Glendale College

Course Outline of Record Report

Course ID 010535

Revision - June 2025

MATH102+ : Trigonometry with Support

General Information

Author:	• Suzanne Palermo
Course Code (CB01) :	MATH102+
Course Title (CB02) :	Trigonometry with Support
Department:	MATH
Proposal Start:	Spring 2026
TOP Code (CB03) :	(1701.00) Mathematics, General
CIP Code:	(27.0101) Mathematics, General.
SAM Code (CB09) :	E - Non-Occupational
Distance Education Approved:	Yes
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000645359
Curriculum Committee Approval Date:	06/11/2025
Board of Trustees Approval Date:	07/08/2025
Last Cyclical Review Date:	04/01/2020
Course Description and Course Note:	MATH 102+ is a course in plane trigonometry with a built-in support lab component. The course emphasizes the analytic aspects of the subject. Topics include trigonometric functions of any angle, trigonometric identities, half-angles, trigonometric equations, applications of trigonometric functions, functions, complex numbers, and polar and parametric equations. The support lab topics include plane geometry, solving algebraic equations, simplifying algebraic expressions, coordinate plane, graphing techniques and basics of Trigonometry.
Justification:	Content Change
Academic Career:	• Credit
Mode of Delivery:	• In-Person • Remote • Hybrid • Proctored Online
Author:	No value
Course Family:	No value

Academic Senate Discipline

Primary Discipline:	• Mathematics
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

☐ Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

GE Status (CSU) B4, (UC) 2

Transferability

Transferable to CSU only

Transferability Status

Approved

GCC General Education Requirements	Area	Status	Approval Date	Comparable Course
Area 2: Mathematical Concepts and Quantitative Reasoning	Mathematical Concepts and Quantitative Reasoning	Approved	09/02/2025	No Comparable Course defined.

Units and Hours

Summary

Minimum Credit Units (CB07)	4
Maximum Credit Units (CB06)	4
Total Course In-Class (Contact) Hours	108
Total Course Out-of-Class Hours	108
Total Student Learning Hours	216

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Funding Agency Category (CB23)

Not Applicable.

☐ Cooperative Work Experience Education Status (CB10)

☐ Variable Credit Course

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	3	6
Laboratory Hours	3	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	54
Course In-Class (Contact) Hours	
Lecture	54
Laboratory	54
Studio	0
Total	108
Course Out-of-Class Hours	
Lecture	108
Laboratory	0
Studio	0
Total	108

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

Prerequisite

Placement is based on academic background or satisfactory completion of Intermediate Algebra or the equivalent.

Entry Standards

Entry Standards	Description
No value	No value

Course Limitations

Cross Listed or Equivalent Course	Description
MATH 102	Same course but without the embedded lab support.

Requisite Validation

Upload Statistical Validation and/or other documents (if necessary)

No Value

Specifications

Methods of Instruction

Methods of Instruction	Lecture
Methods of Instruction	Discussion
Methods of Instruction	Demonstrations

Out of Class Assignments

- Computer or graphing calculator assignments
- Homework (e.g. problem sets)

Methods of Evaluation	Rationale
In-Class Activity (answering journal prompt, group activity)	Group assignments and projects
Exam/Quiz/Test	Quizzes
Exam/Quiz/Test	4 or more assessments are required
Exam/Quiz/Test	A comprehensive final examination is required

Textbook Rationale

No Value

Textbooks

Author	Title	Publisher	Date	ISBN
McKeague, Charles	Trigonometry with Support for Glendale Community College	XYZ Textbooks	2025	1630984396

Other Instructional Materials (i.e. OER, handouts)

No Value

Learning Outcomes

Course Objectives

Identify special triangles and their related angle and side measures.

Evaluate the trigonometric function of an angle in degree and radian measure.

Manipulate and simplify a trigonometric expression.

Solve trigonometric equations, triangles, and applications.

Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs.

Evaluate and graph inverse trigonometric functions.

Prove trigonometric identities.

Convert between polar and rectangular coordinates and equations.

Graph polar equations.

Calculate powers and roots of complex numbers using DeMoivre's Theorem.

Represent a vector (a quantity with magnitude and direction) in the form <a,b> and ai+bj.

SLOs

Demonstrate the knowledge of definitions and graphs of the trigonometric functions. Expected Outcome Performance: 70.0

ILOs Core ILOs	Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.
ILOs General Education	apply techniques of analysis and critical thinking to critique real world and theoretical topics and issues
MATH Mathematics - A.A. Degree Major	solve applications in math and science using derivatives, integrals, differential equations and linear algebra.

Verify trigonometric identities and solve trigonometric equations. Expected Outcome Performance: 70.0

ILOs Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
	Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.
ILOs General Education	apply techniques of analysis and critical thinking to critique real world and theoretical topics and issues
MATH Mathematics - A.A. Degree Major	solve applications in math and science using derivatives, integrals, differential equations and linear algebra.

Demonstrate the knowledge of vectors, complex numbers, and polar coordinates. Expected Outcome Performance: 70.0

ILOs Core ILOs	Use quantitative and/or analytical mathematical skills to solve problems and to interpret, evaluate, and process information and data to draw logical conclusions and support claims.
ILOs General Education	apply techniques of analysis and critical thinking to critique real world and theoretical topics and issues
MATH Mathematics - A.A. Degree Major	solve applications in math and science using derivatives, integrals, differential equations and linear algebra.

Additional SLO Information

Does this proposal include revisions that might improve student attainment of course learning outcomes?

No

Is this proposal submitted in response to learning outcomes assessment data?

No

If yes was selected in either of the above questions for learning outcomes, explain and attach evidence of discussions about learning outcomes.

No Value

SLO Evidence

No Value

Course Content

Lecture Content

Algebra Review (8 hours)
- The rectangular coordinate system and the distance formula
- Function notation, domain and range of a function
- Inverses of functions
- Graphs of functions using transformations of functions
- Simplified form of square roots
- Factoring
- Complex fractions

The Trigonometric Functions (8 hours)
- Definition of trigonometric functions
- Trigonometric functions of any angle
- Right triangle trigonometry and applications

Angle Measure and Graphing (8 hours)
- Angle measure (degrees and radians)
- The unit circle
- Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs

Trigonometric Identities (9 hours)
- Fundamental trigonometric identities (reciprocal and Pythagorean identities)
- Identities involving sums and differences of two angles
- The double-angle identities
- The half-angle identities
- Simplify trigonometric expressions
- Prove trigonometric identities

Trigonometric Equations and the Inverse Trigonometric Functions (9 hours)
- Solving trigonometric equations
- Inverse trigonometric functions

Oblique Triangles (6 hours)
- The law of sines
- The law of cosines
- Vectors

Complex Numbers and Polar Coordinates (6 hours)
- Complex numbers and their graphs
- Trigonometric form of a complex number
- De Moivre's theorem
- Polar coordinates and equations
- Polar graphs

Total Hours: 54

Laboratory/Studio Content

The Real Number System (2 hours)
- Equality and properties of real numbers
- Inequalities and graphs of sets of real numbers
- Arithmetic of real numbers

Equations and Inequalities (8 hours)
- Linear equations and their solutions
- Formulas and literal equations
- Absolute value equations
- Linear inequalities

- Inequalities with absolute values

Graphs of Lines, Equations of Lines, and Variation (10 hours)
- The rectangular coordinate system
- The slope of a line
- Equations of lines
- Graphs of linear inequalities in two variables
- Introduction to functions
- The algebra of functions, composition of functions
- Translations and reflections of functions
- Proportion

Systems of Equations and Inequalities (2 hours)
- Solution by graphing
- Solution by substitution
- Solution by elimination

Exponents, Polynomials, and Factoring (12 hours)
- Exponents and scientific notation
- Adding and subtracting polynomials
- Multiplying polynomials
- The greatest common factor and factoring by grouping
- The difference of two squares; the sum and difference of two cubes
- Factoring trinomials
- Solving equations by factoring

Rational Expressions (10 hours)
- Simplifying rational expressions
- Multiplying and dividing rational expressions
- Adding and subtracting rational expressions
- Complex fractions
- Simple equations containing rational expressions

Rational Exponents and Radicals (8 hours)
- Rational exponents
- Radical expressions
- Adding and subtracting radical expressions
- Multiplying and dividing radical expressions
- Solving equations with one radical
- Complex numbers

Quadratic Equations (1 hour)
- Quadratic formula
- Equations quadratic in form

One-to-One and Inverse Functions (1 hour)

Total hours = 54

Additional Information

Repeatability

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Is it possible this course will have a material fee?

No

I have contacted my library liaison (https://campusguides.glendale.edu/faculty/liaisons):

No

What term(s) will this course be offered?

Fall/Winter/Spring/Summer

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value