

☆ ☆ ☆ ☆ ☆ **READING LIST** ☆ ☆ ☆ ☆ ☆

GEOLOGICAL SCIENCES 0050: Mars, Moon, and the Earth

Semester 1 2009-2010, G Hour (MWF, 2:00-2:50 PM), MacMillan Hall 117

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Office hours: Mon 10-11 AM, Thur 1-2 PM, or by appointment

EDS = *Earth's Dynamic Systems* (10th Edition) Hamblin and Christiansen.

ExP = *Exploring the Planets* Christiansen and Hamblin.

Date Topic Reading Assignment (see syllabus)

9/9

I. Introduction

EDS: Chapter 1, p. 1-13.

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 2, The Tectonic System, p. 40-48.

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).

9/16-18

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).

9/21

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 21, Convergent Plate Boundaries, p. 614-623.

EDS: Chapter 22, Hot Spots and Mantle Plumes, p. 632-656.

EDS: Chapter 23, Flood Basalts, p. 680-684.

ExP: Chapter 8.6 (Volcanism on Earth).

- 9/23 **II. 4. Earth - Atmosphere and Hydrosphere**
 EDS: Chapter 2, The Hydrologic System, p. 33-40.
 EDS: Chapter 5, Sedimentary Rocks, p. 114-124.
 EDS: Chapter 10, Weathering, p. 248-257.
 EDS: Chapter 12, River Systems, p. 296-302.
 EDS: Chapter 14, Glacial Systems, 372-398.
 ExP: Chapter 2 (Planetary Atmospheres and Hydrospheres & Conclusions).
 ExP: Chapter 8.7 (Earth's Hydrologic System).
- 9/25 **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.
 EDS: Chapter 21, Formation of Continental Crust, p. 625-629.
 ExP: Chapter 8.8-8.9 (Geologic History of the Earth & Conclusions).
- 9/28 **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).
- 9/30 – 10/5 **III. 4. a, b. Moon - Craters and Volcanism**
 ExP: Chapter 4.4-4.6 (Impact Craters, Lunar Time Scale, Volcanic Features).
- 10/7 – 10/9 **III. 4. c. 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).

EXAMINATION 1: WEDNESDAY, OCTOBER 14TH, 2009

- 10/21 – 10/23 **IV. 1, 2. Mars – Characteristics, Provinces, and Impact Craters**
 EDS: Chapter 25, p. 734-738.
 ExP: Chapter 6.0-6.6 (Introduction through Internal Structure of Mars).
- 10/26 – 10/28 **IV. 3. Mars – The Record of Water on Mars, Sedimentary Rocks**
 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*).
- 10/30 **IV. 4. Life on Mars Yesterday and Today?**
 Read Handouts and Visit Web Pages.

- 11/2 **IV. 5. a, b, c. Mars – Volcanism, Tectonics, and Summary**
ExP: Chapter 6.9-6.11 (Mass Movement through Martian Tectonic Features).
ExP: Chapter 6.12 & 6.13 (The Geologic History of Mars & Conclusions).
- 11/4 – 11/6 **V. Mercury**
EDS: Chapter 25, p. 732-734.
ExP: Chapter 5 (Mercury).
- 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)
- 11/11 **VI. 4. b. Venus – Volcanism, Tectonism, Evolution, and Conclusions**
ExP: Chapter 7.8 (Venus: Volcanic Features).
ExP: Chapter 7.9 (Venus: Tectonic Features).
ExP: Chapter 7.10,7.11(Venus: Geologic Evolution & Conclusions).

Terrestrial Planets Summary

EDS: Chapter 25, p. 740.

ExP: Chapter 15 (Comparison of the Planets).

EXAMINATION 2: FRIDAY, NOVEMBER 13TH, 2009

- 11/16 – 11/18 **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).
- 11/23 – 12/2 **VIII. The Outer Planets and Their Satellites**
EDS: Chapter 25, p. 742-750.
ExP: Chapters 9 (The Jupiter System).
- 12/4 **IX. SUMMARY**
EDS: Chapter 25, p. 753-758.
ExP: Chapter 15 (Comparison of the Planets - review).

Reading Period Exercise based on a set of readings. Details to be discussed in class. Will count toward final exam credit.

FINAL EXAMINATION: MONDAY, DECEMBER 14TH, 2009, 9 AM
