# West Linn–Wilsonville School District

## Science Department – Course Statement

### Course Title: Oceanography

**Length of Course:** Semester
**Number of Credits:** 1
**Grade Level:** 10, 11, 12
**Prerequisites:** Biology or Equivalent
**CIM Work Samples Offered in Course:** Opportunities for speaking work samples

**Date of Description/Revision:** 2002

## Course Overview

Oceanography is a course that will examine the non-living portion of the ocean environment. The physical and chemical aspects of oceans will be examined as will as the geology of the oceans. Topics include tides, waves, ocean floors, salinity, history, and currents from both a global and an Oregon perspective.

## Essential Questions

**Concepts providing focus for student learning**

- How does science ask and answer questions?
- What evidence from the past informs us about current ocean processes?
- What are the mechanisms of change and stability in ocean systems?
- What forces influence the ocean off the Oregon coast?
- What are the interactions between humans and the world's oceans?

## Proficiency Statements

Upon completion of course, students will be able to:

- Describe key events in the history of the study of the oceans.
- Explain the types of tools used to study the ocean.
- Describe the processes that form the features of the sea floor.
- Predict changes that will occur in an area over time due to sea floor processes.
- Analyze sea floor maps for ocean floor features.
- Explain the distribution of tsunamis and their implications for Oregon.
- Describe the chemical nature of seawater.
- Describe the factors that influence salinity of surface waters and how this results in layering of the ocean with depth.
- Explain how and why tides, waves, and currents occur.
- Illustrate and describe the combination of factors that leads to dramatic seasonal changes in the coastal oceanography of Oregon and the ecological and economic implications of those changes.

- Analyze the combination of forces that trigger El Nino events and the effects of El Nino around the globe.
- Explain the connections between oceanographic and atmospheric processes.
- Discuss various human-ocean interactions and the positive and negative results of those interactions.

### General Course Topics/Units & Timeframes

A. Ocean Exploration
B. Geography of the Oceans
C. Geology of the Oceans
D. Chemistry of the Oceans
E. Physics of the Oceans
F. Environmental Issues of the Oceans

### Resources

- Text: *Oceanography: A View of the Earth, 7th Edition,* Prentice Hall, 1996
- Other: This class will be supported through a variety of readings, films and labs.