Miami Dade College

Course Description

OCP3002L | Survey of Oceanography Laboratory| 1.00 Credits

A laboratory course designed to give students hands-on knowledge of specific concepts discussed in OCP3002.

Course Competency	Learning Outcomes
Competency 1:demonstrate a knowledge of Bathymetry – the shape of the sea floor	
1. Visualize a three dimensional sea floor surface from a two dimensional construct 2. Manipulate the mechanics and rules of contouring charts from an array of individual seafloor depth measurements 3. Create construction topographic profiles to reveal the shape of the sea floor or specific seafloor features.	
Competency 2:demonstrate an understanding of marine charts	
1. Understand the coordinate system (latitude and longitude) of the earth's sphere 2. Become familiar with the multitude of data that are found on marine charts 3. Plot a pre-determined course on a chart and to navigate using directions and landmarks.	
Competency 3:demonstrate an understanding of sea floor spreading and plate tectonics	
1. Describe the distribution of the earth's major physiographic features including volcanoes, ocean trenches, and mid-ocean ridges 2. Recognize the scientific importance of plate boundaries and the geophysical	
activities taking place there 3. Investigate the slow rates at which plate tectonic processes take place	
Competency 4:understand the importance of materials on the ocean floor	

1. Explain the marine and terrestrial processes that determine the distribution of sediments and mineral resources of the ocean floor 2. Evaluate the role that shell building organisms play in the accumulation of important sediment types and in moderating the chemistry of the oceans	
Competency 5:demonstrate an understanding of ocean temperatures and salinity	
1. Evaluate the importance of the vertical thermal gradient in the oceans and its importance in coastal water temperature and climate moderation 2. Analyze the physics of upwelling and its importance in coastal water temperature and climate moderation 3. Discover what makes the oceans salty 4. Describe how salinity varies in the oceans and the importance of rivers and ice in salinity variation	
Competency 6:understand the water masses that make up the oceans.	
1. Identify large masses of water that have a common origin or source area 2. Discuss the oceanographic, biological, and meteorological significance of water masses 3. Evaluate the roles of temperature, salinity, and density in the formation and transport of water masses 4. Calculate the temperature-salinity of a water sample and by plotting these two parameters identify its source area	
Competency 7:display a knowledge of surface currents	

1. Graph the major movements of surface water in the oceans 2. Observe how influence climate by redistributing energy from the sun and stored heat from the earth 3. Analyze the roles that wind, gravity, and the earth's rotation play in determining the direction and velocity of ocean currents 4. Describe the physics of upwelling and its importance of coastal water temperatures and climate moderation	
Competency 8:will investigate the importance of waves in shallow water	
1. Describe the changes that occur as a deep water wave approaches a shoreline 2. Evaluate what causes waves to peak and break 3. Explain how long shore currents and rip currents form 4. Investigate the dynamics of sand, beach drifting, and beach erosion	
Competency 9:manipulate data involved in remote sensing	
1. Explain the various uses of remote sensing systems 2. Map sea surface temperatures and the extent of warm and cold water masses 3. Map important area of phytoplankton productivity	
Competency 10:explain the factors affecting the distribution of marine life	
1. Describe the different life zones of the ocean 2. Evaluate the physical and chemical factors that control the distribution of life within and between these zones	
Competency 11:be able to discuss primary and secondary productivity	

1. Describe the process of primary productivity and recognize its importance 2. Examine the physical, chemical, and biological controls upon marine primary productivity both horizontally and vertically 3. Relate secondary productivity to primary productivity	
Competency 12: evaluate marine ecosystems and nutrient cycles	
1. Describe the role of the ocean as an ecosystem and nutrient recycler 2. Analyze the interactions between and flow of energy through producers, consumers, and decomposers 3. Evaluate how humans can disrupt marine ecosystems	
Competency 13: understand Paleoceanography	
1. Describe how microfossils are used to construct relative time scales 2. Reconstruct past environmental conditions and changes using microfossils	

Updated: FALL TERM 2007