

Montgomery County Community College
 MAT 162
 Precalculus II
 4-4-0

COURSE DESCRIPTION:

This is a continuation of MAT 161 including the following topics: exponential and logarithmic functions and trigonometry. The trigonometry topics includes right triangles, functions, graphs, identities, vectors, law of sines, law of cosines, polar coordinates and polar graphing, complex numbers, inverse functions and applications. A graphing calculator is required. Instruction will be presented using a TI-84 Plus.

REQUISITES:*Previous Course Requirements*

- MAT 161 Precalculus I with a minimum grade of "C"

Concurrent Course Requirements

None

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Solve problems using trigonometric definitions involving angles, circular functions, and right triangles.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects
2. Graph the six trigonometric functions and their inverses.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
3. Solve trigonometric identities and equations.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects
4. Use the law of sines and law of cosines to solve trigonometric applications.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects
5. Apply the complex number system using concepts such as DeMoivre's Theorem, polar coordinates, and parametric equations.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects
6. Solve problems using logarithmic and exponential definitions and properties and use these properties them in relevant applications.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects
7. Use the TI-84 Plus graphing calculator in relevant Precalculus II concepts.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes Projects	Exams Quizzes Homework Projects

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The

benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

SEQUENCE OF TOPICS:

1. Exponential Functions and Graphs; Inverse Functions
2. Logarithmic Functions and Graphs; Properties
3. Solving Equations; Exponential and Log Models
4. Angles and Their Measures
5. Right Triangle Trig
6. Trigonometric Functions of Any Angle
7. Graphs of Sine and Cosine
8. Graphs of Other Trig Functions
9. Inverse Trig Functions
10. Trigonometric Applications
11. Using & Verifying Fundamental Trig Identities
12. Solving Trig Equations
13. Sum, Difference, Multiple Angles, Product-Sum Formulas
13. Law of Sines
14. Law of Cosines; Review of Complex Numbers
15. Trig Form of a Complex Number
16. Parametric Equations; Polar Coordinates
17. Polar Graphs

LEARNING MATERIALS:

Textbook:

Larson. (2016). *Algebra and Trigonometry, Real Math. People* (7th ed.). Cengage.

Calculator:

TI-84 Plus Graphing Calculator. If a student has a TI-83+ calculator, they do not need to buy a TI-84+.

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

COURSE APPROVAL:

Prepared by:	Marion Graziano, Asst. Professor of Mathematics	Date:	4/1998
Revised by:	Thomas Moyer, Professor of Mathematics	Date:	4/2001
Revised by:	Thomas Moyer, Professor of Mathematics	Date:	8/2005
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	10/2004
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	5/2005
Revised by:	Mark McFadden, Instructor of Mathematics	Date:	1/2008
VPAA/Provost Compliance Verification:	Dr. John C. Flynn, Jr.	Date:	9/11/2009

Revised by:	Mark McFadden	Date:	2/1/2013
VPAA/Provost or designee Compliance Verification:			

Victoria L. Bastecki-Perez, Ed.D.

Date: 2/18/2013

Revised by: Marion Graziano/James Muscatell
VPAA/Provost or designee Compliance Verification:

Date: 8/31/2017

Date: 11/13/2017



This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.