CALIFORNIA STATE UNIVERSITY, SAN MARCOS
COLLEGE OF EDUCATION

EDMS 543 (01) - Teaching Mathematics in the Elementary School (3 units)
CRN 41647 • University Hall 439 • Monday 7:30 a.m. – 2:15 p.m.
Fall 2007 • First Half Term Session

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College of Education Mission Statement

The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators and advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research and on-going service. Our practices demonstrate a commitment to student-centered education, diversity, collaboration, professionalism, and shared governance. *(Adopted by COE Governance Community, October, 1997).*

Course Description:
Learning to teach mathematics for understanding and equity is a challenging process. Therefore, students must expect that this course will provide the initial foundation of one's professional development as a teacher of elementary school mathematics. This course engages students in: (1) ongoing, critical reflection upon one's experiences, observations, and beliefs regarding (a) what it means to teach, learn, and do mathematics as well as (b) who can learn mathematics and/or be successful in school mathematics, (2) developing a beginning knowledge base of Standards-based (i.e. problem-based) pedagogical approaches to teaching elementary school mathematics including general instructional techniques and content-specific strategies; (3) examining children's mathematical thinking and reasoning as a means for ongoing assessment of understanding and informing instruction/teacher questioning and; (4) planning, facilitating, and reflecting on a problem-based mathematics lesson.

Course Prerequisites:
Admission to the College of Education.

Course Objectives:
Students are expected to: (1) deepen one's understanding and appreciation of the mathematics content taught at the elementary level, including number and operations (e.g., number sense), algebra, geometry, measurement, and data analysis and probability; (2) identify and recognize one's own perceptions regarding (a) what it means to teach, learn, and do mathematics and (b) who succeeds in mathematics, and also critically reflect on the implications these understandings may have on one's teaching practice and, consequently, elementary student outcomes (i.e., affective, cognitive/academic, social); (3) actively engage in course readings, activities, discussions, classroom observations, and teaching episodes and critically reflect within and across these experiences with particular attention to implications for mathematics teaching practice and outcomes for children, (4) become familiar with the National Council of Teachers of Mathematics (NTCM, 2000) *Principals and Standards for School Mathematics* and California Department of Education's (2005) *Mathematics Framework for California Public Schools*, (5) develop a growing facility to appropriately engage, examine, value, assess, and build on children's mathematical thinking from a meaningful, sense-making, and self-reflective standpoint; (6) develop an initial understanding of children's content specific thinking as well as increase one's knowledge and

effective use of appropriate pedagogical strategies, professional resources, and educational tools to foster children's conceptual understandings, strategies and reasoning skills in problem-based contexts; and (7) develop/deepen a disposition toward teaching mathematics for understanding and equity and begin to build one's capacity to envision, design, engage in, and reflect upon instructional practice that aims to promote children's mathematical reasoning and support positive outcomes for diverse students.

Required Materials:

- Van de Walle, J. A. (2007). *Elementary and middle school mathematics: Teaching developmentally* (6th Ed.). Boston: Pearson Education, Inc.
- California Department of Education (2005). *Mathematics framework for California public schools: Kindergarten through grade twelve*. Sacramento, CA: Author. This document can be found at http://www.cde.ca.gov/ci/ma/cf/index.asp.
- National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: Author. An overview of this document can be found at http://standards.nctm.org/ (NCTM members have full access)
- TaskStream account.
- *Additional readings provided by professor.*

Authorization to Teach English Learners:

This credential program has been specifically designed to prepare teachers for the diversity of languages often encountered in California public school classrooms. The authorization to teach English learners is met through the infusion of content and experiences within the credential program, as well as additional coursework. Students successfully completing this program receive a credential with authorization to teach English learners. *(Approved by CCTC in SB 2042 Program Standards, August 02)*

Student Learning Outcomes -
Teacher Performance Expectation (TPE) Competencies:

The course objectives, assignments, and assessments have been aligned with the CTC standards for the Multiple Subject Credential. This course is designed to help teachers seeking a California teaching credential to develop the skills, knowledge, and attitudes necessary to assist schools and districts in implementing effective programs for all students. The successful candidate will be able to merge theory and practice in order to realize a comprehensive and extensive educational program for all students. You will be required to formally address the following TPEs in this course:

Primary Emphasis:

- TPE 1a-Subject Specific Pedagogical Skills for MS Teaching (Mathematics)
- TPE 2-Monitoring Student Learning During Instruction

College of Education Attendance Policy:

Due to the dynamic and interactive nature of courses in the College of Education, 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. *Individual instructors may adopt more stringent attendance requirements*. Should the student have extenuating circumstances, s/he should contact the instructor as soon as possible. *(Adopted by the COE Governance Community, December, 1997).*

For this class, if you miss two class sessions (there are two sessions in a day; a total of 14 class sessions in the term), your highest possible grade will be a B+. If you miss more than three class sessions, your highest possible grade is a "C+". Late arrivals and early departures will affect your final grade. Absences do not change assignment due dates. 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.

Students with Disabilities Requiring Reasonable Accommodations:
Students with disabilities who require reasonable accommodations must be approved for services by providing appropriate and recent documentation to the Office of Disable Student Services (DSS). This office is located in Craven Hall 5205, and can be contacted by phone at (760) 750-4905, or TTY (760) 750-4909. Students authorized by DSS to receive reasonable accommodations should meet with their instructor during office hours or, in order to ensure confidentiality, in a more private setting.

Course Requirements:
Participation and Disposition (7%) – You are expected to actively participate in discussions, group work, presentations, and hands-on activities throughout the course. A positive professional disposition includes a willingness to: critically examine one's beliefs regarding mathematics content, teaching, learning, and students (including their families and communities); consider and discuss different ideas, perspectives, and approaches to mathematics pedagogical practice in light of the goals of the course and the Mission of the College of Education; seriously commit to learning and improving one's teaching practice, specifically with an aim to teach mathematics for understanding and equity, and; acknowledge that one's professional development is a continual learning process, and, hence, participation in this course marks the beginning of one's journey. Maintaining a sense of humor and exhibiting behavior and communicative skills that demonstrate tact, respect, and sensitivity to how one's patterns of participation (or lack thereof) or messages may be received (e.g., the degree to which one's participation contributes meaningfully and productively to class discussions or activities) are also important elements of professional disposition.

Reading Reflections (24%) – Working in groups of three, students will write 6 reflections, for assigned readings. Prompts for each reflection will be given in class. Written reflections must be 3 to 5 pages in length, clearly respond to prompts, and demonstrate familiarity with content of readings. You are encouraged to make connections with (and when appropriate, contrast) other assigned readings (from previous sessions in this course), course discussions, observations from your field placement (e.g., observations of elementary classroom activities), and reflections of your experiences as a learner in school mathematics

Group Presentation (8%) – Working in groups of three, students will present a lesson from a professional resource (e.g., Teaching Children Mathematics) to the class that is relevant to the assigned chapter content/topic. The content of the group presentation must: (1) include a summary of the lesson (including grade level, content area); (2) clearly articulate to what extent the lesson reflects (a) teaching for understanding (ch. 3), (b) planning and teaching through problem-based instruction (ch. 4 & 5), (c) knowledge of children's thinking in the content area (based on the chapter assigned to the group), assessment built into instruction (ch. 7), and (d) teaching for equity (ch. 7); and (3) suggestions for modifying or strengthening the lesson based on the group's prior examination of the lesson and reflections shared regarding items under #2 above. Groups will have 12-15 minutes to present their lesson/reflections and must use the technology available in our classroom to help convey/organize ideas to be shared. Groups are also encouraged to be creative and must provide class members a copy of the lesson reviewed along with highlights of their reflections/comments provided regarding items under #2 and #3 above.

Student Interviews (28%) – Each student will conduct two interviews with an individual child based on questions provided in class and/or your own invention. For each interview, you will write a 2 to 4 page report. You will choose two topics, one focusing on number and operations, and the other on either geometry or measurement. 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' responses, and to provide you with an opportunity to interact with students. Please also submit the child's written work (if available) or responses to task.

Mathematics Lesson & Reflection (30% total) – Working in groups of three, your team will design a lesson that you will facilitate in an elementary class during the week of Session 6. The purpose of this activity is to help you learn how to design effective problem-based mathematics instruction, provide a supportive

opportunity for you to engage in teaching mathematics for understanding and equity in an authentic classroom setting, and to critically reflect upon your mathematics classroom teaching practice.

Teacher Performance Expectation (TPE) Competencies (3%) – You need to demonstrate that you have met TPE 1a and TPE 2 by submitting your reflection statements and providing artifacts as evidence. They should be posted on Taskstream.

Detailed information about the assignments will be given in class. You are responsible for ensuring that assignments are submitted correctly and on time. Late assignments will receive a reduction in points unless *prior arrangements* have been made with the instructor.

Grading Scale:
Grades will be based on the following grading scale:

A	93 - 100%	A-	90 - 92%
B+	88 - 89%	B	83 - 87%
B-	80 - 82%	C+	78 - 79%
C	73 - 77%	C-	70 – 72%
D	60 - 69%	F	Below 60%

All University Writing Requirement:
The writing requirement will be met through the following course assignments: reading reflections, student interviews, and lesson plan with reflection.

CSUSM Academic Honesty Policy:
"Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All written work and oral presentation assignments must be original work. All ideas/materials that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated with quotation marks.

Students are responsible for honest completion of their work including examinations. There will be no tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole."

Incidents of Academic Dishonesty will be reported to the Dean of Students. Sanctions at the University level may include suspension or expulsion from the University.

Plagiarism:
As an educator, it is expected that each student will do his/her own work, and contribute equally to group projects and processes. Plagiarism or cheating is unacceptable under any circumstances. If you are in doubt about whether your work is paraphrased or plagiarized see the Plagiarism Prevention for Students website http://library.csusm.edu/plagiarism/index.html. If there are questions about academic honesty, please consult the University catalog.

Electronic Communication Protocol:
Electronic correspondence is a part of your professional interactions. If you need to contact the instructor, e-mail is often the easiest way to do so. It is my intention to respond to all received e-mails in a timely manner. Please be reminded that e-mail and on-line discussions are a very specific form of communication, with their own nuances and etiquette. For instance, electronic messages sent in all

upper case (or lower case) letters, major typos, or slang, often communicate more than the sender originally intended. With that said, please be mindful of all e-mail and on-line discussion messages you send to your colleagues, to faculty members in the College of Education, or to persons within the greater educational community. All electronic messages should be crafted with professionalism and care. Things to consider:

- Would I say in person what this electronic message specifically says?
- How could this message be misconstrued?
- Does this message represent my highest self?
- Am I sending this electronic message to avoid a face-to-face conversation?

In addition, if there is ever a concern with an electronic message sent to you, please talk with the author in person in order to correct any confusion.

Email Correspondence Guidelines:
Please use the following template in the subject box of your email message,
EDMS543(09)_YourName_Question/Concern

Miscellaneous:
Please keep cellular phones on quiet mode and be mindful of food use, consumption, and proper disposal.

Tentative Course Outline

Date	Topic	Assignment (if any)
Sessions 1a & 1b **August 27**	• Welcome/Introductions • Course Overview • Critically reflecting on our school mathematics experiences • Problem-based learning	Coordinate meeting times/schedule with group members
(No Sessions) September 3	**Campus Closed**	
Sessions 2a & 2b **September 10**	• Teaching for understanding through problem-solving • Planning problem-based learning • Examining Student thinking • Teaching for equity	Van de Walle • ch. 3, 4, 5, 6, 7 • Appendix A & B (NCTM Content and Professional Standards) CDE Mathematics Content Standards **Reflection 1 Due** **Bring Student artifact** **Group Lesson Plan Topic Proposal**
Sessions 3a & 3b **September 17**	Developing early number sense **(Group A1 presentation)** Meanings for the Operations Basic Facts **(Group A2 presentation)**	Van de Walle ch. 9, 10, 11 **Reflection 2 Due** **Draft of Student Interview 1 Due**
Sessions 4a & 4b **September 24**	Whole-Number Place-Value Development Strategies for Whole-Number Computation **(Group B1 presentation)** Computational Estimation **(Group B2 presentation)** Mid-point evaluation	Van de Walle ch. 12, 13, 14 **Reflection 3 Due** **Student Interview 1 Due** **Draft of Lesson Plan Due**
Sessions 5a & 5b **October 1**	Algebraic Thinking Developing Fraction Concepts **(Group C1 presentation)** Computation with Fractions **(Group C2 presentation)**	Van de Walle ch. 15, 16, 17 **Reflection 4 Due** **Draft of Student Interview 2 Due**
Sessions 6a & 6b **October 8**	Decimal and Percent Concepts & Computation **(Group D1 presentation)** Proportional Reasoning **(Group D2 presentation)** Exploring Concepts of Probability	Van de Walle ch. 18, 19, 23 Implement Lesson Plan **Reflection 5 Due** **Student Interview 2 Due**
Session 7a & 7b **October 15**	Developing Measurement Concepts Geometric Thinking Concepts of Data Analysis	Van de Walle ch. 21, 22, 23 **Reflection 6 Due** **Lesson Plan with Reflection Due** **TPE Reflections Due**

SB 2042 - AUTHORIZATION TO TEACH ENGLISH LEARNERS COMPETENCIES

PART 1: LANGUAGE STRUCTURE AND FIRST- AND SECOND-LANGUAGE DEVELOPMENT	PART 2: METHODOLOGY OF BILINGUAL, ENGLISH LANGUAGE DEVELOPMENT, AND CONTENT INSTRUCTION	PART 3: CULTURE AND CULTURAL DIVERSITY
I. Language Structure and Use: Universals and Differences (including the structure of English)	**I. Theories and Methods of Bilingual Education**	**I. The Nature of Culture**
A. The sound systems of language (phonology)	**A.** Foundations	**A.** Definitions of culture
B. Word formation (morphology)	**B.** Organizational models: What works for whom?	**B.** Perceptions of culture
C. Syntax	**C.** Instructional strategies	**C.** Intra-group differences (e.g., ethnicity, race, generations, and micro-cultures)
D. Word meaning (semantics)	**II. Theories and Methods for Instruction In and Through English**	**D.** Physical geography and its effects on culture
E. Language in context	**A.** Teacher delivery for <u>both</u> English language development <u>and</u> content instruction	**E.** Cultural congruence
F. Written discourse	**B.** Approaches with a focus on English language development	**II. Manifestations of Culture: Learning About Students**
G. Oral discourse	**C.** Approaches with a focus on content area instruction (specially designed academic instruction delivered in English)	**A.** What teachers should learn about their students
H. Nonverbal communication	**D.** Working with paraprofessionals	**B.** How teachers can learn about their students
I. Language Change		**C.** How teachers can use what they learn about their students (culturally responsive pedagogy)
II. Theories and Factors in First- and Second-Language Development	**III. Language and Content Area Assessment**	**III. Cultural Contact**
A. Historical and current theories and models of language analysis that have implications for second-language development and pedagogy	**A.** Purpose	**A.** Concepts of cultural contact
B. Psychological factors affecting first- and second-language development	**B.** Methods	**B.** Stages of individual cultural contact
C. Socio-cultural factors affecting first- and second-language development	**C.** State mandates	**C.** The dynamics of prejudice
D. Pedagogical factors affecting first- and second-language development	**D.** Limitations of assessment	**D.** Strategies for conflict resolution
E. Political factors affecting first- and second-language development	**E.** Technical concepts	**IV. Cultural Diversity in U.S. and CA**
		A. Historical perspectives
		B. Demography
		C. Migration and immigration