing even exciting does not hold any obvious profits for the private sector which would pay for the that means is that most private sector proposals initially assume the government must support the effort; otherwise happen. That is only slowly changing but questions of mining asteroids and going to other celestial bodies are only and confront significant cost issues plus any thing mined from an asteroid has be extraordinarily valuable to justify to Earth. Going to outer space costs between $5,000 to $10,000 per pound to reach low earth orbit never mind goi the mining site either on the Moon or some other celestial body.

Conceptually, the field began as an extension of the Cold War political-military competition. Thus, its content and s reflects those military origins while its history also illustrates the difficult process of disengaging the nonmilitary sect

those roots. That separation process is a slow and difficult one, but necessary if the full potential of space activities realized for humanity's sake. The continuing U.S. political controversy over technology exports to China and other s rooted in that earlier restrictive political-military perspective. Generally speaking, almost all space technologies are dual use in nature; meaning the same rocket can carry either a satellite to orbit or a warhead to a target across the Caution therefore characterizes the American response to fostering that technology's wider dissemination. Howeve regardless of U.S. concerns, other states, both U.S. friends and more hostile states, are demonstrating their indepe capability to develop space technologies equivalent to U.S. technologies or even better in some cases.

Remember space activities by their very nature are the essence of international activities. From Earth orbit or the M surface during the Apollo flights, there are no national boundaries visible on Earth even though the individuals who space have all come as representatives of both humanity and their particular nation. By the end of the 21st century hope that individual humans will go forth only as representatives of humanity. Saying that outer space is internatior however does not make it so. Individual states remain very concerned about the possible military and commercial implications of using outer space. The United States especially considers outer space both as a growing economic a potential future field for military conflict. How American concerns play out in the larger international political syste an issue because the United States has been the most willing to expend the economic resources necessary to mak concerns important enough for other states to address.

Text Materials:

Materials will appear as links to be found on the web. Reading assignments are incorporated into the modules as li articles and a textbook. Students are responsible for keeping current with reading assignments.

James Clay Moltz - *The Politics of Space Security* (2nd ed.)

Michael A. G. Michaud – *Reaching for the High Frontier: The American Pro-space movement, 1972-1984* (We Praeger Books, 1986). This book is out of print but can be found at the following web location: http://www.ns /resources/library/spacemovement/index.htm (http://www.nss.org/resources/library/spacemovement/inde:

Other materials will be drawn from NASA history volumes and Roger Handberg - *International Space Commer Building from Scratch,* chapters are attached to modules as germane.

Course Objectives:

Students will acquire a general understanding of the historical foundations, present context and future development space as an arena for human activities. As part of that process, students will

1. Develop an understanding of the field's historical development.
2. Understand the influence of technology and politics upon the development of space activities. Space activities immersed in politics often to the engineers' dismay but a reality that must be addressed.
3. Develop an understanding of the international implications of space activities.
4. Become aware of the organizational forums and processes (public, private and international sectors) through w space is accessed and exploited for human benefit.
5. Develop an appreciation for the human and economic developmental potential inherent in space activities.
6. Analyze the changing parameters of space policy as we move through the 21st century especially the rapidly cl nature of military space activity.
7. Demonstrate the ability to access information regarding ongoing space activities and proposed future activities.

8. Learn how to write sophisticated analyses of issues within the ambit of space policy both internationally and do

Communicating within the Course

In this class our official mode of communication is through email located inside Canvas or through roger.handberg (mailto:roger.handberg@ucf.edu) . All communications between student and instructor and between student and stu should be respectful and professional. It is the student's responsibility to check the course email tool frequently to k with any announcements. You must also create a Knight's Email account at www.knightsemail.ucf.edu (http://www.knightsemail.ucf.edu) for separate official communications from the university or the instructor. Inquires a grade or other aspects of the course can only be answered through the Knight's email system, not Yahoo, Gmail or commercial vendors. This is a university policy required by federal law, the instructor is not authorized to ignore. If y able, you can meet with the instructor during normal office hours or make an appointment for other times as necess

Grade Structure:

Grades are determined through a variety of student activities including two examinations taken on line through the (function, three assignments completed on the web, and a web link search for extra credit. The overall weight assigr activity is shown below with a brief description provided for each facet. Due dates items are due is provided in the assignments section of the course website. A total of 1000 points will be assigned across the semester with each g segment assigned a point value. Final grades will be recorded as A, B, C., etc rather than incorporating pluses anc Grades are posted through the course website and accessible as soon as the materials are graded.

Plagiarism and Cheating of any kind on an examination, quiz, or assignment will result at least in an "F" for that ass (and **may** depending on the severity of the case, lead to an "F" for the entire course). such actions will be also subj appropriate referral to the Office of Student Conduct for further action. See the UCF Golden Rule for further informa http://goldenrule.sdes.ucf.edu/ (http://goldenrule.sdes.ucf.edu/) . I will assume for this course that you will adhere academic creed of this University and will maintain the highest standards of academic integrity. In other words, don giving answers to others or taking them from anyone else. I will also adhere to the highest standards of academic ir please do not ask me to change (or expect me to change) your grade illegitimately or to bend or break rules for one that will not apply to everyone.

Examination – 20 %

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Assignments– 60% total (total of three assignments across the term)

Introductory Assignment – 5% - extra credit –only opportunity for extra credit provided during the term, once tl introductory assignment close; no other extra credit opportunities will be made available. There are discussion several modules, you must participate in the discussions if you wish to have any consideration given if your fin ends up on the cusp of an "A" or a "B," etc. The instructor at the end of the term will assess whether you have participated in discussions or not, if not, no additional consideration will be given if your grade is between a let or not. If you chose not to participate there is no punishment, this is strictly an add if necessary.

NOTE: All assignments and other submissions are to be done in MS Word format; otherwise, I am unable t document. This may lead to a delay in grading the materials while you resubmit the assignment. A second occurrence will result in a "zero" for the assignment. This restriction means no Word Perfect, MS Works or word processing programs are accepted.

Examinations can incorporate both essay and short answer formats. Students will be queried as to their understanc processes engaged in developing space policy. The Assignments will test student understanding of different inform concepts discussed in the modules and in the readings. The Introductory Assignment involves students completing related biography and demonstrating certain techniques related to successfully completing the course. This is the (credit assignment available during this course so do not ask for additional attempts at extra credit.

The Web Link Annotation as part of the Extra Credit involves students locating Internet links not already identified ir course. Their assignment becomes annotating (describing and evaluating) in general terms the particular site's cor usability and then make some assessment as to its validity, usefulness and reliability as a possible source of inform including its sponsor. Simply put, is the link worth accessing or not? Much of the material on the Web is of dubious becoming a critical content evaluator and consumer of information is an important part of the course.

Course Assignments:

In this segment of the course, all students are to participate by completing the assignment as specified in the modu will have adequate time to complete the assignment based on reading modules, assigned readings and research th web or library. **Assignments are to be a minimum of 1,500 words, 10 references (not including the textbooks modules which can be cited but not counted as part of the required total), only half can be solely web altho library journal articles accessed through the Library website are not considered web only. Wikipedia is not acceptable reference; points will be deducted for its use, a second use will lead to a failing grade for the as Remember assignments must be in Word format. Late assignments are graded down a letter grade a day ur grade is reached. For assignment formatting, you must use the referencing system used by the American F Science Review which is available on line at this location:** http://uncg.libguides.com/apsr (http://uncg.libgu /apsr) **or you can google the style guide.**

Course Syllabus

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Schedule – Fall 2017

Module #	Module name	Date Open	Date Close	Assignment
Module 0	Getting Started	21 August	1 September at 11 pm	Complete extra credit in Module 0 including posting web annotation to the drop box
Module 1	Introduction - Historical, the Space Age's Beginnings Through Apollo, the Future	21 August	September 2 at 11 pm	Read Materials and respond to Discussion Group: "Was the Apollo Program a Freak of the Cold War? Work on Assignment 1
Assignment 1	Assignment 1	August 21	**September 16 by 11 pm**	Turn in Assignment 1
Module 2	Organizing Space: U.S. Government	3 September	September 20 at 11 pm	Begin Work on Assignment 2
Module 3	Organizing Space: Other Governments	21 September	September 27 at 11 pm	Work on Assignment 2
Module 4	Organizing Space: Private/Public Interface	28 September	8 October at 11 pm	Read materials and respond to Discussion Group: "Can the Private

				Sector Actually Conduct Exploration?" work on Assignment 2
First Test	**Test**	**9 October**	**12 October at 11pm**	Complete exam on line
Module 5	Commercial Space Futures	13 October	24 October by 11 pm	Complete Readings
Assignment 2	**Assignment 2**	12 September	**23 October by 11 pm**	**Turn in Assignment 2**
Module 6	Space Lift	25 October	31 October at 11 pm	Complete readings
Module 7	Space Station's Future	1 November	8 November at 11 pm	Complete readings & Respond to Discussion Group:"Should there be another Space Station, who pays?"
Module 8	Space Science	9 November	15 November at 11 pm	Complete readings
Assignment 3	**Assignment 3**	**October 25**	**11 November at 2300 hours**	**Complete Assignment 3**
Module 9	Human Spaceflight	16 November	24 November at 11 pm	Complete readings
Module 10	The Future, Commercial and Other	25 November	1 December at 11 pm	Complete readings & Respond to "Will Humans ever reach another star?"
Test 2	**Test**	**2 December**	**5 December at 11 pm**	**Complete exam on line**

Course Summary:

Date	Details
Mon Aug 28, 2017	Financial Aid Verification assignment (https://webcourses.ucf.edu/courses/1257200/assignments/5273266)
Fri Sep 1, 2017	Introductory Assignment (https://webcourses.ucf.edu/courses/1257200/assignments/5273260)
Sat Sep 16, 2017	Assignment 1 (https://webcourses.ucf.edu/courses/1257200/assignments/5273263)
Fri Oct 6, 2017	First Test (https://webcourses.ucf.edu/courses/1257200/assignments/5273261)
Mon Oct 23, 2017	Assignment 2 (https://webcourses.ucf.edu/courses/1257200/assignments/5273264)
Sat Nov 11, 2017	Assignment 3 (https://webcourses.ucf.edu/courses/1257200/assignments/5273265)
Tue Dec 5, 2017	Second Test (https://webcourses.ucf.edu/courses/1257200/assignments/5273262)