Course Outline

Course Number: MTH-112
Title: Trigonometry and Pre-Calculus
Date Approved: 1/19/2018

Credits: 5
Length of Course: 55
For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Grading Method: A-F or Pass/No Pass
Prerequisites: MTH-111 with a C or better, or placement in MTH-112
Co-requisites: None
Recommended: WRD-098 or placement in WR-121
Required: None
Related Instruction Area: Computation
Uses Library Resources: No

Department: Mathematics
Outline Developed by: Stefan Baratto
Course Approved as: Lower Division Collegiate

Course Description:
A transfer course designed to prepare students for calculus using an AMATYC standards-based approach utilizing the rule of four to analyze elementary functions and applications. Topics include right-triangle trigonometry, trigonometric functions developed from the unit circle, inverse trigonometric functions, using trigonometry to model and solve applications, trigonometric identities, polar functions, parametric functions, and vectors.

Student Learning Outcomes:
Upon successful completion of this course, students should be able to:
1. define and identify trigonometric functions;
2. compute the value of trigonometric function for particular angles in a right triangle;
3. demonstrate the ability to transform, and analyze the graphs of sine and cosine functions;
4. use trigonometry to model and solve applications;
5. demonstrate the ability to verify trigonometric identities;
6. use polar coordinates, functions, and graphs;
7. use parametric functions, graphs, and models;
8. use vectors and perform vector arithmetic.

Major Topic Outline:
1. Angles and geometric applications.
2. Right-triangle trigonometry.
3. Unit-circle trigonometry.
4. Trigonometric identities.
5. Trigonometry with oblique triangles.
6. Polar coordinates and equations.
7. Parametric functions.
8. Vectors.
Outcomes addressed by the course:

'C' - this course completely addresses the outcome. Students who successfully complete this course are likely to have attained this learning outcome.

'S' - this course substantially addresses the outcome. More than one course is required for the outcome to be completely addressed. Students who successfully complete all of the required courses are likely to have attained this learning outcome.

'P' - this course partially addresses the outcome. Students will have been exposed to the outcome as part of the class, but the class is not a primary means for attaining the outcome and assessment for general education purposes may not be necessary.

As a result of completing the AAOT/ASOT general education requirements students will be able to:

MA: Mathematics Outcomes

**C**

1. Use appropriate mathematics to solve problems.

2. Recognize which mathematical concepts are applicable to a scenario, apply appropriate mathematics and technology in its analysis, and then accurately interpret, validate, and communicate the results.