

Geological Oceanography (OCN 622) Fall, 2017

T Th 1:30 – 2:45 PM, MSB 315

Instructors: G. McMurtry, M. Mottl

Readings: P&S = Press & Siever, The Earth; K = Kennett, Marine Geology

Part I: Dynamics, Igneous & Metamorphic Processes in the Oceans (#1-8=MM)

1. T 8/22 Ocean floor physiography (P&S chapter 1,20; K chapters 1,2)
2. Th 8/24 Dynamics of mid-ocean ridges and transform faults (P&S 4; K 4)
3. T 8/29 Dynamics of ocean basins and subduction zones (P&S 21; K 5,12)
4. Th 8/31 Hot spots and mantle plumes (P&S 5)
5. T 9/5 Introduction to oceanic minerals and rocks (P&S 3)
6. Th 9/7 Igneous rocks, minerals, and processes in the oceans I (P&S 15,16)
7. T 9/12 Igneous rocks, minerals, and processes in the oceans II (P&S 15,16)
8. Th 9/14 Metamorphic processes in the oceans (P&S 17)

Part II: Geology & Geophysics of the Ocean Basins (#9-12 =MM, #13-16=GM)

9. T 9/19 Nature and origin of the oceanic crust I (K 7)
10. Th 9/21 Nature and origin of the oceanic crust II (K 7)
11. T 9/26 Hot springs and polymetallic sulfide deposits
12. Th 9/28 Heat flow (P&S 1,14)
13. T 10/3 Marine seismology, seismic reflection & refraction (P&S 18)
14. Th 10/5 Earth's gravitational field (P&S 19)
15. T 10/10 Global hydrocarbon resources I (P&S 23)
16. Th 10/12 Global hydrocarbon resources II
- T 10/17 MID-TERM EXAMINATION**

Part III: Sedimentary Processes in the Oceans (#17-24=GM)

17. Th 10/19 Nearshore sediments and processes I (P&S 11; K 10)
18. T 10/24 Nearshore sediments and processes II (P&S 11; K 10)
19. Th 10/26 Pelagic sediments: types, origin, distribution (K 13,14)
20. T 10/31 Sediment dynamics: erosion, transport processes (K 15)
21. Th 11/2 Oceanic deposits I: Ferromanganese nodules, crusts
22. T 11/7 Oceanic deposits II: Clays and clay minerals
23. Th 11/9 Stratigraphy I: litho-, bio-, and chronostratigraphy (K 3)
24. T 11/14 Stratigraphy II: sampling; radio- and stable isotopes

Part IV: Global Perspectives on Earth History (#25-26, 30=GM, 27-29=MM)

25. Th 11/16 Paleooceanography I: time series and time slices (K 17,18)
26. T 11/21 Paleooceanography II: paleogeography; extinctions (K 19)
- Th 11/23 Holiday (Thanksgiving Day)
27. T 11/28 Paleotectonics and megacycles (skim K 6)
28. Th 11/30 Paleoclimate I
29. T 12/5 Paleoclimate II
30. Th 12/7 Review for Final

T 12/12 FINAL EXAMINATION

Course grade: 35% Final + 35% Mid-term + 20% Homework + 10% Class participation