

Course Information

Space Science Short Course SPACE 9002

List of Prerequisites

No specific prerequisites are required, but previous enrollment in at least one Earth Science or Planetary Science course is generally required. Please speak to the instructors if you have any concerns or are seeking an exception.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Instructor Information

Course Coordinator: Dr. Gordon Osinski

Western Space Director: Professor, Department of Earth Sciences (cross appointed with Physics and Astronomy and Electrical and Computer Engineering), and NSERC/MDA/CSA/CEMI Industrial Research Chair in Earth and Space Exploration.

Instructors: Various Faculty

Course Syllabus, Schedule, Delivery Mode

This is an intensive 7-day short course for graduate students, researchers, industry and government employees on planetary science. This course is mandatory for all new planetary science graduate students at Western and should be taken during the first year. The focus of the course will be on the fundamental processes that have shaped the terrestrial planets and their moons, and asteroids. Particular emphasis will be placed on investigations of the Moon, Mars, and asteroids, which represent the highest priority targets for the Canadian planetary science community and the Canadian Space Agency. Some of the world's leading experts on planetary science will present 1 day or half-day modules on selected topics. The course will be suitable for advanced undergraduate students, graduate students and for professionals from industry and government. The course will feature both overview lectures on background theory, smaller topical study groups as well as hands-on activities involving imagery returned from unmanned orbiters and landers as well as astromaterials in the form of meteorites and analogue materials. Recent and ongoing planetary missions will be highlighted. It is intended to provide the non-specialist with a working knowledge of the multidisciplinary fields within planetary science.

Course Schedule

Date Day Topics/Modules

Day 1 **Lecture 1:** Welcome and Course Introduction
Lecture 2: Small Bodies
Lecture 3: Solar System Formation

Day 2 **Lecture 4:** Planetary Surfaces
Lecture 5: Astromaterials

Day 3 **Lecture 6:** Planetary Data Sets
Lab 1: Introduction to JMARS

Day 4 **Lecture 7:** Planetary Atmospheres
Lab 2: Landing Site Selection

Day 5 **Lecture 8:** Astrobiology
Lecture 9: Exoplanets

Day 6 **Lab 3:** Atmospheres of Icy Moons
Team Projects: Group research preparation time.

Day 7 **Student presentations:** Presentations start at 9:00 am