


COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

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

August 28, 2017

A. Identification:

1. Subject Area: Math (MAT)
2. Course Number: 187  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 into MAT 187. 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.