MATH 58 Course Outline as of Fall 2021

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:
Trigonometry topics, including trigonometric identities, equations, functions, inverse functions, graphs, polar coordinates, parametric equations, complex numbers, vectors, and applications.

Prerequisites/Corequisites:
Course Completion of MATH 25

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Trigonometry topics, including trigonometric identities, equations, functions, inverse functions, graphs, polar coordinates, parametric equations, complex numbers, vectors, and applications. (Grade Only)
Prerequisites/Corequisites: Course Completion of MATH 25
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

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Define and graph the six trigonometric functions and their inverses, solve equations involving trigonometric functions symbolically and graphically, and verify trigonometric identities.
2. Use trigonometric functions, identities, and the Laws of Sines and Cosines to solve application problems.
3. Define, graph, and demonstrate appropriate applications of vectors, complex numbers in trigonometric form, polar coordinates, and parametric equations.

Objectives:
At the conclusion of this course, the student should be able to:
1. Define and apply the trigonometric functions, using right triangle and unit circle approaches, and using degree and radian measures.
2. Verify and apply 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. Solve applications and modeling problems using the trigonometric functions, identities, and the Laws of Sines and Cosines.
7. Represent complex numbers in trigonometric form and perform operations.
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 Trigonometric Functions
   A. Definitions
   B. Properties
   C. 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. Reading outside of class (10-60 pages per week)
2. Problem sets (1-8 per week)
3. Quizzes (0-4 per week)
4. Project(s) (0-10)
5. Exams (2-6)
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.

Problem sets

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, final exam

Exams
70 - 95%

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

Project(s)

Other Category
0 - 10%

Representative Textbooks and Materials:

Precalculus: Mathematics for Calculus. 7th ed. Stewart, James and Redlin, Lothar and Watson, Saleem. Cengage L. 2016 (classic)
Precalculus. 3rd corrected ed. Stitz, Carl and Zeager, Jeffrey. Open Source Text. 2013 (classic)
Trigonometry: A Unit Circle Approach. 11th ed. Sullivan, Miachel. Pearson. 2020