**READING LIST**

**GEOLOGICAL SCIENCES 0050 – Mars, Moon, and the Earth**

Semester 1 2015-2016, MWF 2:00-2:50 PM, MacMillan Hall 115

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Course Website: [http://www.planetary.brown.edu/planetary/geo5/](http://www.planetary.brown.edu/planetary/geo5/)


Note: These texts are online only; URLs are provided (see Reading List posted on course web site), but not all link directly to the specific section cited. Those sections *italicized* are recommended additional reading.

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<th>Date</th>
<th>Topic and Reading Assignment (see syllabus)</th>
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| 9/9  | **I. Introduction**  
ExP: **Chapter 1 (The Solar System)**. |
| 9/11 | **II. 1. Earth - Provinces**  
EDS Chapter 1, Planet Earth, p. 15-25.  
ExP: **Chapter 8.4 (Surface of the Earth)**. |
| 9/14 | **II. 2. Earth - Interior**  
EDS: Chapter 1, Structure of the Earth, p. 13-15.  
*EDS*: **Chapter 18, Seismicity & the Earth's Interior**, p. 508-534.  
ExP: Chapters 2.4 (Internal Differentiation of the Planets & section on Planetary Lithospheres)  
ExP: **Chapter 8.3 (Internal Structure of the Earth)**. |
|      | **II. 3. a, b. Earth - Lithosphere - Tectonics and Continental Drift**  
EDS: Chapter 7, Structure of Rock Bodies, p. 166-186.  
EDS: Chapter 17, Plate Tectonics, p. 480-506.  
*EDS*: **Chapter 6, Metamorphic Rocks**, p. 144-155, 161-164.  
ExP: **Chapter 8.5 (Earth’s Tectonic System)**. |
II. 3. c. Earth - Igneous Processes and Volcanic Activity
EDS: Chapter 4, Igneous Rocks, p. 80-112.
EDS: Chapter 19, Divergent Plate Boundaries, p. 536-562.
EDS: Chapter 22, Hot Spots and Mantle Plumes, p. 632-656.
ExP: Chapter 8.6 (Volcanism on Earth).

II. 4. Earth - Atmosphere and Hydrosphere
EDS: Chapter 10, Weathering, p. 248-257.
EDS: Chapter 12, River Systems, p. 296-302.
ExP: Chapter 2 (Planetary Atmospheres and Hydrospheres & Conclusions).
ExP: Chapter 8.7 (Earth’s Hydrologic System).

II. 5, 6. Earth - History and Summary
EDS: Chapter 8, Geologic Time, p. 188-211.
EDS: Chapter 19, History of Plate Movement, p. 569-571.
ExP: Chapter 8.8-8.9 (Geologic History of the Earth & Conclusions).

III. 1-3. Moon - Characteristics, Provinces, Interior
EDS: Chapter 25, Other Planets, p. 724-733.
ExP: Chapter 4.0-4.3, 4.9 (Introduction through Major Geologic Provinces and Internal Structure of the Moon).
Apollo 15 Commander David R. Scott: Apollo 15 – Mission to the Hadley-Apennine Region of the Moon.

III. 4. a, b. Moon - Craters and Volcanism
ExP: Chapter 4.4-4.6 (Impact Craters, Lunar Time Scale, Volcanic Features).

III. 4. c -7. Moon: Tectonics, Atmosphere, Time History and Summary
ExP: Chapter 4.7, 4.8, 4.10, 4.11 (Tectonic Features, Lunar Rocks, Geologic History of the Moon, Conclusions).

IV. Mercury
EDS: Chapter 25, p. 732-734.
ExP: Chapter 5 (Mercury).

MID-TERM EXAMINATION: MONDAY, OCTOBER 19th, 2015
10/21  Earth-Moon-Mercury Summary – Review Notes

10/23-10/26  V. 1, 2, 3, 4.a. Mars – Characteristics, Provinces and Impact Craters
EDS:  Chapter 25, p. 734-738.
ExP:  Chapter 6.0-6.6 (Introduction through Internal Structure of Mars).

10/28  V. 4. b, c. Mars – Volcanism and Tectonics
ExP:  Chapter 6.9-6.11 (Mass Movement through Martian Tectonic Features).

10/30-11/2  V. 5. Mars – The Record of Water and Climate Change on Mars
EDS:  Chapter 12, River Systems, p. 296-302.
EDS:  Chapter 13, Groundwater, p. 336-347.
ExP:  Chapter 6.7 (Water on Mars: through Ground Ice).

11/4  V. 6, 7. Life on Mars Yesterday and Today?
Read Handouts and Visit Web Pages.
V. 8.  Summary

11/6-11/9  VI. 1-3. Venus - Exploration History, Provinces, Interior
EDS:  Chapter 25, p. 739-740.
ExP:  Chapter 7.0-7.7 (Venus: Introduction through Internal Structure).

ExP:  Chapter 7.8 (Venus: Volcanic Features).
ExP:  Chapter 7.9 (Venus: Tectonic Features).
ExP:  Chapter 7.10, 7.11 (Venus: Geologic Evolution & Conclusions).

11/18  Terrestrial Planets Summary
EDS:  Chapter 25, p. 740.
ExP:  Chapter 15 (Comparison of the Planets).

11/20-11/30  VII. Comets, Meteorites and Asteroids
EDS:  Chapter 25, p. 751-753.
ExP:  Chapter 3 (Meteorites and Asteroids: Small Bodies of the Inner Solar System); see ExPlanets Readings on GEOL 0050 site.
ExP:  Chapter 14 (Comets and Small Bodies of the Outer Solar System).
Asteroids: http://en.wikipedia.org/wiki/Asteroid
Meteorites: http://en.wikipedia.org/wiki/Meteorite
12/2-12/4  **VIII. The Outer Planets and Their Satellites**
EDS:  Chapter 25, p. 742-750.
ExP:  Chapters 9 (The Jupiter System).
Pluto and Charon: [http://en.wikipedia.org/wiki/Pluto](http://en.wikipedia.org/wiki/Pluto),

12/7  **IX. Pluto and its Moons – Is Pluto a Planet or Kuiper-belt Object??**

12/9-12/11  **X. Exo-Planets and Course Synthesis:**
EDS:  Chapter 25, p. 753-758.
ExP:  Chapter 15 (Comparison of the Planets - review).

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**TAKE-HOME FINAL EXAMINATION:**
DISTRIBUTED BY E-MAIL FRIDAY, DECEMBER 4, 2015
DUE NO LATER THAN WEDNESDAY, DECEMBER 16th, 2015, 5 PM