

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

EDSS 543A – Fall 2008
SECONDARY MATHEMATICS EDUCATION A
University Hall Room 271
Monday 5:30 pm – 8:15 pm

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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

Focuses on developing an understanding of theory, methodology, and assessment of Mathematics in integrated and secondary classrooms: Part A. *This course is aligned with California's SB 2042 Standards.*

Prerequisites

Admission to the Single Subject Credential Program.

Unique Requirements

Observation and participation in the public schools.

Student Learning Outcomes

Objectives

Learning to teach mathematics well is difficult, and thus you must expect that this course, in concurrence with your clinical practice, will only begin your education in learning how to teach mathematics. Furthermore, this course is intentionally focused on developing professionals in the field of secondary mathematics education. The course is but one stage in what I hope will be a continuing evolution for 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, algebraic thinking in particular, using effective, appropriate, and equitable strategies; 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, heterogeneous 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 Single Subject Credential (Mathematics). This course is designed to help teachers seeking the California Single Subject Credential (Mathematics) 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.

The following TPEs are given primary emphases:

- TPE 1b Subject Specific Pedagogical Skills for Single 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 6c Developmentally appropriate practices in grades 9-12
- 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

California Teacher Performance Assessment (CalTPA)

Beginning July 1, 2008 all California credential candidates must successfully complete a state-approved system of teacher performance assessment (TPA), to be embedded in the credential program of preparation. At CSUSM this assessment system is called the CalTPA or the TPA for short.

To assist your successful completion of the TPA a series of informational seminars are offered over the course of the program. TPA related questions and logistical concerns are to be addressed during the seminars. Your attendance to TPA seminars will greatly contribute to your success on the assessment.

Additionally, COE classes use common pedagogical language, lesson plans (lesson designs), and unit plans (unit designs) in order to support and ensure your success on the TPA and more importantly in your credential program.

The CalTPA Candidate Handbook, TPA seminar schedule, and other TPA support materials can be found on the COE website: <http://lynx.csusm.edu/coe/CalTPA/CalTPAdocuments.asp>

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.

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*)

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

Course Requirements

Required Texts

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>.

Driscoll, M. J. (1999). *Fostering algebraic thinking: A guide for teachers, grades 6-10*. Portsmouth, N.H.: Heinemann.

Fendel, D.M., Resek, D., Alper, L., & Fraser, S. (1997). *Interactive Mathematics Program Year 1: The Overland Trail Teacher's Guide*. Berkeley: Key Curriculum Press. [purchase online <http://www.keypress.com/x5480.xml>]

Gutstein, E. (2006). *Reading and writing the world with mathematics: Toward a pedagogy for social justice*. New York: Routledge.

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).

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

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

Additional Required Materials

- Electronic or Paper method to submit work during class
- Graphing calculator, or equivalent technology, available in class
- WebCT access

Key Assignments

Portfolio of Weekly Assignments (20%) – As ongoing homework, students will read, do mathematics, and write weekly in conjunction with class experiences and activities. The responses to these assignments do not need to be highly formal or polished, and lengths will vary. The emphases should be on noting your thinking while in the moments of thinking. You will record your thought processes, reactions, reflections, connections, new questions, etc. These responses will be submitted each week, and a portfolio turned in at the end of the semester.

Professional Reading (10%) – Students will select an article from a professional mathematics education journal to read, summarize, and present to colleagues in the course.

Problems of the Week (10%) – During the semester, teacher candidates will investigate 3 open-ended mathematical problems. Each of you will be asked to initiate and lead classroom discussion (10-15 min.) of the problem by sharing your thinking about the task. At the end of the course, you will each select one problem to formally write-up using a 5-stage write-up format.

Curriculum Assignment (10%) – Students will review the mathematics curriculum currently being used in the classroom (e.g., a textbook) in which they will teach during the fall semester and write a short paper that investigates the curriculum alignment with the CA Content Standards and current high stakes assessments. Students will also provide their general thoughts and concerns related to the curriculum (e.g., how the curriculum might need to be altered to make strong connections between mathematical concepts and procedures).

Student Interview (10%) – In a small group, teacher candidates will design prompts and/or a task in order to conduct a clinical interview with a grades 6-10 student. This interview protocol will be designed to inquire into the student's algebraic ways of thinking. Each of you will carry out an actual student-interview based on this protocol. The purposes of this activity are 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.

Mathematical Resources & Lesson (40%) – Working in small groups, your team will first compile resources on a predetermined mathematical topic (15%) and then design a lesson that you will present in a secondary mathematics class (20%). You will conclude this assignment with a group presentation (5%) to our class outlining the lesson, experiences with students—including student work, and reflections and changes for the next use of the lesson. The purpose of this activity is to help you learn how to design effective mathematical lessons, to provide you with an opportunity to begin compiling mathematical resources, and to provide an opportunity for you to practice teaching mathematics.

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%

Unless *prior arrangements* have been agreed to with the instructor, work submitted late, but within one week of the due date will be reduced by one letter grade, and work received over one week late will receive no credit.

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).*

Attendance and Participation: Due to the fast paced and highly interactive nature of the course, regular attendance and full participation are expected; teaching and learning are difficult, if not impossible, if one is not present for and engaged in the process. Therefore, the above COE Attendance Policy is amplified as follows:

- Missing more than one class meeting will result in the reduction of one letter grade.
- Arriving late or leaving early on more than two occasions will result in the reduction of one letter grade.

Please inform the instructor *prior* to an 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 assignments for this course meet this requirement.

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. Consult the University catalog for further questions about academic honesty.

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>. When relying on supporting documents authored by others, cite them clearly and completely using American Psychological Association (APA) manual, 5th edition.

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. For more guidance see Core Rules of Netiquette at <http://www.albion.com/netiquette/corerules.html>.

Tentative Schedule

Date	Topic*	Assignment to be completed BEFORE Class Session**
Session 1 8/25/08	Course Introduction Equity & Social Justice in Mathematics Education Doing Mathematics	Read syllabus
Session 2 9/8/08	Equity & Social Justice in Mathematics Education Doing Mathematics Mathematics Standards	<i>Reading and Writing the World with Maths</i> POW 1 investigation
Session 3 9/15/08	Developing Mathematical Understanding Doing Mathematics – Technology Algebraic Thinking & Student Interview Standards and Accountability	<i>Making Sense</i> (to be provided) <i>NCTM</i> and <i>CA Standards</i> documents Professional Reading
Session 4 9/22/08	Learning & Knowing Algebraic Thinking Problem Solving	<i>Fostering Algebraic Thinking</i> POW 2 investigation Curriculum Assignment
Session 5 9/29/08	Developing Lessons, and Lesson Plans	Student Interview
Session 6 10/06/08	Roles of the Mathematics Teacher Assessment & Grading	POW 3 investigation Mathematical Resources & Lesson Pt. I
Session 7 10/18/07	Lesson Planning Workshop	POW Write-Up (due 10/11)
Session 8 12/1/08	Reflections on Student Teaching Classroom Management --Engaging Students --Building a community	Mathematical Resources & Lesson Pt. II Weekly Assignment Portfolio

*This schedule is an *approximation*. Given the nature of this course, we will likely be altering the scheduled topics and possibly times and dates 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.