INR 4765 - Emerging Space Powers

Section: 0W60

College of Sciences

School of Politics, Security, and Intl Affairs

Course Information

Term: Spring 2025
Class Meeting Location:
Modality: WW
Credit Hours: 3.00

Instructor Information

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Course Description

INR 4765 COS-POLS 3(3,0) Emerging Space Powers: PR: POS 2401, or C.I. Examination of states' efforts to develop space technologies for purposes of economic, social and military development. Occasional.

Overview

Space policy remains a field that stands astride both the future and history in its scope, both idealistic and very practical. That means the quest to reach and explore outer space began many years ago as futuristic dreams and visions and is presently being pursued as an everyday reality across various sector of human life. This course focuses upon the use of space applications for the economic and social development of states across the globe with the military implications always lingering in the background. The primary focus here is upon the use of space for national development as different states define that goal. Two courses, one being PUP 4510 Space Policy deals with the development of the American space program while the other course, INR 4774 – Military Space Policy, deals explicitly with military space policy – a field of burgeoning interest to a multitude of states. Space policy as a field arose out of the dreams of visionaries but came to its first fruition as part of the now defunct Cold War competition between the United States and the former Soviet Union, now the Russian Federation.

That international political and military competition created a policy dichotomy between military and nonmilitary that still impacts the field when people ask whether a specific space application is dual use or not? That is: can the same technology with minimal modifications be employed for both military and civilian purposes? For example, the same rocket can serve as a launch vehicle taking a satellite to orbit or a ballistic missile carrying a warhead to a distant target. Most space applications clearly possess this dual use nature.

For emerging states, there are two paths to engaging in space activities. One builds off national efforts to develop missiles which are later converted to launch vehicles but the other which is more common is that a state identifies an economic or social goal that requires space based applications in order to be achieved. These states in effect operate on the fringes of the

first world space programs, benefiting from their technology development but moving in their own directions. An example of the first path would be China which initiated a missile program which morphed to include the developmental aspects of space while India's space program began originally and still heavily influenced by the expectation that space activities must assist the society in improving its level of economic development.

Since the end of the Cold War in 1991, the answer has changed based on past performance and current results including even poorer states especially because future space applications hold the potential to become an even more useful one for broader societal purposes. Poorer societies can benefit due to the ability of earth orbiting satellites to provide disaster warnings such as identifying growing droughts or the spread of disease or weather patterns likely damaging such as hurricanes. Remember the first images from space of weather 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 Program and the International Space Station (ISS) has politically run its course. This issue is best symbolized by the 2011 end of the Space Shuttle program with no immediate successor flight program on the horizon. Where the U.S. space program goes from here is being intensely debated but any definitive decision is not coming quickly because any government led program demands long term funding and commitment by Congress and the U.S. people. In an era of deficits, battles over national debt, and partisan gridlock a large scale civil space program is unlikely unless the aliens show up on our door step. Presidents can only propose but only Congress and ultimately the public decide how far things will go. The public remains supportive but only in a general sense. International competitors exist at least rhetorically to the U.S. and Russia but the test remains their willingness to continue expending large amounts of precious human and economic capital for increasing less political

advantage. China appears to have made that commitment. Private sector solutions flounder on the fact that the companies must make a profit. Going to Mars while intriguing even exciting does not hold any obvious profits for the private sector which would pay for the effort. What that means is that most private sector proposals assume the government must support the effort; otherwise, it will not happen. This is even clearer in the context of developing states where the government is expected to lead. Efforts to spin off space technologies to the private sector remain problematic in developing countries.

Conceptually, space activities began as an extension of the Cold War political-military competition. Thus, its content and structure reflects those military origins while its history also illustrates the difficult process of disengaging the nonmilitary sector from those roots even in developing countries. That separation process is a slow and difficult one, but necessary if the full potential of space activities is to be realized for humanity's sake. The continuing U.S. political controversy over technology exports to China and other states is rooted in that earlier restrictive political-military perspective. That perspective assumed that states outside the developed world were incapable of building indigenously similar technologies. Generally speaking, almost all space technologies are clearly dual use in nature; meaning the same rocket can carry either a satellite to orbit or a warhead to a target across the globe. Caution therefore characterizes the American response to fostering that technology's wider dissemination. However, regardless of U.S. concerns, other states both U.S. friends and more hostile states are demonstrating the independent capability to develop space technologies equivalent to U.S. technologies or even better in some cases.

Student Learning Outcomes

Course Objectives:

Students will acquire a general understanding of the historical foundations, present context and future development of outer space as an arena for human activities especially in the developing states. 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 national development of space activities. Space activities are immersed in politics often to the engineers' dismay but a reality that exists.
3. Develop an understanding of the international implications of space activities and its evolution as field as new states enter the field.
4. Become aware of the organizational forums and processes (public, private and international sectors) through which outer 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 for states new to the field.
7. Demonstrate the ability to access information regarding various states ongoing space activities and proposed future activities.
8. Learn how to write sophisticated analyses of issues within the ambit of space policy globally.

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Recommended Course Materials

Title: Text Materials: Text materials will appear in several forms: excerpts from a book and materials found on the web. Reading assignments will appear in the modules along with other readings you are responsible for completing. Students are responsible for keeping current with reading assignments. Reading assignments are specified in the modules.

Course Assessment and Grading Procedure

Grades are based on 2 exams (each worth 250 points) and 2 Assignments (work 250 points each) plus an opportunity for 50 points extra credit. Exams are essay exams completed within a 120 minute window. There are not additional extra credit opportunities available other than the one.

Assignment Schedule

Due Date	Assignment Name	Assignment Type	Points
	Apollo Program Freak of the Cold War	Discussion	0
	Can Rising Space Powers Operate without Interference	Discussion	0
	Can space based applications actually improve underdeveloped countries?	Discussion	0
	International space policy	Discussion	0
	Should there be unlimited access to space based media?	Discussion	0

Due Date	Assignment Name	Assignment Type	Points
1/13/25	Financial Aid Verification	Assignment	1
1/20/25	introductory Assignment	Assignment	50
2/12/25	Assignment 1	Assignment	250
2/26/25	First Test	Quiz	250
4/10/25	Assignment 2	Assignment	250
4/24/25	Second Test	Quiz	250

Grading Scale

Letter Grade	Percentage
A	900-1000
B	800-899
C	700-799
D	600-699
F	<600

Policies for Course Grade

Makeup Work Policy

Make up work normally not accepted unless unusual conditions apply such as severe illness or accident (which requires documentation). Police reports may be submitted to support

request. University authorized events are one exception but the student should notify the instructor in advance.

Missed/Late Assignments

Late assignments are accepted up to 4 days late, past that is not accepted except when documentation is available laying some severe circumstance.

Attendance

no attendance required given it is a web course

Course Accessibility

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need access to course content due to course design limitations should contact the professor as soon as possible. Students should also connect with Student Accessibility Services (SAS) (Ferrell Commons 185, sas@ucf.edu, phone 407-823-2371). For students connected with SAS, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential course access and accommodations that might be necessary and reasonable. Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student. Further conversation with SAS, faculty and the student may be warranted to ensure an accessible course experience.

Academic Integrity

Students should familiarize themselves with UCF's Code of Conduct at Student Conduct and Integrity Office. According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

a. Academic misconduct is defined as any submitted work or behavior that obstructs the instructor of record's ability to accurately assess the student's understanding or

completion of the course materials or degree requirements (e.g., assignment, quiz, and/or exam). Examples of academic misconduct include but are not limited to: plagiarism, unauthorized assistance to complete an academic exercise; unauthorized communication with others during an examination, course assignment, or project; falsifying or misrepresenting academic work; providing misleading information to create a personal advantage to complete course/degree requirements; or multiple submission(s) of academic work without permission of the instructor of record.

b. Any student who knowingly helps another violate academic behavior standards is also in violation of the standards.

c. Commercial Use of Academic Material. Selling of course material to another person and/or uploading course material to a third-party vendor without authorization or without the express written permission of the University and the instructor of record. Course materials include but are not limited to class notes, the instructor of record's slide deck, tests, quizzes, labs, instruction sheets, homework, study guides, and handouts.

d. Soliciting assistance with academic coursework and/or degree requirements. The solicitation of assistance with an assignment, lab, quiz, test, paper, etc., without authorization of the instructor of record or designee is prohibited. This includes but is not limited to asking for answers to a quiz, trading answers, or offering to pay another to complete an assignment. It is considered Academic Misconduct to solicit assistance with academic coursework and/or degree requirements, even if the solicitation did not yield actual assistance (for example, if there was no response to the solicitation).

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, *The Golden Rule*. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct and Academic Integrity, which could lead to disciplinary warning, disciplinary probation, or deferred

suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a “Z” designation on one’s transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Let’s avoid all of this by demonstrating values of honesty, trust, and integrity. No grade is worth compromising your integrity and moving your moral compass. Stay true to doing the right thing: take the zero, not a shortcut.

Title IX

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at Let's Be Clear and UCF Cares.

For more information on diversity and inclusion, Title IX, accessibility, or UCF’s complaint processes contact:

- Title IX – OIE – Office of Institutional Equity & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services – Student Accessibility Services & sas@ucf.edu
- Access and Community Engagement (including the Ginsberg Center for Inclusion and Community Engagement, Military and Veteran Student Success, and HSI Initiatives)
- UCF Compliance and Ethics Office – Compliance, Ethics, and Risk Office & complianceandethics@ucf.edu
- The Ombuds Office is a safe place to discuss concerns.

Reporting an Incident or Issue

If you believe you have experienced abusive or discriminatory behavior by any faculty or staff member, contact the Office of Institutional Equity online or at 407-823-1336. You can also choose to report using the UCF Integrity Line and can report anonymously or as yourself at 1-855-877-6049 or using the online form. UCF cares about you and takes every report seriously. For more information see the Reporting an Incident or Issue Webpage.

Deployed Active-Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Campus Safety

At UCF Public Safety and Police, safety is the top priority. Emergencies on campus are rare, but if one should arise, it's important to be familiar with some basic safety and security concepts.

- In an emergency, always dial 911.
- Every UCF classroom has an **Emergency Procedure Guide** posted on a wall near the door, which will show you how to respond to a variety of situations. This guide can also be found online here.
- In the event of an active threat, remember **AVOID, DENY, DEFEND**. Choose the best course of action and act immediately. Watch the video here to learn more.
    - **AVOID**. Pay attention to your surroundings and have an exit plan. Get as much distance and as many barriers between you and the threat as quickly as possible.
    - **DENY.** When avoiding is difficult or impossible, deny the threat access to you and your space. Lockdown by creating barriers, turning the lights off and remaining quiet and out of sight. Make sure your cell phone is silenced, but do not turn it off.
    - **DEFEND.** When you are unable to put distance between yourself and the threat, be prepared to protect yourself. Commit to your actions, be aggressive

and do not fight fairly. Do whatever it takes to survive.

- For emergencies on campus, UCF will utilize the UCF Alert system. All UCF students, faculty and staff are automatically enrolled to receive these email and text alerts, however, it's a good idea to frequently ensure your contact information is up to date.

Financial Aid Accountability

All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete this activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Class Schedule

Week	Topic
1	

INR 4765– Emerging Space Powers

Syllabus/Schedule – Spring 2025

Module #	Module name	Date Open	Date Close	Assignment* Remember Reading Assignments in the Modules
Module 0	Getting Started	January 6th	January 22nd at	Complete extra credit in Module

		Week				Topic
			11pm	0 including posting web annotation to the drop box		
Financial Aid Verification	**Financial Aid Verification**	**January 6th**	**January 13th**	**Complete Financial Aid Verification by January 16th, do not ignore may lead to financial aid issues, complete even if past due date.**		
Module 1	Introduction - Historical, the Space Age's Beginnings, Determining Why Space Activities?	January 6th	January 17th at 11pm	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**	**January 6th**	**February 12th at 11pm**	**Turn in Assignment 1**		
Module 2	Organizing	January	January	Work on		

		Week				Topic
	Space, Determining Level of Engagement in Space Activities	18th	24th at 11pm	Assignment 1		
Module 3	Organizing Space Internationally, the International Space Infrastructure	January 25th	January 31st at 11pm			
Module 4	Organizing Space, Dual Use Technology Issues	February 1st	February 10th at 11pm	Read materials and respond to Discussion Group: “Can Rising Space powers operate without interference?” work on Assignment 1		
Module 5	Enter the Second Wave	February 11th	February 23rd at 11pm	Complete Readings		
First Test	**Test**	**February 24th**	**February 26th at 11pm**	**Complete exam on line**		
Module 6	Enter the	February	March 4th	Complete		

		Week				Topic
	Third Wave	27th	at 11pm	readings		
Module 7	Enter the Fourth Wave	March 5th	March 16th at 11pm	Start Assignment 3, Complete readings & Respond to “should there be unlimited access to space based media?”		
Spring Break	**Spring Break**	**March 17th**	**March 22nd**	**be safe**		
Module 8	Space Science, Frill or Symbol or Necessity?	March 23rd	April 3rd at 11pm	Complete readings		
Assignment 3	**Assignment 3**	**February 27th**	**April 10th at 11pm**	**Complete Assignment 2**		
Module 9	Ultimate Symbol of Success or Mirage, Human Spaceflight	April 4th	April 10th at 11pm	Complete readings		
Module 10	The Future?	April 11th	April 18th at 11pm	Complete readings & Respond to “Can space		

		Week				Topic
				based applications actually improve underdeveloped countries?”		
Test 2	**Test**	April 21st	**April 2^{4th} at 11pm**	**Complete exam on line**		