# GEOLOGY 710B/ASTRO 710B: Mars: From its Interior to its Moons

Contact: Peter Brown, pbrown@uwo.ca, x86458

**Location/time:** Physics & Astronomy, Rm. 213E. 3.30-5:30pm Tues., starting Jan. 16, 2007. **Assessment:** Two student presentations. Small assignments. Class participation. See next page for details.

Class web page: http://aquarid.physics.uwo.ca/~pbrown/astro710/

### Schedule (subject to minor changes)

TOPIC /	DATE	PAPER(S)	FACULTY
ASSESSMENT			
<ol> <li>Comparative planetology &amp; basic properties of Mars</li> </ol>	Jan. 16	<ul> <li>Carr, M.H. "Mars" In: J. Kelly Beatty, Carolyn Collins Petersen, Andrew Chaikin (Editors), 1999. The New Solar System. 4th ed. Cambridge University Press. p. 141-156.</li> <li>Lewis, J.S., 1997 (rev. ed.). Physics &amp; Chemistry of the Solar System, Academic Press, p. 433-472.</li> </ul>	Guest
2. History of studies of Mars	Jan. 23	Carr, M. H., 1981. The Surface of Mars. Yale University Press. Chapter 1.	Phil Stooke
3. The crust of Mars ABSTRACT ON MER RESULTS DUE	Jan. 30	H. Y. McSween, Jr. 2002. The Leonard Medal Address: The rocks of Mars, from far and near. Meteoritics & Planetary Science, 37, 7-26.	Guest
4. The volcanoes of Mars REFERENCES FOR PRESENTATION 2 TOPIC DUE	Feb. 6	Carr, M. H., 1981. The Surface of Mars. Yale University Press. Chapter 7.	David Lescinsky
5. The geomorphology of Mars	Feb. 13	Malin, M.C., Edgett, K.S., Posiolova, L.V., McColley, S.M. & Noe Dobrea, E.Z., 2006. Present-day impact cratering rate and comtemporary gully activity on Mars. Science, 314, 1573-1577.	Phil Stooke
6. Regolith & water on Mars STUDENT PRESENTATIONS (1)	Feb. 20	Elements Magazine, June 2006. http://www.elementsmagazine.org/	Peter Brown
7. Potential for life on Mars	Mar. 6	Clark, B.C. (1998) Surviving the limits to life at the surface of Mars. Journal Geophysical Research, 103, 28,545- 28,555.	Neil Banerjee/ Gord Southam
LPSC conference	Mar. 13	No class.	
8. Mars' core ABSTRACT ON PRESENTATION 2 TOPIC DUE	Mar. 20	<ul> <li>Fei Y. and Bertka,C. 2005, Enhanced: The Interior of Mars. Science, 308, 1120-1121 DOI: 10.1126/science.1110531</li> <li>C. F. Yoder, A. S. Konopliv, D. N. Yuan, E. M. Standish, W. M. Folkner, 2003. Fluid Core Size of Mars from Detection of the Solar Tide. Science 300, 299-303.</li> </ul>	Phil McCausland
9. The mantle of Mars	Mar. 27	Taylor, G. J., 2006. A Primordial and Complicated Ocean of Magma on Mars. <i>Planetary Science Research</i> <i>Discoveries</i> http://www.psrd.hawaii.edu/Mar06/mars_magmaOcean.h tml (2006).	Phil McCausland
10. Mars' Moons - Phobos and Deimos	Apr. 3	<ul> <li>Carr, M. H., 1981. The Surface of Mars. Yale University Press. Chapter 15.</li> <li>Veverka and Burns 1980. Ann. Rev. Earth Planet. Sci., 8, 527-528.</li> </ul>	Paul Wiegert
11. STUDENT PRE- SENTATIONS (2)	Apr. 10		Peter Brown

12. OTHER	TBA	Guest lecturers	TBA

## ASTRONOMY 710B – Mars: From its interior to its moons - Assessment

#### A. Student presentations (60% total)

Your grade for the two presentations will be assigned by the professor.

Presentation 1: Feb. 20. Regolith and water on Mars (25%). Topics to be assigned on Jan. 16.

Presentation 2: April 10. A topic of your choice – see below (35%).

NOTE: Papers/articles cited and/or related to your presentation must be handed in to the professor on the day of your presentation (they will be returned).

#### **Presentation assessment**

1. Content (15%)
Organization (0-15) \_\_\_\_\_
Relevance and logic of ideas presented (0-20) \_\_\_\_\_
Comprehension and knowledge of field (0-25) \_\_\_\_\_\_
2. Presentations (10%)
Visual aids, legibility and clarity (0-20) \_\_\_\_\_\_
Diction (enunciation, volume, clarity) (0-10) \_\_\_\_\_\_
Effective use of allotted time (0-5) \_\_\_\_\_\_
General style, liveliness, stage presence (0-5) \_\_\_\_\_\_

#### **B. Small assignments (30%)**

#### Abstract stating new findings of the MER mission relative to previous missions (10%)

Due Jan. 30. Should be written following the American Geophysical Union abstract guidelines: www.agu.org, but should reference at least three papers.

#### **Reference list for your topic for Presentation 2 (7%)**

Due Feb. 6. A list of papers related to your presentation topic (beyond those listed in the article).

#### Statement of your topic for Presentation 2 (10%)

Due March 20. Should be written following the American Geophysical Union abstract guidelines: www.agu.org. Note: students in atmospheric science are expected to work on a topic related to Mars' atmosphere and climate.

#### Your assessment of your fellow students' presentations (3%)

A more detailed version of the presentation assessment given above (i.e. with comments).

To be handed in at the end of the presentation classes.

#### **<u>C. Class participation (10%)</u>**

Grade will be assigned based on contribution and liveliness in discussion during the course. We will also consider attendance, including attendance at guest lecture(s) – let us know if you can't make those events.

**Due dates:** Minus 10% per day late. If you have exceptional circumstances, please contact the instructor in advance of the due date to make alternate arrangements.

#### How to avoid cheating and plagiarism (Source: the UWO Educational Development Office)

1. Always tell the truth.

- 2. Read forms carefully. Ask if you are not sure of something.
- 3. Respect the rules, including the specific rules for a given course, lab, project, test or assignment.
- 4. Disclose all the relevant details of your situation when asking advice, and ask before doing anything you are unsure about.
- 5. Consider the possible consequences of you actions. Could someone be hurt on inconvenienced? What harm or damage might result? Are you prepared to pay the cost?

#### In tests and exams

- 1. Do not sit near friends.
- 2. Shield your answer sheet so that others cannot see it.
- 3. Take no notes, books or other items into a test or exam except those expressly authorized.
- 4. Do not gaze around the room when writing a test or exam.
- 5. Do not communicate with any other student during a test or exam: communicate only with the instructor or proctor.
- 6. Arrive on time. Hand in all papers required.
- 7. If you hear of anyone obtaining information about a test or exam in advance, tell the instructor.
- 8. If exam procedures seem inadequate to you, let the instructor know what your concerns are.
- 9. Report any unusual or suspicious behaviour to the proctor or instructor.

In essays, reports and other assignments

- 1. Do not work with a fellow-student on any assignment unless authorized to do so.
- 2. Acknowledge all assistance received, including help from friends or others in terms of proofreading, suggestions or information.
- 3. Do not cite in your bibliography any sources which you have not used for the assignment in question.
- 4. Do not lend your work to other students unless you feel certain they will not use it dishonestly.
- 5. Keep a photocopy of all assignments, essays, and reports you hand in to be graded. Keep rough copies and notes until your final grade is received. Notes and rough copies can constitute valuable evidence that your work is your own.
- 6. If you submit an assignment by sliding it under an instructor's office door (not recommended), confirm the next day or as soon as you can that the assignment was received. Make a note of the actual time and date of submission.
- 7. When in doubt about any practice, ask your instructor or other authority. Do not rely on friends, relatives or fellow-students for information about what is acceptable practice in a course, an academic discipline or at the University.

8. When material you read impresses you, be particularly careful to use your own words. Use quotation marks and cite sources whenever you use the words of another, even phrases only one or two words in length. Acknowledge all sources of information and inspiration. Think of 4 A's: Always Acknowledge All sources Appropriately.