

Southeastern University
College of Natural and Health Sciences
Department of Mathematics
MATH 1413 - Precalculus
Official Syllabus

Catalog Description

This course covers algebraic relations and functions, systems of equations, rational functions, polynomials, exponential functions and logarithms, trigonometric functions and their inverses, graphs, and identities.

Prerequisite: None

Credit Hours: 3

Repeatable: Course not repeatable

Intended Learning Outcomes

Students who successfully complete this course will:

1. Demonstrate an understanding and employ function notation.
2. Interpret a function from an algebraic, numerical, graphical, and verbal perspective and extract information such as domain, range, intercepts, function values, increasing/decreasing intervals, maximums/minimums, and symmetry.
3. Analyze the graphs of linear, absolute value, quadratic, rational, cubic, radical, exponential, logarithmic, trigonometric, and piecewise functions.
4. Apply transformations to the graphs of common functions.
5. Combine functions using algebra of functions, specifying domains.
6. Write functions as compositions.
7. Verify and find the inverse of a one-to-one function.
8. Describe the end behavior, determine zeros of, and graph polynomial functions.
9. Utilize the Rational Zero Theorem, Remainder Theorem, Factor Theorem, and synthetic division to solve a polynomial equation.
10. Calculate the domain and asymptotes of rational functions.
11. Convert an exponential equation to logarithmic form, and a logarithmic equation to exponential form.
12. Use the properties of logarithms to expand a logarithmic expression, and to write an expanded logarithmic expression as a single logarithm.
13. Use properties of logarithms to solve exponential equations and logarithmic equations.
14. Convert angles between degrees and radians.
15. Describe relationship between the Unit Circle and the trigonometric functions.
16. Find the inverse of the trigonometric functions.
17. Utilize the trigonometric functions to solve right triangles.
18. Verify trigonometric identities and equations.