MATH 58 Course Outline as of Fall 2018

CATALOG INFORMATION

Dept and Nbr: MATH 58   Title: PRECALCULUS TRIGONOMETRY
Full Title: Precalculus Trigonometry
Last Reviewed: 2/10/2020

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Trigonometric functions and their graphs, trigonometric identities, trigonometric equations, inverse trigonometric functions, complex numbers in trigonometric form, polar coordinates, parametric equations, vectors, and applications.

Prerequisites/Corequisites:
Completion of MATH 154 or MATH 155 or higher; or Qualifying Placement from Math Assessment.
See Student Success & Assessment Services (assessment.santarosa.edu) for more information about the assessment process.

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Trigonometric functions and their graphs, trigonometric identities, trigonometric equations, inverse trigonometric functions, complex numbers in trigonometric form, polar coordinates, parametric equations, vectors, and applications. (Grade Only)

Prerequisites/Corequisites: Completion of MATH 154 or MATH 155 or higher; or Qualifying Placement from Math Assessment.
See Student Success & Assessment Services (assessment.santarosa.edu) for more information about the assessment process.
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	B	Communication and Analytical Thinking	Fall 2006	
	B	Communication and Analytical Thinking	Fall 1981	Fall 1999
	MC	Math Competency		
CSU GE:	Transfer Area		Effective:	Inactive:
	B4	Math/Quantitative Reasoning	Fall 2006	
	B4	Math/Quantitative Reasoning	Fall 1981	Fall 1996
IGETC:	Transfer Area		Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 2006	Inactive:
UC Transfer:		Effective:		Inactive:

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
During this course, students will:
1. Define and apply the trigonometric functions, using right triangle and unit circle approaches, and using degree and radian measures.
2. Verify trigonometric identities.
3. Solve equations involving trigonometric functions both graphically and analytically.
4. Graph trigonometric functions and their transformations.
5. Define and graph the inverse trigonometric functions.
6. Apply trigonometric functions and identities to solve application and modeling problems.
7. Solve applications and modeling problems using the trigonometric functions, identities, and the Laws of Sines and Cosines.
8. Use vectors to model applications in mathematics and science.

Topics and Scope:

I. Trigonometric Functions
   A. Radian and degree measures of angles
      1. Arc length

    2. Area of a sector
    3. Linear and angular velocity
  B. Right triangle and unit circle definitions
  C. Characteristics of trigonometric functions

II. Identities and Conditional Equations
  A. Fundamental identities
  B. Sum and difference identities
  C. Related identities and their derivations
  D. Conditional trigonometric equations and applications

III. Graphical Representation of Trigonometric Functions
  A. Amplitude
  B. Reflections
  C. Period
  D. Phase (horizontal) shift
  E. Vertical shifts

IV. Inverse Functions
  A. Definitions
  B. Properties of inverse functions
  C. Inverse trigonometric functions and their graphs

V. Solutions of Triangles
  A. Right triangles
  B. Oblique triangles
  C. Laws of Sines and Cosines
  D. Applications

VI. Complex Numbers, Polar Coordinates, and Parametric Equations
  A. Definitions
  B. Operations
  C. Graphical representation of complex numbers
  D. DeMoivre's Theorem
  E. Polar coordinates
  F. Parametric equations

VII. Two Dimensional Vectors
  A. Geometric and analytic definitions
  B. Algebra of vectors
  C. Trigonometric form of vectors
  D. Dot product
  E. Applications

Assignment:

1. Daily reading outside of class (20-50 pages per week)
2. Homework assignments (1-4 per week)
3. Quizzes (0-4 per week)
4. Exams (3-8)
5. Projects (0-10)
6. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework assignments	Problem solving 5 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes, exams, and final exam	Exams 70 - 95%

Other: Includes any assessment tools that do not logically fit into the above categories.

Projects	Other Category 0 - 10%

Representative Textbooks and Materials:
Precalculus: Mathematics for Calculus. 7th ed. Stewart, James and Redlin, Lothar and Watson, Saleem. Cengage L. 2015
Precalculus. 3rd corrected ed. Stitz, Carl and Zeager, Jeffrey. Open Source Text. 2013 (classic)