Montgomery County Community College
MAT 011
Beginning Algebra
0-3-0

COURSE DESCRIPTION:
A first course in algebra with some review of arithmetic. It introduces the beginning concepts of algebra and is appropriate for students with a weak background or no background in algebra. Topics include signed numbers, algebraic terminology, basic operations on algebraic expressions and exponents, solution of linear equations and inequalities, simple factoring, algebraic fractions, and word problems.

This precollege level course cannot be used to fulfill a degree requirement nor is it calculated in a student's Grade Point Average (GPA); however, the credits billed will be applied towards a student's financial aid enrollment status and enrollment status reported to the National Student Clearinghouse.

REQUISITE(S):
Previous Course Requirements

* MAT 010 Fundamentals of Arithmetic, or MAT 010B Fundamentals of Arithmetic, with a minimum grade of "C"

Concurrent Course Requirements
None

COURSE COMMENTS

* Arithmetic Accuplacer Test Score of 276 or higher or a Quantitative Reasoning, Algebra, and Statistics Accuplacer Test Score of 238-250. MAT 011B may be taken as an option.
* NonBusiness and NonSTEM majors achieving a Quantitative Reasoning, Algebra, and Statistics Accuplacer Test Score of 238-250 may register for a MAT 106 011 section, if a refresh of content is desired.

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to	LEARNING ACTIVITIES	EVALUATION METHODS
1. Use signed numbers, variables, distributive property, combining like terms appropriately.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
2. Solve linear and literal equations.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
3. Solve applications of linear equations and percentages.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
4. Solve inequalities and their applications.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
5. Understand and use the Cartesian coordinate system to graphing lines: vertical and horizontal lines, x and y-intercepts, changes to the horizontal and vertical scales of a graph.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
6. Appropriately apply slope and understand applications of linear graphs.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
7. Develop models for applications of linear graphs.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
8. Use the calculator appropriately to solve growth and decay problems with exponents, finance problems and scientific notation.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
9. Convert between scientific notation and decimal notation.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
10. Apply properties of exponents.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
11. Manipulate and solve multiplication, division, addition, subtraction of algebraic fractions, and fractional equations.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
12. Solve applications of ratio and proportion problems.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
13. Compute the addition, subtraction and multiplication of polynomials.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
14. Use the calculator to approximate square roots.	Lecture Small Group Activities Problem Solving Activities Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
15. Use and apply the quadratic formula appropriately.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
16. Graph quadratic equations and apply appropriately to quadratic applications.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests
17. Understand common factors, factoring trinomials with a leading coefficient of one, factoring the difference of perfect squares, and solve equations by factoring.	Lecture Small Group Activities Problem Solving Activities	Homework Quizzes Tests

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. Signed Numbers
2. Introduction to Variables
3. Simplifying Algebraic Expressions
4. Solving Equations
5. Applications of Linear Equations
6. Literal Equations
7. Percentages
8. Inequalities
9. Applications of Inequalities
10. Scatter Plots
11. Interpreting Graphs
12. Graphing Lines by Plotting Points

13. Graphing Lines by Finding the Intercepts
14. Introduction to Slope
15. Slope
16. Applications of Linear Graphs
17. Introduction to Positive Exponents
18. Negative Exponents and Scientific Notation
19. Properties of Exponents
20. Introduction to Algebraic Fractions
21. Addition, Subtraction of Algebraic Fractions
22. Solving Equations Containing Fractions
23. Ratio and Proportion Problems
24. Introduction to Quadratics
25. Applications of Quadratic Formula
26. Quadratic Applications and Their Graphs
27. Factoring

LEARNING MATERIALS:

Textbook

Hofmann, Hunter, and Yankosky. 2016-2017. *Beginning Algebra*. Pearson Custom Publishing.

Calculator:

TI-30XIIS

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:	Mary Ann Pitts, Professor of Mathematics	Date:	4/1998
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	4/1999
Revised by:	Aileen Conway, Professor of Mathematics	Date:	8/2000
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	5/2001
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	5/2003
Revised by:	Roseanne Hofmann, Professor of Mathematics	Date:	1/2004
Revised by:	Walter R. Hunter, Professor of Mathematics	Date:	1/2009
VPAA/Provost Compliance Verification:	Dr. John C. Flynn, Jr.	Date:	6/22/2010
Revised by:	Marion Graziano, Assistant Professor Mathematics	Date:	8/4/2011
VPAA/Provost Compliance Verification:	Victoria L. Bastecki-Perez, Ed.D.	Date:	8/5/2011
Revised by:	Marion Graziano	Date:	10/30/2012
VPAA/Provost or designee Compliance Verification:	Victoria L. Bastecki-Perez, Ed.D.	Date:	2/19/2013

Revised by: Marion Graziano/Debbie Dalrymple Date: 8/2/2017
VPAA/Provost or designee Compliance Verification: Date: 8/24/2017

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.