



Saili Le Atamai

ACADEMIC AFFAIRS DIVISION
Office of the Dean of Academic Affairs

INSTRUCTIONAL COURSE APPROVAL FORM

Date _____

Course Title **ELEMENTARY MATHEMATICS METHODS**

Course Code (Alpha and Number) **ED 330**

ROUTING SIGNATURES AND DATE

1. Initiator _____

2. Academic Department Chair: _____

3. Dean, Academic Affairs: _____

4. Curriculum Committee: _____

5. Dean, Academic Affairs: _____

6. Vice President: _____

Approved Disapproved Approved with the following recommendations:

Textbook(s) / Reference book(s)

Elementary and Middle School Mathematics: Teaching Developmentally. John A. Van de Walle. 4th edition
2001 New York: Addison Wesley Longman, Inc.

How People Learn: Brain, Mind, Experience and School.
John D. Bransford, Ann L. Brown, and Rodney R. Cocking.
1999 Committee on Developments in the Science of Learning.
National Research Council. National Academy Press
Washington, D.C.

Elementary Mathematics Links. Organized by the
Instructor and participants in the class.

Sunshine Math and the NCTM. Sample problems
(available on-line)

Assessing Mathematical Understanding Effectively.
Harvard Group-Balanced Assessment in Mathematics
Education. (available on-line)

Approval of Textbook

Department Chairperson

Curriculum Committee

Dean of Academic Affairs

Special supplies / Equipment

Computer and internet access
manipulative to demonstrate teaching
methods.

Approval for Supplies / Equipment

Department Chairperson

Curriculum Committee

Dean of Academic Affairs

COURSE OBJECTIVES IN BEHAVIORAL TERMS

Student Competencies

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

- 1.1 The student will be knowledgeable about the learning theories (child, adolescent, early adult) that present a rationale for the hands-on/minds-on approach to learning mathematics.
- 1.2 The student will be able to analyze manipulative or adjunctive activities to determine if the activities allow for diversity in background, learning styles, abilities, and interests.

- 1.3 The student will be knowledgeable about resources of developmentally appropriate mathematics activities.
- 1.4 The student will be able to modify or develop instructional activities and apply current learning theories mathematics achievement.
- 1.5 An understanding of recent trends in mathematics education policy and goals.
- 1.6 An ability to design math lessons and units that are developmentally appropriate.
- 1.7 An ability to construct assessment plans that are compatible with teaching goals and methods and that allow for multiple ways of representing knowledge.
- 1.8 An awareness of organizations and resources (human, environmental, and technological) that serve the professional development of elementary math teachers.
- 1.9 An understanding of the role of reflection in professional development and lifelong learning.

TOPICAL COURSE OUTLINE

Course Outline:

- 1.0 Introduction to the Internet
 - 1.1 “Googleing” for Teaching Resources
 - 1.2 On-Line Math Activities for Student Enrichment
- 2.0 Introduction to the National Council on Teaching Mathematics Principles and Standards, Pacific Regional and ASDOE Standards
 - 2.1 Standards for Primary, Elementary and Middle School Math Instruction
 - 2.2 Aligning Instruction with Standards
- 3.0 Equity, Diversity and Gender bias in the Math Classroom
 - 3.1 “No Child Left Behind”
 - 3.2 Learning Styles
 - 3.3 Designing Learning Activities to Include Diverse Learning Styles
 - 3.4 “Math Anxiety”

- 4.0 Children’s Ideas in Math (Application to Everyday Life)
 - 4.1 The World “By Numbers” (Measurements, Weights, Money, Time)
 - 4.2 Sunshine Math-Integrating Classroom, Home and Community
- 5.0 Constructivism and the Nature of Mathematics: The Universal Language of Mathematics
- 6.0 Mathematics Content Standards for Grades K-8
 - 6.1 Application of Primary Standards to Classroom Instruction
 - 6.2 Application of Elementary Standards to Classroom Instruction
 - 6.3 Application of Middle School Standards to Classroom Instruction
- 7.0 Techniques for Bringing Mathematics into the Everyday World
 - 7.1 Adapting and Applying Sunshine Math Activities
 - 7.2 Exploring the World “By the Numbers” (Lesson Plans/ Activities)
- 8.0 Helping Children to Apply Mathematical Concepts and Techniques
 - 8.1 Adapting Instruction and Activities to Different Learning Styles
 - 8.2 Lesson Plans and Application Activities
- 9.0 Language and Communication in Math Classroom
 - 9.1 The Vocabulary of Mathematics
 - 9.2 Building Math Understanding Through Discussion of Activities
- 10.0 Assessing Math Learning
 - 10.1 Deciding What Should be Assessed
 - 10.2 Teacher-Made Tests
 - 10.3 Local and National Assessment Standards
- 11.0 Integrated Curricula and Thematic Approaches
 - 11.1 The Connection Between Math and Science
 - 11.2 Developing Thematic Units With Lesson Plans
 - 11.3 Sample Unit: Social Studies Integration-Tuna Canneries

12.0 Using the Internet to Support Professional Development

12.1 What You Know is Never Enough

12.2 Internet Resources for Continuing Math Education

13.0 Instructional Technology

13.1 Locating and Using Media Resources

13.2 Integrating Computers and Other Technology Resources

ED 330P Elementary Mathematics Methods Practicum

The Practicum enables students to observe and interact with students and teachers, to develop and teach mathematics lessons, and to reflect upon the effectiveness of curricula and methods explored in course readings and class discussions. In pursuing the field experience, students are expected to be professional and to reflect upon and learn from their teaching, not to prepare or teach perfect lesson (assuming such things exist). To promote learning and reflection during the field experience, all students are required to maintain a practicum field experience journal, develop and teach an appropriate progression of math lessons, and submit revised lesson plans after reflecting upon their teaching and feedback they receive.

- All students should prepare lesson plans using the format shown in the lesson plan guide (provided by the instructor). Although lesson plans may be developed collaboratively, work is submitted and evaluated individually.
- Additional lesson plans and activities will be required throughout the semester.

Field Experience Journal

- The field experience journal is a professional conversation between instructor and student designed to help students integrate theory and practice in a coherent whole. The journal has several instructional purpose.
- To explore the relationships between practical and formal knowledge, conception and reality, and action and reflection.
- To learn strategies to manage these relationships productively;
- To learn how intentional reflection can play a role in the development of integrated, professional practice.

EVALUATION METHODS

Research Projects.....	20%
Exam 1.....	20%
Exam 2.....	20%
Practicum.....	30%
Field Experience.....	10%