TEACHING SECONDARY LEVEL MATHEMATICS
EDSS 541 -- 2001-02

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The mission of the College of Education Community is to transform public education by preparing thoughtful educators advancing professional practice. We are committed to the democratic principles of educational equity and social justice for all learners, exemplified through reflective teaching, learning and service. We value diversity, collaboration, professionalism and shared governance.

REQUIRED MATERIALS:

- California Department of Education (1999). Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve. Sacramento, CA: author. This document can be found on the WWW at: http://www.cde.ca.gov/board/mcs_intro.html (I highly encourage students to purchase this publication).
- National Council of Teachers of Mathematics (2000). Principles and standards for school mathematics. Reston, VA: author. This document can be found on the WWW at: http://standards.nctm.org/
- Owens, D. T. (Ed.). (1993). Research ideas for the classrooms: Middle grades mathematics. New York: Macmillan. (Option)
- Star Test Blueprints for Standards Items (http://www.cde.ca.gov/statetests/star/s2blueprt.html)
- Wilson, P.S. (Ed.). (1993). Research ideas for the classrooms: High school mathematics. New York: Macmillan. (Option)

COURSE DESCRIPTION:

Learning to teach mathematics well is difficult and this course will not complete your education in learning how to teach mathematics. This course is but one stage in what I hope will be a continuing evolution of you as a mathematics teacher. The focus of this course will be on (1) developing an understanding of the current practices in mathematics, (2) learning to teach content specific concepts using effective and appropriate strategies, and (3) practicing how to teach for mathematical understanding. Enfolded into this course will be curriculum development, developing an understanding of children's content specific thinking, creating a classroom environment that promotes the investigation and growth of mathematical ideas, and developing strategies to ensure the success of all students in multi-cultural settings.

COURSE SCHEDULE:

Because this course brings together three secondary programs (Coastal, Inland, and Part-time), we are challenged to find a time that works for everyone. Therefore, we are forced to meet on a series of Fridays and Saturdays (I know it is not the best day for any of us). Each class session will be 3 hours on Fridays and 5.5 hours on Saturdays (plus 1.5 hours credit for readings, etc.). So you will receive 10 hours of credit for each weekend. We will meet for 3 weekends (30 hours) and you will also attend either the CMC (November in Palm Springs) or GSDMC (late January in SD) conference for the remaining 6 hours of the course.

METHOD OF EVALUATION:

Grades will be calculated using the following weights:

Reading Reflections	25%
Conference	25%
Student Interviews	25%
Mathematics Lesson	25%

Reading Reflections (25%) – Each week students will write a one page reflection on one or more of the articles assigned to be read for that week.

Conference (25%) – Students will attend either the CMC or GSDMC conference. Students will attend at least 3 sessions or workshops and submit a short 1-2 page reflection on their experience.

Student Interviews (25%) - You and one of your classmates will conduct several student interviews based on questions discussed in class. Using these questions you will interview one student in a predetermined mathematical course. The purpose of this activity is to get you to begin thinking about students' mathematical understanding, to learn how to effectively pose questions and interpret the meaning of students' answers, and to provide you with an opportunity to interact with students about mathematics.

Mathematics Lesson (25%) – Working in small teams you will design a creative lesson on a predetermined mathematical topic that you will ultimately present to the class or to students. The purpose of this activity is to help you learn how to design effective mathematical lessons, to help you recognize new strategies for teaching difficult topics to students, and to provide us with opportunities to discuss issues related to classroom practice.

GRADING SCALE:

Grades will be based on the following grading scale:

A.....90 -100%
B.....80 - 89%
C.....70 - 79%
D.....60 - 69%
F.....Below 60%

ATTENDANCE:

The attendance policy of the College of Education: Due to the dynamic and interactive nature of course in the COE, all students are expected to attend all classes and participate actively. At a minimum, students must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. If you miss two class sessions or are late (or leave early) more than three sessions, you cannot receive a grade of "A". IF you miss three class sessions, your highest possible grade is a "C+". Should you have extenuating circumstances, contact the instructor as soon as possible. Please discuss with me any extenuating circumstances that will cause you to miss class prior to your absence. Attendance will be taken at each class session. Furthermore, grades on assignments turned in late will be lowered unless **prior arrangements** have been made with the instructor.

PLAGIARISM AND CHEATING:

Please be sure to read and understand the university policy on plagiarism and cheating as it will be strictly enforced. Academic dishonestly will not be tolerated and will result in a failing grade for this course and will be reported to the University.

TENTATIVE COURSE SCHEDULE

SESSION **TOPIC & ASSIGNMENT DUE *ON THAT DAY***

2001-02 SCHEDULE:

Session 1 (Friday, 9/14 from 6:00 pm – 9:00 pm)

- **INTRODUCTIONS**
  - *** Direction of this course, etc.**
- **THE NEED FOR CHANGE IN MATHEMATICS EDUCATION**
  - *** Polished Stones, TIMSS, Japan Lessons, etc**
- **CA FRAMEWORK & NCTM STANDARDS DOCUMENTS**

Session 2 (Saturday 9/15 from 9:00 am to 2:30pm)

- **HOW STUDENTS DEVELOP MATHEMATICAL UNDERSTANDING**
  - *** Direct modeling, research on student thinking, etc.**
- **CURRICULUM ISSUES (Bring in your curriculum)**

Session 3 (Friday 10/26 from 6:00 pm to 9:00pm)

- **GENERAL TEACHING ISSUES**
  - **Basics (e.g., Lesson Planning, classroom arrangement, etc.)**
  - **Instructional Strategies**
- **CONTENT SPECIFIC DISCUSSIONS…**
  - **Elementary Math Concepts**
  - **Algebra 1**
  - **Geometry**
  - **Advanced Mathematics**

Session 4 (Saturday 10/27 from 9:00 am to 2:30pm)

- **CONTENT SPECIFIC DISCUSSIONS (Cont.)**
  - **Elementary Math Concepts**
  - **Algebra 1**
  - **Geometry**
  - **Advanced Mathematics**

Session 5 (Friday 11/9 from 6:00 pm to 9:00pm)

Session 4 (Saturday 11/10 from 9:00 am to 2:30pm)

- **Further Content Investigation**
- **Classroom visitation together**
- **Together we write a lesson plan that one of us teaches (Lesson Study)**