

Eastern Oregon University  
College of Arts and Sciences  
Course Syllabus, Spring 2014-2015

**Number of Course:** Math 112

**Title of Course:** PreCalculus

**Catalog Description:** In this course students experience a detailed treatment of trigonometric and inverse trigonometric functions designed to prepare them for calculus.

**Credit Hours:** Four

**Instructor:** Peter Chadwick

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**Text:** Precalculus, Mathematics for Calculus, 6e, by Stewart, Redlin, and Watson

**Expanded Outline**

This course will be an introduction to the family of trigonometric functions generally studied in calculus and other mathematical applications. Time permitting, we will also review exponential and logarithmic functions, which were studied in Math 111. The overall goal will be familiarity and comfort with the studied classes of functions, and the ability to recognize the essential features that make them so useful in mathematics.

**Learning Outcomes:** By the end of the term, the successful student will be able to:

1. Interpret the wrapping function and its relations to trigonometry
2. Evaluate the six fundamental circular functions at any elementary input
3. interpret trigonometric functions on the real line in terms of circular functions
4. Use trigonometric functions to solve right triangles
5. Sketch graphs of variations of trigonometric functions and recognize functions from the graphs
6. Do the same for inverse trigonometric functions
7. Apply basic trigonometric identities to solve equations
8. Use and understand polar coordinates
9. Investigate arithmetic of the complex numbers and the complex plane
10. Translate between polar and rectangular coordinates in the complex plane
11. Find  $n^{\text{th}}$  roots of unity in the complex plane via De Moivre's formula
12. Use elementary vector arithmetic with two- and three-dimensional vectors
13. Use vector analysis to solve problems involving direction, velocity, and resultant forces