Course: MA087 Fundamentals of Mathematics

Effective Semester / Session: Spring 2022

Type of Action:
- [X] Modification
- [ ] Move to Inactive (Stop Out)
- [ ] Cancellation

Course Alpha and Number: MA087

Course Title: Fundamentals of Mathematics

Reason for initiating, revising, or canceling:
Periodic course guide review needed over time, adding virtual class resources for Estimated Cost of Course and Instructional Resources Needed sections.

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Proposer
EWJ 1-27-22

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1/28/2022

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1.27.2022

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Interim-Dean of Academic Programs and Services
1/28/22
1. **Department**
   Sciences, Mathematics, Health & Athletics

2. **Purpose**
The purpose of this course is to help students develop and improve their basic arithmetic skills. The course will introduce, explore, and apply concepts of introductory mathematics—including integers, fractions, decimals, and exponents—essential for preparing students for the successful completion of subsequent math courses required for graduation from NMC. This course will also help students enhance their self-concept with regard to their mathematical ability.

3. **Description**

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

   Recommended: None

   B. **Contact Hours**
   1. **Lecture:** 2 per week / 30 per semester
   2. **Lab:** 2 per week / 30 per semester
   3. **Other:** None

   C. **Credits**
   1. **Number:** 3
   2. **Type:** Non-Degree Units

   D. **Catalogue Course Description**
   Note: MA087, MA089, and MA091 are preparatory courses in mathematics and do not carry college degree credit (i.e. non-degree units [NDU]). This course covers basic concepts of arithmetic, including integers, fractions, decimals, and exponents. This course is designed to assist students who need to upgrade their basic math skills so that they can be successful in subsequent mathematics courses. Prerequisites: BE111 or concurrent enrollment & EN085. (Offered Fall, Spring, and Summer)

   E. **Degree or Certificate Requirements Met by Course**
   None. A passing grade in this course satisfies only the mathematics proficiency requirement for entry into MA089: Pre-Algebra.
F. Course Activities and Design
   Course activities include: lecture, group work, peer-teaching, discussions, homework assignments, viewing audio-visual materials, lab work in the classroom, quizzes, tests, and a final exam.

4. Course Prerequisite(s); Concurrent Course Enrollment
   Prerequisites: BE111 or as concurrent course enrollment
   Concurrent Course Enrollment: BE111

   Required English/Mathematics Proficiency Level(s)
   English Placement Level: EN085
   Mathematics Placement Level: MA087

5. Estimated Cost of Course; Instructional Resources Needed
   Cost to the Student: Tuition for a 3-credit course, cost of textbook, and the student activities fee.

   Cost to the College: Instructor's salary.

   Instructional resources needed for this course include: whiteboard and whiteboard markers, an ELMO projector, and audiovisual equipment.

6. Method of Evaluation
   Students will be evaluated by their performance on the chapter quizzes, homework, tests as well as the completion of the final exam. NMC's grading and attendance policies will be followed.
7. Course Outline

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

1.0 Whole Numbers
   1.1 Introduction to whole numbers
   1.2 Addition and subtraction of whole numbers
   1.3 Multiplication and division of whole numbers
   1.4 Solving equations with whole numbers
   1.5 Order of operations agreement

2.0 Integers
   2.1 Introduction to integers
   2.2 Addition and subtraction of integers
   2.3 Multiplication and division of integers
   2.4 Solving equations with integers
   2.5 Order of operations agreement

3.0 Fractions
   3.1 Least common multiple and greatest common factor
   3.2 Introduction to fractions
   3.3 Addition and subtraction of fractions
   3.4 Multiplication and division of fractions
   3.5 Solving equations with fractions
   3.6 Exponents, complex fractions, and the order of operations agreement

4.0 Decimal and Real Numbers
   4.1 Introduction to decimals
   4.2 Addition and subtraction of decimals
   4.3 Multiplication and division of decimals
   4.4 Solving equations with decimals
   4.5 Radical expressions
   4.6 Real numbers
8. Instructional Goals
The course will introduce students to:

1.0 Operations Using Whole Numbers;

2.0 Operations Using Integers;

3.0 Operations Using Fractions; and

4.0 Operations Using Decimals.
9. **Student Learning Outcomes**
Upon successful completion of this course, students will be able to:

1.0 Add, subtract, multiply, divide and solve equations with whole numbers using the order of operations agreement;

2.0 Add, subtract, multiply, divide and solve equations with integers using the order of operations agreement;

3.0 Add, subtract, multiply, divide and solve equations with fractions using the order of operations agreement, also including exponents and complex fractions; and

4.0 Add, subtract, multiply, divide and solve equations with decimals using the order of operations agreement, also including radical expressions and real numbers.

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;

3.0 Assignments;

4.0 Lab Work; and

5.0 Comprehensive Final Exam.