

Course Outline for MATH 1005, Stretch Precalculus

MATH 1005 Stretch Precalculus (5 units)

Prerequisite: Appropriate Math Placement or [MATH 1000](#).

Precalculus with trigonometry. Factoring, exponents, and radicals. Rational, exponential, logarithmic, and trigonometric functions. Trigonometric identities. Inverse trigonometric functions and relations. [MATH 1005](#) covers the same material as [MATH 1007](#), but meets 5 hours a week. 5 lectures. Fulfills GE Area 2 with a grade of C- or better.

Course Learning Objectives	
1	Describe polynomial, rational, exponential, logarithmic, and trigonometric functions and their properties using the proper language and notation.
2	Graph and interpret functions using algebraic principles.
3	Solve linear and quadratic equations and inequalities.
4	Derive basic trigonometric identities and use them to manipulate expressions involving trigonometric functions.
5	Define and manipulate the inverse trigonometric functions and use them to solve trigonometric equations.
6	Construct models to solve problems

Expanded Course Content

Textbooks, materials, and/or other resources
"Precalculus: Mathematics for Calculus", 7th Edition, by James Stewart, Lothar Redlin and Saleem Watson, Cengage Learning

Week	Readings	Topics of Discussion
1	Sections 1.1, 1.2, 1.3 of Stewart et al	Real numbers, exponents and radicals, algebraic expressions
2	Sections 1.4, 1.5, 1.7 of Stewart et al	Rational expressions, equations, modeling with equations
3	Sections 1.8, 1.9, 1.10 of Stewart et al	Inequalities, graphs of equations, circles and lines
4	Sections 2.1, 2.2 of Stewart et al	Functions, graphs of functions

Week	Readings	Topics of Discussion
5	Sections 2.3, 2.5 of Stewart et al	Getting information from the graph of a function, linear functions and models
6	Sections 2.6, 2.7, 2.8 of Stewart et al	Transformations of functions, combining functions, one to one functions and their inverses.
7	Sections 3.1, 3.2 of Stewart et al	Quadratic functions and models, polynomial functions and their graphs
8	Sections 3.3, 3.6 Stewart et al	Dividing polynomials, rational functions
9	Sections 4.1, 4.2 of Stewart et al	Exponential functions, the natural exponential function
10	Sections 4.3, 4.4 of Stewart et al	Logarithmic functions, laws of logarithms
11	Sections 4.5, 4.6 of Stewart et al	Exponential and logarithmic equations, modeling with exponential functions
12	Sections 5.1, 5.2, 5.3 of Stewart et al	The unit circle, trigonometric functions of real numbers, trigonometric graphs
13	Sections 5.4, 5.5 of Stewart et al	Inverse trigonometric functions and their graphs, modeling harmonic motion
14	Sections 7.1, 7.2 of Stewart et al	Trigonometric identities, addition and subtraction formulas
15	Sections 7.3, 7.4 of Stewart et al	Double-angle, half-angle, and product-sum formulas, basic trigonometric equations

Method of Assessment

The possible methods of assessment are written individual examinations, quizzes, in-class worksheets or presentations, projects, and homework. All exams are to be proctored in-person, and one or more midterms and a cumulative final exam are required.

Instructional Mode

The instructional mode for this class is face-to-face. This designation means that the essential academic standards of the course require in-class student engagement, and thus remote instruction is not appropriate.