EDMS 526 MODERN METHODS IN MATHEMATICS TEACHING (3)

Three hours lecture/discussion per week.

Prerequisite: Admission to the Multiple Subject Credential Program.

Students learn to apply techniques and materials to teaching mathematics in elementary and middle schools. Special attention will be given to mathematical reasoning, problem solving skills, multiple representations and approaches including verbal, symbolic, graphic. Modern methods, including mathematical modeling, use of new technology and modern educational software will be stressed. Needs of English Language Learners and exceptional children, technology for teaching and learning are integrated.

2. Mode of Instruction

<table>
<thead>
<tr>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Seminar</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>Activity</td>
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3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

This course is a required course in the Multiple Subject Teaching Credential Program. It meets the standards set by the California Commission on Teacher Credentialing.

Students who successfully complete this course will be able to:
1. plan and implement a mathematics program meeting the standards outlined in the California Mathematics Framework
2. use current research finding to inform curriculum planning, design and implementation
3. use appropriate tools to assess student understanding, skills and work
4. design standards-based learner-centered lessons
5. create instructional activities that promote universal access to mathematics content
6. integrate the use of manipulatives to bridge the stages of conceptual development
7. employ multiple approaches to teach lessons that develop conceptual understanding and enhance skills
8. infuse information and communication technology appropriately as a tool in mathematics learning
9. devise and apply rubrics to student work and student journals.

4. Is this a General Education Course  YES  NO

If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)
B (Mathematics & Sciences)

NEWCRSFR 9/30/02
5. Course Content in Outline Form. [Be as brief as possible, but use as much space as necessary]

- California State Academic Content Standards
- Elementary and Middle School Mathematics Curriculum and Organization
- Balanced Content
- Characteristics of Effective Mathematics Learning Environment
- Traits of Effective Mathematics Teachers
- Learners' Needs and Learning Strategies
- Teaching Diverse Learners
- Planning Strategies
- Learner-Centered Instructional Strategies
- Infusing Information and Communication Technologies
- Assessment and Evaluation Strategies

6. References. [Provide 3 - 5 references on which this course is based and/or support it.]


7. List Faculty Qualified to Teach This Course.
   Merilyn Buchanan

8. Frequency.

   a. Projected semesters to be offered: Fall X Spring X Summer

9. New Resources Required.
   Mathematics Instructional Materials
   Library Resources
   Graphing Calculators
   Instructional Software (including videos)

10. Consultation.
    Attach consultation sheet from all program areas, Library, and others (if necessary)

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

Merilyn Buchanan 01/09/03

Proposer of Course Date