

Western University

Geography 2090: Space Exploration

Intersession (Spring) 2017

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Office: SSC 2410
Office Hours: Friday 1-4
Class Location: SSC 3024
Lecture Days: Wednesday & Thursday
Lecture Hours: 1:00 PM – 4:00 PM

Important Dates

May 17 th :	First Class
June 1 st :	Minor Assignment Due
June 7 th :	Mid-Term Test
June 22 nd :	Major Assignment Due
June 22 nd :	Last Class
June 26-27:	Exam Period

Course Description

From Western Timetable: Survey of human activity in outer space, including history of spaceflight, scientific exploration, economic and military uses of space, natural resources and hazards, legal and ethical implications, and plausible future developments.

From Instructor: This course is designed to introduce students to the importance of Space as a place of endeavor for all humans, and as a reality in their daily lives. Space in this course is explored from the perspective of a geographer, with the goal of understanding it historically, physically, politically and socially. The course is not an astronomy or planetary science course; though, these fields are central to basic understanding of space exploration concepts and will be addressed as necessary. The objectives of the course are for students to: gain requisite knowledge of the history of human interaction with non-Earth places, to understand the physical geography of our solar system, and to recognize the political, scientific and cultural importance of space in daily life.

Course Materials

There is no textbook for the course, readings will be posted on OWL.

Lecture Schedule (*Subject to Minor Changes)

Week	Day	Topic	Part 1	Part 2	Readings
1	17-May	<i>History of Space Exploration</i>	Course Introduction: Why Space Matters	Before the Space Age	Moltz (2014) Getting into Orbit Messeri (2016): From Outer Space to Outer Place Harland (2008): Magnificent Desolation
	18-May		The Space Race	The Apollo Program & Debunking Lunar Conspiracies	
2	24-May	<i>Near Earth Space</i>	The U.S. Space Shuttle & Shuttle Disasters	Space Stations	Thompkins (1993): The Challenger Accident NASA (2017): The Human Body in Space Harrison & Bednar (2017): Keeping an Eye on Climate Change
	25-May		Earth Observation, Navigation, & Communication	Orbital Debris & Class Exercise: Solving Orbital Debris	
3	31-May	<i>The Solar System</i>	Formation & Physics, of the Solar System	The Geography of the Solar System	Rothery (2010): The Solar System Rothery (2015): The Discovery and Significance of Moons Plait (2013): Our Solar System is not a Vortex
	01-Jun		Major Assignment Information	Guest Presentations: Planetary Processes and Analysis	
4	07-Jun	<i>Exploration of the Solar System: Past & Present</i>	Mid-Term Test	Exploring the Inner Solar System	Lane (2006): Mapping the Mars Canal Mania Van Pelt (2007): Anatomy of a Spacecraft
	08-Jun		Exploring the Outer Solar System	Guest Presentations: Space Robotics and Imaging	
5	14-Jun	<i>Politics of Space</i>	The Outer Space Treaty & International Conventions	Class Debates: Humans v. Robots & Can Anyone Own Space?	Tronchetti (2013): The Legal Framework Regulating International Outer Space Activities MacDonald (2007): Anti-Astropolitik - Outer Space and the Orbit of Geography Canadian Space Agency (2014): Canada's Space Policy Framework
	15-Jun		Space Actors	Class Exercise: Designing a Canadian Space Strategy	
6	21-Jun	<i>Space & Culture</i>	Aliens & Astrobiology	Class Exercise: First Contact	Sage (2008): A Popular Geopolitics of American Manifest Destiny in Outer Space Dittmer (2010): Popular Culture, Geopolitics, & Identity: Preface
	22-Jun		Space in Film & Television	Exam Review	

Readings

Most weeks have two or three readings. Readings compliment lecture material and are considered mandatory for gaining an in-depth understanding of the course content. Exams will test understanding of both the in-class materials as well as the readings (especially where they overlap). To receive a high mark in the minor or major assignment it is necessary to have worked through the readings.

Evaluation

Mid-Term Test – 20%

Minor Assignment - 15%

Major Assignment – 35%

Final Exam – 30%

Mid-Term Test: June 7th

The mid-term will be held in class. It will test material from all lectures and readings from weeks 1 through 3. It will contain 100 multiple choice questions.

Final Exam: June 26th or 27th

The final Exam will be held on the 27th or 28th of June. It will test all lectures, readings and guest presentations from Weeks 4 through 6.

Minor Assignment: June 1st

This summer, the Canadian Federal Government is planning on releasing a new Canadian Space Strategy. As part of this process, they are accepting public input on what the Canadian Space Agency (CSA) should make its priorities over the coming years. To inform the public, you are to take on the task of a popular online writer.

Your assignment is to write a 'listicle' of the 8 greatest accomplishments of Canada/Canadians in Space **OR** 5 priorities the Canadian Space agency should have moving forward. The list should be well focused and reflect knowledge of what the CSA has worked on in the past and their existing expertise. As a primer, you need to read the [consultation paper for the Space Advisory Board](#), as well as the Canadian Space Policy Framework posted on the Government of Canada's website (and on OWL).

The writing style can be relatively informal, as if you are writing a blog post, but it needs to remain professional in nature. There should be effective use of credited photos or figures, as well as links to other useful sources. Government of Canada websites and course materials should provide much of the material you will need, but you are free to conduct as much research as you'd like (and will need to in order to get an 'A'). Example listicles will be posted on OWL.

The assignment is due in physical form in class June 1st

Major Assignment: June 22nd:

There are two options for the assignment:

OPTION 1

Option 1 requires you to create a public style document about the strategic plan for an 'emerging' space actor's space agency. Essentially, you are to recreate something like the Canadian Space Policy Framework, but for another country, reflecting their own histories and current publicized priorities. This includes highlighting what has already been done relating to space by the country's governments, as well as the priorities and goals the agency has presented moving forward. As this is focused on so-called 'emerging-nations' the following space actors are not options for the assignment: The United States, China, Japan, Russia, India, or the European Space Agency (or its members). Also, the report cannot be done on Canada.

The report can look however you want, one reference document may be the Canadian Space Policy Framework, where a mix of figures and images with text components make it accessible and presentable to the public and experts alike. To receive an 'A' you will need to conduct academic research on the space agencies existing initiatives, as well as research on their future ambitions.

OPTION 2

Studying space requires a keen eye for malarkey and hogwash, your assignment is to expose yourself to such inanity and develop the requisite understanding of planetary science in order to debunk it.

This option requires viewing of "Aliens on the Moon: The Truth Exposed" which is available on popular streaming websites (other freely available documentaries may also be acceptable in discussion with the instructor).

"Aliens on the Moon: The Truth Exposed" makes a number of claims about the following topics which you will need to research in order to refute with skepticism and reference to existing work by legitimate space scientists. The areas you will need to become familiar with (at an intermediate level) are:

- 1) The Scientific Method
- 2) Martian Geology
- 3) Lunar Geology
- 4) Planetary Image Interpretation

You do not need to become an expert in these topics to debunk the claims in the film. All of the surface features on which the film basis its premise are commonly interpreted by planetary scientists on a regular basis (you can often see them doing so on Twitter). You need to learn about basic image interpretation methods, existing interpretations of Lunar and Martian surface geology, and then, apply this knowledge to the features in the film.

There is no suggested length for the report, other than you need to identify 5 features mentioned in the film and explain how planetary geologists or physical geographers have interpreted these types of features in the past and what conclusions they have come to.

The Major Assignment is due in physical form, in class, on June 22nd

Mental Health

If you or someone you know is experiencing distress, there are several resources here at Western to assist you. Please visit the site below for more information on mental health resources:

<http://www.uwo.ca/uwocom/mentalhealth/>.

Western's commitment to accessibility

The University of Western Ontario is committed to achieving barrier free accessibility for persons studying, visiting and working at Western.

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 Ext. 82147 for any specific question regarding an accommodation.

Support Services

Registration Services: <http://www.registrar.uwo.ca/>

Student Development Services: <http://www.sdc.uwo.ca/>

Accommodation and Medical Absence

For UWO Policy on Accommodation for Medical Illness and a downloadable SMC see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

Students seeking academic accommodation on medical grounds for any missed tests, exams, participation components and/or assignments worth 10% or more of their final grade must apply to the Academic Counselling office of their home Faculty and provide documentation.

Academic accommodation cannot be granted by the instructor or department.

Academic Offences (Plagiarism)

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com.