Planetary Science Short Course

2016 Planetary Science Short Course (PLANETSC 9603A)

Offered through the Centre for Planetary Science and Exploration (CPSX), the Department of Earth Sciences, and the Department of Physics and Astronomy, University of Western Ontario & NSERC CREATE Technologies and Techniques in Earth and Space Exploration (http://create.uwo.ca)

Contact: Dr. Tony Withers (tony.withers@uwo.ca; +1-519-661-2111 x.88627; room 1018 B&G)

When: Aug 29 – Sep 4, 2016

Where: Western University, London, Canada (rooms TBD)

Prerequisites/Antirequisite:

There are no prerequisites.

Course Description

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. This course will focus on the following topics or modules:

- Cosmogony – Origin of the solar system and planet formation.
- Planetary interiors.
- Planetary surfaces.
- Planetary atmospheres.

- Exoplanets.
- Small solar system bodies

Specific topics that will be addressed within the modules, where applicable, include:

- The use of remote sensing datasets from planetary missions.
- Terrestrial analogues of space environments.
- Astromaterials and analytical techniques for sample analysis.

Registration

Course registration fees are **$300 for students studying *outside* of Ontario**, and **$1400 for professionals**. Please click here to go to the registration webpage. Fees will cover the costs of course organization, speakers, and course notes. No additional university fees will be charged to professional registrants. (*All prices include taxes*).

Students from Western or another Ontario University: email cpsx@uwo.ca to register. There is no registration fee, however you may elect to pay a fee of $150 which will provide you with lunch every day. This is strongly encouraged (other options are very limited before the start of the semester), but not mandatory. In the email please include:

- Subject Line: 2016 CPSX Short Course Registration – (Your Name)
- In the body of the message, please include:
    - Your name
    - Your supervisor's name (if applicable)
    - Your position (faculty, post-doc, graduate student, undergraduate student)
    - If you plan to attend the entire course (if not, specify which modules you are interested in)
    - If you have any accessibility requirements (please describe)
    - If you are electing to pay $150 for lunches

Instructors

Instructors for various modules include Dr. Audrey Bouvier, Dr. Peter Brown, Dr. Margaret Campbell-Brown, Dr. Stan Metchev, Dr. Catherine Neish, Dr. Livio Tornabene, and Dr. Tony Withers.

Course Objectives

The principal objective of this course is to provide participants with a broad overview of planetary science. Study groups will focus on narrow topics to be researched by each group and a final brief presentation on each topic made on the last day of the course.

Course Schedule

The course will run from Monday 29th August to Sunday 4th September. In addition to the full (seven day) daytime schedule some evening work may be required.

Course Format

Each session will feature a series of presentations by the instructor, hands-on exercises and laboratory sessions. Time will be allocated at the end of each day to discuss materials presented in the class, examine sample suites where available and applicable, and assist with problem sets.

Course Materials

A complete set of course notes and related reading material will be provided for each session of the course. These will form the basis for problem sets and practical exercises. Lecture notes and supplementary reading materials will be made available through the course OWL site. Students are encouraged to bring personal computers to be used for accessing course materials, researching group projects and completing labs and project reports.

Course Evaluation

The one week course (PLANETSC 9603A) is a 0.5 FCE credit. Students registered in the course will be evaluated as follows:

- Problem sets, exercises, and laboratory write-ups – Due on Sep. 4 **40%**
- ** Project management report and project proposal – Due on Sep. 4 **5%**
- ** Group project report – Due by Oct. 16 **30%**
- ** Group project presentation **20%**
- Student evaluation and critique of other group presentations **5%**

** *The short course group project will involve groups of students working on various aspects of planetary exploration mission development. Each team will focus on a particular aspect, or aspects, of mission design or implementation. Groups will research each topic, preparing their presentation in the form of a proposal. Each group will decide the role played by each team member; at the end of the project the other group members will confidentially assess each member's contribution to the final presentation. Further guidance will be provided on the first day of the course. Time will be made available to develop the group projects throughout the course in the mid-late afternoon; some evening work may also be required.*

Accessibility

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2111 x 82147 for any specific question regarding an accommodation.

Professional Development

The course is applicable toward continuing education and professional development requirements for Professional Registration.

Graduate Student Credit and Registration

This course will correspond to the University of Western Ontario PLANETSC 9603A. Students from any university are eligible to take the course and may receive credit in their respective institutions, subject to approval from their home Department. Students enrolled at ONTARIO universities wishing to transfer credit for this course to their home institution must complete an Ontario Visiting Graduate Student form available here. For instructions on submission of this form, please contact us (cpsx@uwo.ca).

Travel & Accommodation

The course will take place at Western University in London, Ontario. A map showing the location of the Physics & Astronomy building, the Biological & Geological Sciences building and the Social Science parking lot is available here. Western visitor information can be found here.

Accommodation options near campus include The Guest House on the Mount, Windermere Manor and the Ivey-Spencer Leadership Centre. Several of the common hotel chains (Marriott, Delta, Holiday Inn, Hilton, etc.) have locations downtown, and there are a variety of economical options on Wellington St. S. For London Tourism info, please visit www.londontourism.ca.

Course Marks

Short Course marks will be available at the end of the Fall 2016 term (December 2016).

Please contact cpsx@uwo.ca with any questions.