

**Miami Dade College**  
**OCE 1001 – Introduction to Oceanography**

**Course Description:**

The oceans, their nature and extent. The causes and effects of waves and current; biology of sea life; geology of the sea floor, erosion and bottom deposits and related meteorological and economic effects. (3 hr. lecture)

*3 credits*

Prerequisites: None

Corequisites: None

Competency 1- Evaluation will be based on accuracy so that the student achieves a level as per the preface the student will [Cognitive Objectives]:

1. Demonstrate knowledge of the scope and history of marine science by describing the various categories of marine science and their development.
2. Demonstrate knowledge of the general physical nature of the earth by describing the structural & surface features of earth & their significance to the total earth environment.
3. Demonstrate knowledge of the physiography of the ocean floors by describing features, such as continental shelves, seamounts, trenches, and their significance to the total environment.
4. Demonstrate knowledge of the concept of global tectonics by describing the ideas associated with this concept & their significance to earth features such as mid-ocean ridges & continental plates.
5. Demonstrate knowledge of the behavior of heat, light, & sound in the sea by describing the properties of sea water associated with temperature, density, & light & relating them to the ocean environment.
6. Demonstrate knowledge of the surface circulation patterns of the ocean by describing the effects of physical factors such as insulation, ocean basin configuration, & vorticity on the water of the ocean.
7. Demonstrate an ability to apply knowledge of the Coriolis Effect by describing this phenomenon & its observable behavior in the atmospheric & ocean circulation.
8. Demonstrate a basic knowledge of the dynamics of wind-driven ocean circulation by describing such theories as the Ekman Spiral & the Ekman Upwelling.
9. Demonstrate knowledge of the concept of geostrophic current by describing this concept & relating it to contemporary ideas about ocean circulation.
10. Demonstrate knowledge of deep ocean circulation by describing thermohaline circulation & its relationship to causative factors.
11. Demonstrate knowledge of the complexity of the sea surface by describing various types of ocean waves, their behavior, & their causative factors.
12. Demonstrate knowledge of ocean tides & tidal currents by relating the tide-rising forces & environmental factors to observable tidal characteristics.
13. Demonstrate knowledge of the salinity in the sea by describing the saline properties of sea water & their effects on the ocean environment.

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14. Demonstrate a basic knowledge of water chemistry by describing phenomena such as chemical bonding & dissociation in water, pH, ionization, & showing their effects on the ocean environment.
15. Demonstrate knowledge of chemical sedimentation in the sea by describing chemical processes & principles such as saturation, solubility, & precipitation, and showing their effects on the materials of the sea floor.
16. Demonstrate a comprehension of the nutrient cycle in the sea by describing the occurrence & behavior of nutrients in the sea & their effects of the marine environment.
17. Demonstrate a comprehension of biological production in the sea by describing factors such as gas content, temperature, & dissolved solids, and their effect on biological production.