



## CATALOG DESCRIPTION

Instructs the student in the knowledge of triangles, radian and degree measure, trigonometric functions, trigonometric identities, inverse trigonometric functions, polar coordinates, and vectors. Prepares the student to utilize trigonometry in the analysis of Calculus. Students need both Trigonometry and Pre-Calculus before entering Calculus I.

Prerequisites: Grade of "C" or better in MATH 115 or ACCUPLACER score of 104 – 120

Semester Offered: Fall, Spring and Summer

### **Common Student Learning Outcomes**

*Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in...*

#### **BROAD AND SPECIALIZED LEARNING**

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

#### **CRITICAL THINKING**

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

#### **CULTURAL AND CIVIC ENGAGEMENT**

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

#### **EFFECTIVE COMMUNICATION**

Students will exchange ideas and information with clarity in multiple contexts.

#### **INTEGRATING TECHNOLOGIES**

Students will demonstrate fluency in the application and use of technologies, information, or resources in multiple contexts.

*Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Assessment website ([www.sanjuancollege.edu/assessment](http://www.sanjuancollege.edu/assessment)).*

## Course Learning Outcomes

Upon completion of the course, the student should understand the following content areas:

1. Right Triangle Ratios.
2. Trigonometric Functions and Graphing.
3. Trigonometric Identities & Equations.
4. Vectors.
5. Polar Coordinates & Complex Numbers.

### **SPECIFIC LEARNING OUTCOMES:**

Upon completion of this course, the student should be able to:

- 1.1 Recognize various angles; right, acute, obtuse, complementary and supplementary
- 1.2 Recognize Degree Measurements; Decimal Degrees and Degrees – Minutes – Seconds
- 1.3 Determine Arcs created by rotation of an angle
- 1.4 Evaluate right triangles that are similar by Proportionality

1.5 Identify the six Trigonometric Ratios of a Right Triangle

1.6 Evaluate right triangle applications

2.1 Distinguish, compare and convert between Degree measure and Radian measure

2.2 Evaluate the area of a circular sector

2.3 Evaluate two forms of velocity involving rotating motion on a circle; Angular and Linear Velocity

2.4 Evaluate trigonometric functions for an arbitrary angle

2.5 Find the exact value (real number) for Special Angles

2.6 Determine the Period and Amplitude of trigonometric functions

2.7 Graph Sine, Cosine, and Tangent functions and their transformations

2.8 Find exact values of inverse trigonometric expressions

Know and use standard trigonometric identities to:

3.1 Verify trigonometric identities

3.2 Find exact values of trigonometric expressions

3.3 Solve trigonometric equations

4.1 Solve right triangles and related application problems using standard trig functions

4.2 Solve triangles and related application problems using The Law of Sines

4.3 Solve triangles and related application problems using The Law of Cosines

5.1 Determine the direction of a vector and its magnitude

5.2 Add and subtract vectors

5.3 Calculate the Dot Product and Cross Product of vectors

5.4 Find vectors and scalar projections of vectors

5.5 Find unit vectors

6.1 Compare the Polar Coordinate System and the Cartesian Coordinate System

6.2 Convert from Polar coordinates to Rectangular coordinates and vice versa

6.3 Graph polar equations and standard polar curves

6.4 Express the general polar form of a complex number

6.5 Use DeMoivre's Theorem and the nth – Root Theorem

6.6 Graph curves represented by Parametric Equations

### **OTHER REQUIREMENTS:**

A TI-82, TI-83, TI-84, TI-85 or TI-86 graphing calculator is required for the course. A **TI-83 Plus or TI-84 Plus Graphing Calculator** is strongly recommended. Graphing calculators capable of symbolic manipulation (such as TI-89 or TI-92 and other such calculators) will not be allowed on examinations, the final exam and where the instructor finds fit.

Dean of School Science



Date:

1/6/12