COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

Revised by: Sonia Tris/MAT 121 updated to MAT 097 August 28, 2017
Status: Permanent
Effective: Fall 2017

A. Identification:
1. Subject Area: Math (MAT)
2. Course Number: 187 SUN#MAT 1187
3. Course Title: Pre-Calculus
4. Credit Hours: 5
5. Course Description: College level algebra and trigonometric topics to prepare for calculus. Functions, equations, inequalities, trigonometry, and fundamental algebra theorems will be studied. General Education: Mathematics. Prerequisite: MAT 097 or placement. Five lecture.

B. Course Goals:
To build student confidence in algebra and trigonometry to develop a strong foundation for calculus and analytic geometry. To develop a positive attitude toward mathematics and build skills in the listed areas.

C. Course Outcomes: Students will:
1. define functions and relations;
2. solve various systems of nonlinear equations;
3. graph equations and functions using various methods including technology;
4. solve linear, quadratic, rational, absolute value, polynomial, and radical equations;
5. utilize logarithmic and exponential properties to solve related equations;
6. simplify expressions involving complex numbers;
7. define the six basic trig functions;
8. solve right and oblique triangles;
9. prove trigonometric identities and equations through use of various methods;
10. work with vectors and vector quantities;
11. describe and graph curves using parametric equations;
12. solve application situations related to methods presented in this course;
13. and solve problems involving optional topics listed in course content #11.

D. Course Assessment will include: a comprehensive final exam.

E. Course Content will include:
1. functions:
   a. linear;
   b. quadratic;
   c. rational;
   d. exponential;
   e. logarithmic;
   f. trigonometric;
   g. polynomial;
   h. absolute value;
2. analysis of functions:
   a. graphing;
   b. combinations;
   c. composition;
   d. inverse;
   e. modeling;

3. equations and inequalities:
    a. systems of nonlinear;
    b. linear;
    c. quadratic;
    d. rational;
    e. exponential;
    f. logarithmic;
    g. radical;
    h. trigonometric;
    i. polynomial;
    j. absolute value;
4. trigonometric identities;
5. complex numbers;
6. partial fractions;
7. methods for finding roots of polynomials;
8. parametric equations;
9. applications;
10. vectors in two dimensions;
11. and at least one of the following optional topics are required:
    a. polar coordinates;
    b. vectors in three dimensions;
    c. systems of equations;
    d. conic sections;
    e. and sequences and series.