

Northern Marianas College

CURRICULUM ACTION REQUEST

Effective Semester / Session: Spring 2007

Type of Action:

- New
 Modification
 Move to Inactive (Stop Out)
 Cancellation

Course Alpha and Number: ED 330

Course Title: Mathematics for Elementary Teachers: An Activity Approach

Reason for initiating, modifying, or canceling course, or other pertinent comment:

This course guide has been undated to reflect changes in current educational practices under sections of course activities and design, student learning outcomes and assessment.

Sallie Sablan

Sallie Sablan

June 26, 2007

Proposer

Date

Michael Reber

Michael Reber

June 26, 2007

Department Chair

Date

English and Format Reviewer

R.T. J.

10/23/07

Date

Dean of Academic and Student Programs and Services

Date

10/29/07

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Course Guide

Course: ED 330 Mathematics for Elementary Teachers: An Activity Approach

1. Department:

School of Education

2. Purpose

This course is designed for prospective teachers to engage with mathematics conceptually. Students will acquire knowledge, solving problems, and gain confidence in their ability to reason mathematically. Teachers-in-training will be provided with an examination of knowledge of mathematics principles. It will introduce them to current mathematics standards as developed by the National Council of Teachers of Mathematics (NCTM) and the Public School Systems Standards and Benchmarks.

3. Description

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

Required:

Bennett, Albert B., Laurie J. Burton, and L. Ted Nelson. *Mathematics for Elementary Teachers: An Activity Approach*. New York: McGraw-Hill, 2007.

Readability Level: 12

PSS Standards and Benchmarks. Curriculum, Instruction and Assessment Office, Public School System.

<http://courses.nmcnet.edu/course/view.php?id=27>

or

<http://www.pss.cnmi.mp/standards/index.htm>

Readability Level: 12

Principals and Standards for School Mathematics. National Council for Teachers of Mathematics. Reston, VA. www.nctm.org/standards/

Readability Level: 12

B. Contact Hours

1. **Lecture:** 45 per semester

2. **Lab:**

3. **Other:**

C. Credits

1. **Number:** 3

2. **Type:** Regular degree credits

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D. Catalogue Course Description

The purpose of this course is to provide teachers-in-training with a conceptual understanding of mathematics, a broad knowledge of basic mathematical skills, and ideas and methods that generate enthusiasm for learning and teaching mathematics. It will introduce them to current mathematics standards as developed by the National Council of Teachers of Mathematics (NCTM) and the Public School Systems Standards and Benchmarks. Emphasis is placed on problem solving and active student participation. Prerequisites: All core course and general education requirements and ED 300 and ED 370 with a grade of "C" or higher or permission of the Director of the School of Education. Mathematics Placement Level: MA 161.

E. Degree or Certificate Requirements Met by Course

This is a required course for the Bachelor of Science in Elementary Education degree.

F. Course Activities and Design

This course will incorporate projects and presentations, journal entries, reading reflections, assignments applying learned materials, class attendance and participation, and a midterm and final examination.

4. Course Prerequisite(s); Concurrent Course Enrollment; Required English/Mathematics Placement Level(s)

Prerequisites: All core course and general education requirements and ED 300 and ED 370 with a grade of "C" or higher or permission of the Director of the School of Education. Mathematics Placement Level: MA 161.

5. Estimated Cost of Course; Instructional Resources Needed

To the Student: Tuition for a three-credit course; cost of textbook; instructional materials fee.

To the College: Instructor's salary.

Instructional resources needed for this course include TV/VCRs, chalkboard, chalk, CRC materials, photocopied materials and other materials as necessary.

6. Method of Evaluation

Student grades will be based on the regular letter grade system as described below:

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- A: Excellent – grade points: 4.0;
- B: Above average – grade points: 3.0;
- C: Average – grade points: 2.0;
- D: Below average – grade points: 1.0;
- F: Failure – grade points: 0.0.

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 Problem Solving
- 2.0 Introduction to problem solving
- 3.0 Patterns and problem solving
- 4.0 Problem solving with algebra
- 5.0 Sets, Functions, and Reasoning
- 6.0 Whole Numbers
- 7.0 Number Theory
- 8.0 Integers and Fractions
- 9.0 Decimals: Rational and Irrational Numbers
- 10.0 Statistics
- 11.0 Probability
- 12.0 Geometric Figures
- 13.0 Measurement
- 14.0 Motion in Geometry

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8. Instructional Goals

This course will introduce students to:

- 1.0 Problem Solving;
- 2.0 Sets, Functions, and Reasoning;
- 3.0 Whole Numbers;
- 4.0 Number Theory;
- 5.0 Integers and Fractions;
- 6.0 Decimals: Rational and Irrational Numbers;
- 7.0 Statistics;
- 8.0 Probability;
- 9.0 Geometric Figures;
- 10.0 Measurement;
- 11.0 Motion in Geometry

9. Student Learning Outcomes

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

- 1.0 Describe the mathematical applications of problem solving in the elementary and junior high classroom;
- 2.0 Identify sets, functions, and reasoning in the elementary and junior high classroom;
- 3.0 Recognize whole numbers in the elementary and junior high classroom;
- 4.0 Describe Number Theory in the elementary and junior high classroom;

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- 5.0 Identify Integers and Fractions in the elementary and junior high classroom;
- 6.0 Explain Decimals: Rational and Irrational Numbers in the elementary and junior high classroom;
- 7.0 Discuss Statistics in the elementary and junior high classroom;
- 8.0 Explain Probability in the elementary and junior high classroom;
- 9.0 Describe Geometric Figures in the elementary and junior high classroom;
- 10.0 Discuss Measurement in the elementary and junior high classroom;
and
- 11.0 Explain Motion in Geometry in the elementary and junior high classroom.

10. **Assessment Measures**

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

- 1.0 Class participation
- 2.0 Examinations
- 3.0 Presentations
- 4.0 Projects
- 5.0 Study guides
- 6.0 Chapter exercises and problems