

MIAMI-DADE COLLEGE
InterAmerican Campus
Mathematics Department
MAC 1114
Trigonometry
Course Syllabus

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MWF 9:00 -9:50 Room 1388

Ref # 611081

Textbook:

Title: Algebra & Trigonometry

Edition: 8th Edition

Author: Sullivan

Publisher: Prentice Hall

ISBN: 0132329034

Course Description: This course is primarily designed for students who expect to take physics and/or the courses in the calculus sequence. The student will analyze and graph trigonometric functions and inverse trigonometric functions. The student will learn and use the fundamental trigonometric identities and solve conditional trigonometric equations. The student will solve both right and oblique triangles. The student will perform operations on complex numbers in trigonometric form, work with vectors, and graph both polar and parametric equations. The student will solve applications and modeling problems related to the above topics. (3 hrs. lecture)

Pre-requisite: MAC 1105 with a grade of C or better or equivalent

Attendance:

Attendance is highly encouraged. Roll will be taken at every class session. Students are responsible for all material covered in class. Students who attend and do not appear on the class roll will be asked to report to the Registrar's Office to obtain a paid/validated schedule.

Math Lab:

The math lab is located in room 1375. It is highly recommended.

My Math Lab:

My Math Lab is an online support that offers online homework, tutorials, practice exams and more. Your book will contain an access code for you to access our class account.

Withdrawal Policy:

If you decide to withdraw from this course, it is your responsibility to do so in order to receive a grade of "W". Drop/Withdraw should be conducted through the office of the registrar. However, I periodically purge my class roster. If you are continuously absent and do not inform me of a reason, you may be purged from the class.

Cell phones, iPhones, iPods and Beepers:

Beepers and cell phones and iPods must be on silent or be turned off before class. Under no circumstances will a student be allowed to use a cell phone, iPods or allowed to text message inside the classroom.

Homework:

Homework will be assigned at the end of each lecture. Students are expected to complete all assigned homework. It is extremely important to keep up with the homework assigned.

Incompletes:

Incompletes will be given in very limited circumstances. The student must have a passing average and have a serious personal illness, family death, or unexpected crisis.

Evaluation Policy:

There will be five exams worth 100 points each and a mandatory cumulative final exam worth 100 points.

There are no Makeups. The final may substitute the lowest grade among the five exams. If you miss an exam, you may substitute the missing grade with the grade you receive on the final exam.

$$\frac{E1 + E2 + E3 + E4 + E5 + F}{6}$$

Calculators:

You will need a scientific calculator. If you have a graphing calculator, you are encouraged to use it; however, you will not be allowed to use it on exams.

Grading Scale:

100 – 90 = A

89 – 80 = B

79 – 70 = C

69 – 60 = D

59 – 0 = F

Make-ups:

Make-ups will only be given for extreme circumstances. If you miss an exam for any reason, you may substitute this missing grade with the grade you receive on the final exam. Only one exam may be substituted.

Cheating:

Cheating will not be tolerated. If you are caught cheating in any form, you will receive a failing grade for the course and be reported to the college for appropriate disciplinary action.

Course Outline (*Subject to change*):Week 1

Introduction

7.1

Week 2

7.2, 7.3 7.4

Week 3

7.5

Review

Week 4

Exam 1(7.1, 7.2, 7.3, 7.4, 7.5)

7.6, 7.7

Week 5

7.8, 8.1

Week 6

8.2

Review

Week 7

Exam 2 (7.6, 7.7, 7.8, 8.1, 8.2)

8.3, 8.4

Week 8

8.5, 8.6

Week 9

8.7, 8.8

Review

Week 10

Exam 3 (8.3, 8.4, 8.5, 8.6, 8.7, 8.8)

9.1

Week 11

9.2, 9.3

Week 12

9.3, 10.1

Week 13

10.2, 10.3

Week 14

10.4, 11.7

Week 15

11.7

Review

Week 16

Exam 4(9.1, 9.2, 9.3, 9.4, 10.1, 10.2, 10.3, 10.4, 11.7)

Week 17

Cumulative Final Exam

Course Competencies:

Competency 1: The student will demonstrate an understanding of the trigonometric functions by

- a. defining the functions in three different ways: as ratios of sides of a right triangle, as functions of an angle in standard position in a Cartesian plane, and as functions of a real number, as represented by an arc length along the unit circle.
- 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 of multiples of 30° or 45° and their radian equivalents.

Competency 2: The student will demonstrate an understanding of inverse trigonometric functions by

- a. defining the inverse trigonometric functions and stating their domains and ranges.

- b. evaluating inverse trigonometric functions both with and without a calculator.

Competency 3: The student will demonstrate an understanding of trigonometric identities by

- a. simplifying trigonometric expressions.
- b. finding exact values of trigonometric functions of sums and differences of angles and half-angles.
- c. proving trigonometric identities.

Competency 4: The student will demonstrate an ability to solve conditional trigonometric equations by

- a. finding all solutions on a specified interval.
- b. finding all real number solutions.
- c. using identities to solve equations.

Competency 5: The student will demonstrate an ability to solve triangles by

- a. solving right triangles.
- b. solving oblique triangles using the Law of Sines or the Law of Cosines.

Competency 6: The student will demonstrate an understanding of complex numbers in trigonometric form by

- a. converting a complex number from standard ($a + bi$) form to trigonometric form, and vice versa.
- b. multiplying and dividing complex numbers in trigonometric form
- c. raising complex numbers to positive integer powers using DeMoivre's Theorem
- d. finding the n complex n^{th} roots of a complex number

Competency 7: The student will demonstrate an understanding of vectors by

- a. adding vectors geometrically.
- b. resolving vectors into components.
- c. adding vectors algebraically, both in component form and when expressed as linear combinations of the standard basis.

Competency 8: The student will demonstrate an understanding of parametric equations by

- a. sketching the graphs of curves defined parametrically.
- b. eliminating the parameter to find a corresponding rectangular equation.

Competency 9: The student will demonstrate an understanding of polar coordinates by

- a. converting from rectangular coordinates to polar coordinates and vice versa.
- b. transforming rectangular equations into polar equations and vice versa
- c. graphing polar equations.

Competency 10: The student will demonstrate an understanding of applications of trigonometry by solving problems including, but not limited to

- a. arc lengths and areas of circular sectors.
- b. right triangles.
- c. oblique triangles.
- d. vectors.

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How do the course objectives relate to the Miami Dade College Learning Outcomes?

What follows below is a list of the ten learning outcomes that have recently been agreed upon by Miami Dade College faculty and administrators.

As graduates of Miami Dade College, students will be able to:

1. Communicate effectively using listening, speaking, reading, and writing skills.
2. Use quantitative analytical skills to evaluate and process numerical data.
3. Solve problems using critical and creative thinking and scientific reasoning.
4. Formulate strategies to locate, evaluate, and apply information.
5. Demonstrate knowledge of diverse cultures, including global and historical perspectives.
6. Create strategies that can be used to fulfill personal, civic, and social responsibilities.
7. Demonstrate knowledge of ethical thinking and its application to issues in society.
8. Use computer and emerging technologies effectively.
9. Demonstrate an appreciation for aesthetics and creative activities.
10. Describe how natural systems function and recognize the impact of humans on the environment.

Each course taken at the college addresses some of these learning outcomes. MAC1114, addresses outcomes 1, 2, 3, 4, 5, 8, 9.