Montgomery County Community College MAT 100B Intermediate Algebra & Review 3-4-0

COURSE DESCRIPTION:

An intermediate algebra course which reviews and extends the topics from a beginning algebra or algebra I course. It is appropriate for students who had Algebra I in high school but are not prepared for MAT 100, Intermediate Algebra. MAT 100B is an alternative to the sequence MAT 011, MAT 100. MAT 100B covers the same topics as MAT 100 by meeting 4 hours a week for 3 credits. It is important to note that the students will pay for four hours, but only receive three credits. It will prepare students for MAT 115, MAT 125, MAT 131, MAT 140 and/or MAT 161. Topics include a review of introductory algebra, introduction to functions, factoring, algebraic fractions, radicals, fractional exponents, the Pythagorean Theorem, function notation, graphing, quadratic equations, logarithms, systems of linear equations, and word problem applications. A graphing calculator is required. Instruction will be presented using a TI-83 Plus or Silver Edition.

REQUISITE(S):

Previous Course Requirements

* MAT 011 Beginning Algebra <u>or</u> MAT 011B Beginning Algebra with Review of Arithmetic

Concurrent Course Requirements None

COURSE COMMENTS

* Quantitative Reasoning, Algebra, and Statistics Accuplacer Test Score of 246-250.

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to	LEARNING ACTIVITIES	EVALUATION METHODS
 Perform basic algebraic operations. 	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects
 Explain the concepts of function, domain, range, inverse function. 	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects

LEARNING OUTCOMES		LEARNING ACTIVITIES	EVALUATION METHODS	
3.	Graph linear functions and vertical lines.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
4.	Evaluate function notation.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics calculator Homework Quizzes	Exams Quizzes Homework Projects	
5.	Factor and apply this technique to simplifying expressions and solving equations.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
6.	Simplify rational expressions and solve rational equations.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
7.	Solve quadratic equations and graph quadratic functions.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS	
8. Simplify radicals and interpret i-notation.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
 Solve systems of linear equations. 	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
10. Graph exponential and logarithmic functions.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
 11. Solve word problems involving distance, rate, time, variation, investment, Pythagorean's Theorem, and regression. 	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	Exams Quizzes Homework Projects	
12. Use the TI-84+ graphing calculator in relevant intermediate algebra concepts.	Lectures Small Group Discussions and/or Projects The Use of TI 84 Graphics Calculator Homework Quizzes	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. Algebra Review
- 2. Exponents and Scientific Notation
- 3. Graphs and the Graphing Calculator
- 4. Functions, Linear Equations, Applications
- 5. Lineal Functions, Graphs, Curve Fitting
- 6. Systems of Equations, Applications
- 7. Polynomials
- 8. Factoring
- 9. Applications: Motion and Pythagorean Theorem only
- 10. Quadratic Equations: Root extraction only
- 11. Quadratic Formula, Applications, Variation
- 12. Graphing Quadratic Functions
- 13. Exponential Functions
- 14. Inverse Functions, Log Functions
- 15. Introduction to "e", Simple Exponential & Logarithmic Equations, Applications
- 16. Rational Expressions
- 17. Rational Expressions and Equations, Applications: Motion problems
- 18. Applications
- 19. Radicals, Fractional Exponents
- 20. Multiplication and Division of Radicals, Simplifying
- 21. Radical Equations
- 22. Applications: *Pythagorean Theorem only*
- 23. Complex Numbers; Brief introduction to "i"
- 24. Review

LEARNING MATERIALS:

Textbook Kern, R. (2011). Intermediate Algebra. Hayden-MCN

Calculator

TI-83/83+ or TI 84+ graphing calculator

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: Walter Hunter, Professor of Mathematics			Date:	4/2003
VPAA/Provost	Compliance Verification:	Dr. John C. Flynn, Jr.	Date:	12/9/2004
Revised by: Mark McFadden VPAA/Provost or designee Compliance Verification:				1/1/2013
	Victoria L. Bastecki-Perez	, Ed.D.	Date:	5/23/2013
Revised by: VPAA/Provost	Marion Graziano/Debbie I or designee Compliance V	Dalrymple erification:	Date: Date:	8/2/2017 8/24/2017

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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.