

Course Outline for: GEOL 1120 Oceanography**A. Course Description**

1. Number of Credits: 3
2. Lecture hours per week: 3
3. Prerequisites: none
4. Corequisites: none
5. MnTC Goals: Goal #3 – Natural Science
Goal #10 – People and the Environment

This course investigates the relationship between the physical, chemical, and biological characteristics of oceans, focusing on evolution of the oceans, biotic environments, dynamics of water movement, and the effect ocean processes have on humankind.

B. Date last Revised: April 2023**C. Outline of Major Content Areas**

1. Physical structure of the ocean basins
2. Ocean evolution
3. Relationship between Earth and Ocean evolution
4. Sea water chemistry
5. Rifting zones and special biotic environments
6. Waves and tides
7. Ocean circulation
8. Energy resources
9. Pelagic vs. Benthic animals
10. Decomposition of organic matter
11. Nutrient distribution
12. Natural resources
13. Global weather patterns
14. Coastal storms
15. Oceans and global warming

D. Course Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Define and explain the Earth's geologic systems both verbally and quantitatively including various components of the earth, their controls, their interrelationships, and their global regional distribution. (Goal 3a)
2. Articulate and explain the scientific theories that explain the ways that these geological components function and interact. (Goal 2c, 3a)
3. Define and explain common principles of oceanography. (Goal 3a)

4. Portray the fundamental interrelatedness of ocean systems and socio/cultural systems in terms of some of the way in which people affect the ocean environment and the ways in which humans adapt to natural systems. (Goal 2c, 2d, 10a, 10b)
5. Explain the basic structure of ocean basins and land-ocean configuration. (Goal 3a)
6. Explain major features of ocean circulation and the mechanics of waves and tides. (Goal 3a)
7. Explain the constraints of life in the oceans and describe some life forms. (Goal 3a)
8. Explain the role of oceans in the global climate system. (Goal 3a, 10a)
9. Discuss the past and present importance of oceans to humans. (Goal 3d, 10a, 10b)
10. Discuss the role of human interaction on the future use of oceans. (Goal 2b, 10a, 10b, 10c, 10d)
11. Discuss the role of humans on the use of ocean resources. (Goal 2b, 10a, 10b, 10c, 10d)
12. Communicate an understanding of the process of scientific inquiry as it relates to the Earth sciences, including the formulation of hypotheses, collection and analysis of data, and assessment of the validity of hypotheses and forecasts. (Goal 2a, 2b, 2c, 2d, 3b)

E. Methods for Assessing Student Learning

Methods for assessment may include, but are not limited to, the following:

1. Exams
2. Quizzes
3. Assignments
4. Projects

F. Special Information

None