

OREGON STATE UNIVERSITY

**GEO 380: EARTHQUAKES IN THE PACIFIC NORTHWEST:
WINTER TERM 2001**

Instructor: Dr. Andrew Meigs
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Class time: MWF, 2:00-2:50 p.m., Dearborn 118
Office hours: MF 3:00-4:00 p.m., or by appointment

Text: *Living with Earthquakes in the Pacific Northwest*
(by R. S. Yeats)
plus free booklet, *Putting Down Roots in Earthquake
Country*.

Assignments: Chapters refer to text
PDR refers to *Putting Down Roots*

Exams: (300 pts)

Mid-term 1: Wednesday, January 31 (100 pts)

Mid-term 2: Wednesday, February 21 (100 pts)

Final - To be announced (100 pts)

Paper: (90 pts)

Due start of class March 9 (no exceptions)

Panel: (10 pts)

Week of January 8:

- 1) Introduction: Exams, term paper, other business items
- 2) Paradigm change for the Pacific Northwest (Introduction)
- 3) Plate Tectonic Setting of Earthquakes in the Pacific Northwest (Chapter 2)
- 4) A concept of time (Chapter 1)

Week of January 15:

January 15, Martin Luther King Day (no class)

- 1) The nature of the Earth's crust; a setting for earthquakes (Chapter 2)
- 2) How earthquakes form (Chapter 3; PDR, p. 20-21)

Week of January 22:

- 1) How earthquakes are measured: beyond the Richter scale (Chapter 3; PDR p. 22-25).
- 2) The Cascadia Subduction Zone: Waiting for the Big One (Chapter 4)
- 3) Instant of Catastrophe or Decade of Terror? Will we have a M8 or 9? (Chapter 4)

Week of January 29:

- 1) Earthquakes in the Juan de Fuca Plate (Chapter 5)
- 2) Midterm Exam 1- Wednesday, January 31 (covers material to Jan. 26, Chapter 4)
- 3) Earthquakes in the Crust (Seattle, Willamette Valley) (Chapter 6)

Week of February 5:

- 1) Earthquakes in the Crust (Pacific coast and continental shelf) (Chapter 6)
- 2) Earthquakes in the Crust (eastern Oregon and Washington)
- 3) Earthquake Prediction, Forecasting, and Probabilistic Seismic Hazard Assessment (Chapter 7)

Week of February 12:

- 1) Seismic Hazard Assessment: Application to Oregon (Chapter 7)
- 2) Earthquake and Tsunami Hazard Maps and How to Use Them
- 3) Earthquake-induced landslides and liquefaction (Chapter 8)
- 4) Tsunami Hazard (Chapter 9)

Week of February 19:

- 1) Building at a Stable Site. The Economics of Urbanization vs. Geologic Hazards—Decisions We Must Make (Intro. Part III; Chapter 8)
- 2) Midterm Exam 2: Wednesday, February 21 (covers material to Feb. 16, Chapter 9)
- 3) Earthquake Insurance: General Principles (Chapter 10)

Week of February 26:

- 1) Simple Ways to Make Your Home Safer Against Earthquakes (Chapter 11; PDR, p. 10-15)
- 2) Engineering Large Structures for Seismic Safety (Chapter 12)
- 3) Building Codes: Save the People or Save the Building (Chapter 14, p. 106-108)

Week of March 5:

- 1) Role of Federal and State Government in Earthquake Hazard Mitigation.
(Chapters 13 and 14)
- 2) Role of Local Government: Disaster Preparedness (Chapter 14)

Week of March 12:

- 1) Role of Individual Citizens (Chapter 15; PDR. p. 16-19)
- 2) Closing Remarks