

**CALIFORNIA STATE UNIVERSITY, SAN MARCOS  
COLLEGE OF EDUCATION**

EDMS 543B – Fall 2007  
**MATHEMATICS EDUCATION IN ELEMENTARY SCHOOLS**  
Academic Hall Room 406  
Wednesdays 1:00 pm – 3:45 pm

Professor: Brian R. Lawler  
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Course WebCT: Access from <http://webct6.csusm.edu>  
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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*).

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**Course Description**

Focuses on how children develop mathematical understanding; children's mathematical thinking; curriculum development; methods, materials, planning, organization and assessment in various elementary school curricula; and curriculum integration. Methods of cross-cultural language and academic development are integrated into the course.

**Prerequisites**

Semesters 1-2 of Integrated Bachelor of Arts and Multiple Subject Credential Program and consent of Program Coordinator.

**Unique Requirements**

Students will be required to have access to children in a grade K-6 for the purpose of conducting a series of math interviews to learn about how children think and problem solve.

**Student Learning Outcomes**

**Objectives**

Learning to teach mathematics well is difficult and, therefore, you must expect that this course will only begin 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.

More specifically, the focus of this course will be on (1) developing an understanding of the current practices in mathematics, best practices in teaching mathematics, and the ways in which these practices intersect and conflict; (2) learning to teach content specific concepts using effective, appropriate, and equitable strategies, including topics such as place value, base systems, number theory, fractions, proportions, statistics, and algebra; and (3) practicing how to teach for mathematical understanding.

Enfolded into this course will be learning about children's mathematical ways of thinking and operating, creating a classroom environment that promotes the investigation and growth of mathematical ideas, developing strategies to ensure the success of all students in multi-cultural settings, consideration of curriculum development, and the ongoing formation of a personal theory of mathematics teaching and learning grounded in work for social justice.

## **Teacher Performance Expectation (TPE) Competencies**

The course objectives, assignments, and assessments have been aligned with the CTC standards for Multiple Subject Credential. This course is designed to help teachers seeking the California Multiple Subjects Credential to develop the skills, knowledge, and attitudes necessary to assist schools and district 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:

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

The following TPEs are given secondary emphases:

- TPE 3 Interpretation and use of assessments
- TPE 4 Making content accessible
- TPE 5 Student engagement
- TPE 6a Developmentally appropriate practices in grades K-3
- TPE 6b Developmentally appropriate practices in grades 4-8
- TPE 6d Developmentally appropriate teaching practices for special education: teaching the special education population in the general education environment
- TPE 7 Teaching English learners
- TPE 8 Learning about students
- TPE 9 Instructional planning
- TPE 10 Instructional time
- TPE 11 Social environment
- TPE 13 Professional growth
- TPE 14 Educational technology in teaching and learning
- TPE 15 Social justice and equity

## **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*)

## **Course Requirements**

### **Required Texts**

California Department of Education (2005). *Mathematics framework for California public schools: Kindergarten through grade twelve*. Sacramento, CA: Author. [online <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. [online <http://standards.nctm.org/> (NCTM members have full access)]

*STAR Test Blueprints for Standards Items*. [online <http://www.cde.ca.gov/ta/tg/sr/blueprints.asp>]

Van de Walle, J. A. (2007). *Elementary and middle school mathematics: Teaching developmentally* (6<sup>th</sup> Ed.). Boston: Pearson Education, Inc. [online companion [http://wps.ablongman.com/ab\\_vandewalle\\_math\\_6](http://wps.ablongman.com/ab_vandewalle_math_6)]

\*Several other readings are required and will be available for download.

### **Additional Required Materials**

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|--|--------------|
| TaskStream account                                     | WebCT access |
| Electronic or Paper method to submit work during class | Calculator   |

## **Key Assignments**

*Reading Reflections* (20%) - Each week students will write in response to assigned readings. These reflections will serve to support understanding, synthesis, and application of the topics addressed. Further, the responses will connect important ideas in mathematics education to personal beliefs and teaching practices. Many of the weekly reflections will be given structure; some will be more open.

*Student Interviews* (20%) - You and one of your classmates will conduct a series of three student interviews based on questions provided in class. For each interview, you will pose mathematical problems to one student at a predetermined grade level. The purpose is to learn how to effectively pose questions, to interpret student's responses, to provide you with an opportunity to interact with students, and to engage your thinking about students' mathematical understanding.

*Mathematical Resources & Lesson* (35% total) – Working in small groups, your team will first compile resources on a predetermined mathematical topic (20%) and then design a lesson that you will present in an elementary class (15%). The purpose of this activity is to help you learn how to design effective mathematical activities, to provide you with an opportunity to begin compiling mathematical resources, and to provide an opportunity for you to practice teaching mathematics.

*Connecting Theory and Practice* (20%) – Students will keep a journal that will record what they learn, their thoughts, observations, etc. as a result of their participation in mathematical activities in a classroom at the assigned elementary school. During these sessions students will be working with students in mathematics as a tutor, assistant, or teacher. In addition to the journal, students will submit a three-page summary that links the theory utilized to the (mathematics) classroom work done with these students.

*Taskstream Postings* (5%) – Students will document their knowledge and understanding of TPE 1A (mathematics) and TPE 2 through assignments completed in EDMS 543.

## **Grading Standards**

Grades will be based on the following grading scale:

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

Late submission of any assignment will be worth 50% of its maximum value, unless *prior arrangements* have been agreed to with the instructor.

## **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.*)

If you miss two class sessions you will not receive a grade of "A". If you miss three class sessions, your highest possible grade is a "C+". Consider two incidence of partial attendance to be equivalent to one absence. For example, missing one full class and portions of two classes is equivalent to missing two classes, and will result in a highest possible grade "B". Please discuss with me any extenuating circumstances that will cause you to miss class *prior* to your absence.

### **All-University Writing Requirement**

All CSU students must demonstrate competency in writing skills as a requirement for graduation. At California State University San Marcos, students complete the graduation writing assessment through the All-University Writing Requirement. This requirement mandates that every course at the University must have a writing component of at least 2,500 words (approximately 10 pages).

The writing requirement for this course will be met through weekly and end-of-course writings, student interview reflections, and the creation of a lesson plan and mathematical resources.

### **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.

### **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.

### **Use of Technology**

Students are expected to demonstrate competency in the use of various forms of technology (i.e. word processing, electronic mail, WebCT6, use of the Internet, and/or multimedia presentations). Specific requirements for course assignments with regard to technology are at the discretion of the instructor. Keep a digital copy of all assignments for use in your teaching portfolio. All assignments will be submitted online, and some will be submitted in hard copy as well. Details will be given in class.

### **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.

**SB 2042 - Authorization to Teach English Learners Competencies**

<b>PART 1: LANGUAGE STRUCTURE AND FIRST- AND SECOND-LANGUAGE DEVELOPMENT</b>	<b>PART 2: METHODOLOGY OF BILINGUAL, ENGLISH LANGUAGE DEVELOPMENT, AND CONTENT INSTRUCTION</b>	<b>PART 3: CULTURE AND CULTURAL DIVERSITY</b>
<b>I. Language Structure and Use: Universals and Differences (including the structure of English)</b>	<b>I. Theories and Methods of Bilingual Education</b>	<b>I. The Nature of Culture</b>
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)	<b>II. Theories and Methods for Instruction In and Through English</b>	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	<b>II. Manifestations of Culture: Learning About Students</b>
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)
<b>II. Theories and Factors in First- and Second-Language Development</b>	<b>III. Language and Content Area Assessment</b>	<b>III. Cultural Contact</b>
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	<b>IV. Cultural Diversity in U.S. and CA</b>
		A. Historical perspectives
		B. Demography
		C. Migration and immigration

### Tentative Schedule

Date	Topic*	Assignment to be completed BEFORE Class Session**
Session 1 8/29/07	Course Introduction Equity & Social Justice Doing Mathematics	Read syllabus
Session 2 9/05/07	Equity & Social Justice Doing Mathematics Mathematical Understanding	Van de Walle ch. 7, 2, 3
Session 3 9/12/07	Teaching for Understanding Instructional Practices – Problem Solving	excerpt from <i>Making Sense</i> Van de Walle ch. 4
Session 4 9/19/07	Lesson Planning Lesson Study	Van de Walle ch. 5 Read “A Lesson is Like a Swiftly Flowing River”
Session 5 9/26/07	Standards	Van de Walle ch. 1 <i>Mathematics framework for CA public schools</i> <i>NCTM Principles and Standards</i>
Session 6 10/03/07	Instructional Practices – Assessment Assessment vs. Grading Testing	Van de Walle ch. 6 <i>STAR Test Blueprints for Standards Items</i> <b>Student Interview #1 due</b>
Session 7 10/10/07	Instructional Practices – Technology	Van de Walle ch. 8
Session 8 10/17/07	Number Concepts	Van de Walle ch. 9 <b>Resources &amp; Lesson Assignment (I) due</b>
Session 9 10/24/07	Operations	Van de Walle ch. 10, 11 <b>Number Concepts Interview due (option 2)</b>
Session 10 10/31/07	Place Value Estimation	Van de Walle ch. 12, 13, 14 <b>Mult/Div Interview due (option 2)</b> <b>Resources &amp; Lesson Assignment (II) due</b>
Session 11 11/7/07	Fractions Decimal / Percent / Ratio Proportions	Van de Walle ch. 16, 17, 18
Session 12 11/14/07	Proportional Reasoning Algebraic Reasoning	Van de Walle ch. 15, 19 <b>Fractions Interview due (option 3)</b>
Session 13 11/21/07	Measurement Geometry	Van de Walle ch. 20, 21 <b>Algebra Interview due (option 3)</b> <b>Resources &amp; Lesson Assignment (III) due</b>
Session 14 11/28/07	Data Analysis Probability	Van de Walle ch. 22, 23 <b>Meas/Geom Interview due (option 3)</b>
Session 15 12/05/07	Current issues in mathematics education Wrap Up	<b>Data/Prob Interview due (option 3)</b> <b>Theory-Practice Assignment due</b>

\*This schedule is an *APPROXIMATION*. Given the nature of this course, we will likely be altering the schedule in order to accommodate student interest, observe and teach in mathematics classrooms, and take advantage of professional development opportunities.

\*\*These assignments will be clarified, modified, and added to as the semester progresses.