

## GEOL 120: THE MOBILE EARTH

Spring 2005

Call #03363

**TIME:** Lectures: 3.10-5.00 MW, Porter Hall 105.  
**INSTRUCTOR:** R. Damian Nance, Department of Geological Sciences.  
**OFFICE HOURS:** Clipping 308: 1.00-2.30 MWF.  
**E-MAIL ADDRESS:** nance@ohio.edu

**TEXTBOOKS:** J. Brendan Murphy and R. Damian Nance, 1999. *Selected Chapter from Earth Science Today*. Brooks-Cole/Wadsworth.  
Damian Nance, 2003. *The Mobile Earth: Lecture Notes*  
Damian Nance, 2003. *The Mobile Earth: Homework Assignments*.

**REFERENCE:** CD-ROM: *Geology 120: Powerpoint Lecture Series 1-10*. Ohio University, Department of Geological Sciences.

### COURSE OUTLINE

#### 1. INTRODUCTION TO PLANET EARTH (*Lecture notes*: p. 1-22).

##### Powerpoint Lecture Series 1

**Lecture 1** (March 28): Course Introduction.

**Lecture 2** (March 30): Geologic time and the Age of the Earth.

*Reading Assignment 1*: Murphy & Nance, Chapter 3: Geologic Time and the Age of the Earth.

##### Powerpoint Lecture Series 2

**Lecture 3** (April 4): Continental drift

**Lecture 4** (April 6): Paleomagnetism and Seafloor spreading.

##### **Homework Assignment 1**

(10%. p. 1-12 and study questions 1-9). Due Monday 11 April.

**Lecture 5** (April 11): Plate tectonics. *Video*: "[Planet Earth: The living machine](#)".

**Lecture 6** (April 13): Continental breakup and rift systems.

*Reading Assignment 2*: Murphy & Nance, Chapter 4: Plate Tectonics: The Development of a Theory

#### 2. DIVERGENT PLATE BOUNDARIES (*Lecture notes*: p.23-37).

##### Powerpoint Lecture Series 3

**Lecture 7** (April 18): Birth of oceans. East African rift valley.

##### Powerpoint Lecture Series 4

**Lecture 8** (April 20): Mid-ocean ridges. Submarine vents. Iceland.

##### **Homework Assignment 2**

(10%. p. 12-29 and study questions 10-17). Due Monday 25 April.

#### 2.HOTSPOTS AND TRANSFORM FAULTS (*Lecture notes*: p. 38-54).

##### Powerpoint Lecture Series 5

**Lecture 9** (April 25): Hot spots and Hawaii.

**Lecture 10** (April 27): Yellowstone.

### Mid-Term Exam (Monday 2 May)

(35%. *Lecture notes*: p. 1-37; *Powerpoint Lecture Series*: 1-4; *Reading Assignments*: 1-2).

#### Powerpoint Lecture Series 6

**Lecture 11** (May 4): Transform Faults.

Reading Assignment 3: Murphy and Nance, Chapter 5: Plate Tectonics: Plates and Plate Boundaries

**Lecture 12** (May 9): San Andreas Fault and earthquake prediction.

#### Powerpoint Lecture Series 7

**Lecture 13** (May 11): Convergent plate boundaries. Pacific Ring of Fire: South and Central America.

### Homework Assignment 3

(10%. p. 29-59 and study questions 18-31). Due Monday 16 May.

#### 4. PLATE COLLISION (*Lecture notes*: p. 55-79).

**Lecture 14** (May 16): Pacific Ring of Fire: Western North America and Western Pacific.

#### Powerpoint Lecture Series 8

**Lecture 15** (May 18): Indonesia and the Mediterranean.

Reading Assignment 4: Murphy and Nance, Chapter 6: Mountains and Volcanoes

#### Powerpoint Lecture Series 9

**Lecture 16** (May 23): Cordillera and the Appalachians. *Video*: "In the Path of a Killer Volcano".

**Lecture 17** (May 25): Alps and Himalayas.

**Lecture 18** (May 30): Memorial Day - Class cancelled.

#### 5. THE SUPERCONTINENT CYCLE (*Lecture notes*; p. 80-87).

#### Powerpoint Lecture Series 10

**Lecture 19** (June 1): Supercontinents, plate motion, climate and evolution.

### Final Exam (Wednesday 8 June)

(8.00-10.00 am, Porter Hall 145; 35%. *Lecture notes*: p. 38-79; *Powerpoint Lecture Series*: 5-9; *Reading Assignments*: 3-4).

### COURSE POLICIES

- A. Grades are based on **three** take-home exercises worth a total of **30%**, and **two** non-comprehensive, combined multiple choice and short-answer exams: a two-hour mid-term exam worth **35%** and a two-hour final exam worth **35%**.
- B. Attendance is expected at **all** classes and will be taken at frequent intervals throughout the course. Unexcused class absence is **not** permitted and will be penalized through a *three strikes and you're out* rule. However, class attendance will be rewarded through an increase in overall academic grades of **5%** for full attendance, **3%** for one absence, and **1%** for 2 absences. More than 2 unexcused absences will result in a failing grade.
- C. Academic dishonesty will be penalized with a failing grade.