<div align="center">
Miami-Dade Community College

MAC 1114 Trigonometry
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<u>Course Description</u>:   Topics include: Trigonometric functions and their graphs; inverse trigonometric functions and their graphs; trigonometric identities and equations; solutions of triangles; complex numbers; vectors; polar coordinates; applications. (3 hrs. lecture)

<u>Pre-requisite</u>: MAC 1105 with a grade of C or better or equivalent

<u>Course Competencies</u>:

Competency 1:	<u>The Student will demonstrate knowledge of the trigonometric functions their properties and their graphs by</u>:

        a.   Defining the functions in three different ways
        b.   Graphing the trigonometric functions, and their transformations.
        c.   Finding approximate values of the trigonometric functions using a calculator
        d.   Finding exact values of trigonometric functions with reference angles of measures 0, 30,45,60,90 degrees and their radian equivalents

Competency 2:	<u>The Student will demonstrate knowledge of inverse trigonometric functions their properties and their graphs by</u>:

        a.   Defining the inverse trigonometric functions including domains and ranges.
        b.   Graphing inverse trigonometric functions

Competency 3:	<u>The Student will demonstrate knowledge of trigonometric identities by</u>

        a.   Simplifying trigonometric expressions
        b.   Finding exact values of sums and differences of angles, half angles
        c.   Proving trigonometric identities

Competency 4:	<u>The Student will demonstrate knowledge of solving trigonometric equations by</u>

        a.   Finding all solutions on the domain $0 \leq x < 2$
        b.   Finding all solutions on the real numbers
        c.   Using identities to solve equations.

Competency 5:	The Student will demonstrate knowledge of solving triangles by:

    a.   Solving right triangles.
    b.   Solving triangles using the Law of Sines or the Law of Cosines.

Competency 6:	The Student will demonstrate knowledge of vector algebra by:

    a.   Adding vectors geometrically.
    b.   Decomposing vectors
    c.   Adding vectors by components
    d.   Adding vectors of the form $a\mathbf{i} + b\mathbf{j}$

Competency 7:	The Student will demonstrate knowledge of parametric equations by:

    a.   Sketching the graphs of curves given parametrically
    b.   Eliminating parameters

Competency 8:	The Student will demonstrate knowledge of polar coordinates by

    a.   Transforming rectangular coordinates to polar coordinates and vice versa.
    b.   Transforming rectangular equations to polar equations and vice versa
    c.   Graph curves in the polar coordinate system.

Competency 9:	The Student will demonstrate knowledge of applications of trigonometry by solving problems involving, but not limited to, the following:

    a.   Arcs and Sectors
    b.   Right triangles
    c.   Acute and oblique triangles
    d.   Waves.