MTH 112: Elementary Functions

Investigates trigonometric functions, equations and identities. Examines right and oblique triangles, vectors, polar coordinates, parametric equations, and complex numbers. Explores topics graphically, numerically, symbolically, and verbally. Graphing technology is required, such as Desmos and/or GeoGebra which are available at no cost. It's recommended that students take MTH courses in consecutive terms.

Students are no longer required to have physical graphing calculators in MTH 112.

Where physically possible instructors will demonstrate using Desmos, GeoGebra, or other online programs in class. Assessments requiring the use of a graphing calculator will be done outside of the proctored exam grade component.

Course Student Learning Outcomes

Upon successful completion students should be able to:

- Demonstrate mastery-level understanding of angles and right triangle trigonometry in various systems of measure.

- Analyze periodic functions and perform graph transformations on trigonometric functions.

- Use variables to represent unknown quantities; create models; solve trigonometric equations and interpret the results.

- Integrate pre-requisite skills to verify trigonometric identities and simplify trigonometric expressions.

- Analyze the graphs of trigonometric functions, the graphs of functions defined on the polar coordinate system, the graphs of parametric equations, and complex numbers, using technology when appropriate.

- Demonstrate mastery of skills necessary for future course work that requires an understanding of trigonometric functions and identities, vector arithmetic, complex numbers, the polar coordinate system, or parametric equations.

Credits: 5
Prerequisites: **WR 115 RD 115 MTH 111** Equivalent placement test scores also accepted.
Program: **Mathematics**