

Northern Marianas College

CURRICULUM ACTION REQUEST

Course: MA132 Intermediate Algebra

Effective Semester / Session: Summer 2022

Type of Action:

- New
- Modification
- Move to Inactive (Stop Out)
- Cancellation

Course Alpha and Number: MA132

Course Title: Intermediate Algebra

Reason for initiating, revising, or canceling:

This course has been modified for periodic review, updates on the instructional goals and updates on SLO 3, 5, 6, and 7.

Seung Ho Pak  4/27/2022

Proposer  Date

Velma C. De Leon Guerrero 4/27/2022

Department Chair Date

Adam Walsh  04.27.22

Language & Format Review Specialist Date

Ajani Burrell  04.27.22

Academic Council Chair Date

Vilma S. Reyes  Apr 27, 2022

Interim-Dean of Learning & Student Success Date

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1. Department

Science, Mathematics, Health & Athletics

2. Purpose

The purpose of this course is to enable students to (1) develop proficiency in elementary algebra and algebraic functions, and (2) discover applications of algebra by constructing models to solve real-world problems. The need for this course is demonstrated in that it meets the minimum core course requirement in mathematics for all NMC degree programs.

3. Description

A. Required/Recommended Textbook(s) and Related Materials

Required:

Larson, Ron. *Intermediate Algebra Within Reach*. 6th ed. Brooks/Cole, 2014.

TI-82, TI-83, or TI-89 graphing calculator

B. Contact Hours

1. **Lecture:** 4 per week / 60 per semester
2. **Lab:** None
3. **Other:** None

C. Credits

1. **Number:** 4
2. **Type:** Regular Degree Credits

D. Catalogue Course Description

This course is designed to enable students to develop proficiency in algebra and to show students how algebra may be used as a model for solving real-life problems. Topics covered include the concepts of elementary algebra, equations, graphs, and algebraic functions. A graphic approach to problem solving is emphasized throughout. Students are required to do assignments using a TI-82, TI-83, or TI-89 graphic calculator. English Placement Level: EN095. Math Placement Level: MA132. (Offered Fall, Spring, and Summer)

E. Degree or Certificate Requirements Met by Course

MA132 is a core course requirement for all degrees at NMC.

F. Course Activities and Design

Course activities include lecture, discussions, homework assignments, tests, quizzes, and a comprehensive final exam.

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4. **Course Prerequisite(s); Concurrent Course Enrollment**

Prerequisites: A passing grade in MA091 or the instructor's and department chair's permission.

Concurrent Course Enrollment: None

Required English/Mathematics Proficiency Level(s):

English Placement Level: EN095

Mathematics Placement Level: MA132

5. **Estimated Cost of Course; Instructional Resources Needed**

Cost to the Student: Tuition for a 4-credit course; cost of textbook; cost of a TI-82, TI-83, or TI-89 graphic calculator; and instructional materials fee.

Cost to NMC: Instructor's salary.

Instructional resources needed for this course include: whiteboard and markers, with erasers. An electronic projection device and television or other viewing device for calculator demonstrations. A TI-82, TI-83, or TI-89 graphic calculator with manual, and instructor's edition textbook with supplemental materials.

6. **Method of Evaluation**

Evaluation methods will include quizzes, tests, homework assignments, and a comprehensive final exam. NMC's grading and attendance policies will be followed.

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7. Course Outline

This is a topical outline and does not necessarily indicate the sequence in which the material will be presented.

- 1.0 Linear Equations & Inequalities
 - 1.1 Linear equation
 - 1.2 Linear equations and problem solving
 - 1.3 Business and scientific problems
 - 1.4 Linear inequalities
 - 1.5 Absolute value equations and inequalities

- 2.0 Graphs & Functions
 - 2.1 The rectangular coordinate system
 - 2.2 Graphs of equations
 - 2.3 Slope and graphs of linear equations
 - 2.4 Equations of lines
 - 2.5 Graphs on linear inequalities
 - 2.6 Relations and functions
 - 2.7 Graphs of functions

- 3.0 Systems of Linear Equations & Inequalities
 - 3.1 Systems of equations
 - 3.2 Linear systems in two variables
 - 3.3 Linear systems in three variables
 - 3.4 Matrices and linear systems
 - 3.5 Determinants and linear systems
 - 3.6 Systems of linear inequalities

- 4.0 Polynomials & Factoring
 - 4.1 Integer exponents and scientific notation
 - 4.2 Adding and subtracting polynomials
 - 4.3 Multiplying polynomials
 - 4.4 Factoring by grouping and special forms
 - 4.5 Factoring trinomials
 - 4.6 Solving polynomial equations by factoring

- 5.0 Rational Expressions, Equations, & Functions
 - 5.1 Rational expressions and functions
 - 5.2 Multiplying and dividing rational expressions
 - 5.3 Adding and subtracting rational expressions
 - 5.4 Complex fractions
 - 5.5 Dividing polynomials and synthetic
 - 5.6 Solving rational equations

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- 5.7 Variation

- 6.0 Radicals & Complex Numbers
 - 6.1 Radicals and rational exponents
 - 6.2 Simplifying radical expressions
 - 6.3 Adding and subtracting radical expressions
 - 6.4 Multiplying and dividing radical expressions
 - 6.5 Radical equations and applications
 - 6.6 Complex numbers

- 7.0 Quadratic Equations, Functions, & Inequalities
 - 7.1 Solving quadratic equations
 - 7.2 Completing the square
 - 7.3 The quadratic formula
 - 7.4 Graphs and quadratic functions
 - 7.5 Applications of quadratic equations
 - 7.6 Quadratic and rational inequalities

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8. Instructional Goals

The course will introduce students to:

- 1.0 Linear Functions, Equations, & Inequalities;
- 2.0 Graphs & Functions;
- 3.0 Systems of Linear Equations & Inequalities;
- 4.0 Polynomials & Factoring;
- 5.0 Rational Expression & Rational Functions;
- 6.0 Quadratic Functions, Equations, & Inequalities; and
- 7.0 Radicals & Complex Numbers.

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9. Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1.0 Factor polynomials and solve equations;
- 2.0 Find the distance, midpoint, slope, and intercept to graph functions and transform graphs;
- 3.0 Solve linear, absolute value equations and inequalities including word problems;
- 4.0 Graph and solve linear equations and inequalities and systems of linear equations in two and three variables;
- 5.0 Apply scientific notation and the use of rational exponents in solving radical and complex number and equations;
- 6.0 Solve applications, graph quadratic functions and inequalities in one variable; and
- 7.0 Solve and graph rational functions and rational inequalities in one variable.

10. Assessment Measures of Student Learning Outcomes

Assessment of student learning may include, but not be limited to, the following:

- 1.0 Quizzes;
- 2.0 Tests; and
- 3.0 Final Comprehensive Examination.






MA132.2

Final Audit Report

2022-04-27

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