CALIFORNIA STATE UNIVERSITY, SAN MARCOS
COLLEGE OF EDUCATION

EDSS 543B – Spring 2009
SECONDARY MATHEMATICS EDUCATION A
University Hall Room 443
Monday 5:00 pm – 9:00 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://www.csusm.edu/coe/CalTPA/ProgramMaterialsTPA.html

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)*

Course Requirements

Required Texts

Abbot, E. A. (1992). *Flatland: A romance of many dimensions.* Dover. (Originally published in 1884.) [$3.99]

California Department of Education (2005). *Mathematics framework for California public schools: Kindergarten through grade twelve*. Sacramento, CA: Author. [http://www.cde.ca.gov/ci/ma/cf/index.asp]

Cohen, E. G. (1994). *Designing groupwork: Strategies for the heterogeneous classroom*. New York: Teachers College Press. [$19.95]

Driscoll, M. J. (2007). *Fostering geometric thinking: A guide for teachers, grades 5-10*. Portsmouth, N.H.: Heinemann. [$24.50]

Fendel, D. M., Resek, D., Alper, L., & Fraser, S. (1997). *Interactive Mathematics Program Year 3: The Orchard Hideout* ***Teacher's Guide***. Berkeley: Key Curriculum Press. [purchase by phone, view online http://www.keypress.com/x5480.xml, $24.95]

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

1. Flatland Lesson (15%) – Working in small groups, teacher candidates will design a lesson (likely to last more than one day) based upon the book *Flatland.* This project will involve two main components, an overview of the entire lesson and a sample one-day lesson plan. The lesson plan will be submitted utilizing the 4-column design, and will reflect the intentions of the *Thinking Through a Lesson Protocol*. In this assignment, you will begin to move beyond the simple borders of the 4-column design in order to appropriately respond to the prompts of the *Thinking Through a Lesson Protocol.*

2. Professional Reading (5%) – Students will select an article from a professional mathematics education journal to read, summarize, and present to colleagues in the course.

3. Interview (10%) – In a small group, teacher candidates will design prompts and/or a task to interview a student, grades 6-10. This interview protocol will be designed to further understand something about the student's geometric ways of thinking. Each of you will carry out an actual student-interview based on this protocol. You will return to your group to analyze the students' replies. 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.

4. Mathematics and Social Justice Lesson (15%) – Working individually, teacher candidates will locate and share a sample mathematics lesson embedded in a theme of social justice. You will compose an appropriate introduction to and overview of the lesson (which may be designed to last more than one day). You will also construct a lesson plan, based upon the 4-column format, for one day of this lesson. This one-day lesson plan should exhibit thoughtful consideration of the questions posed in the *Thinking Through a Lesson Protocol.* This lesson overview and specific lesson plan will be shared with your classmates. As a result, each of us will have several lessons available in our resources.

5. Problem of the Week Rubric (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 design a specific rubric to score and provide feedback to students on one of the POWs.

6. Orchard Hideout Portfolio (5%) – Teacher candidates will complete a portfolio of their mathematical investigation into the unit problem posed in *Orchard Hideout*. The format will match the structure assigned high school students at the conclusion of the unit.

7. 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. Some of these responses may be submitted each week, some will remain in your possession. Key for this course assignment is the portfolio that will be turned in at the end of the semester; the responses described above will be assembled into a portfolio that includes a cover letter and table of contents, orienting the reader to 3 responses in particular that point to the important components of the course.

8. Personalized Project (20%) – This final assignment is intended to encourage a study of a topic in mathematics education of personal interest. Students will present their learnings through a professional teaching journal style "article", to be submitted to the teacher, and share their topic with classmates in a semester concluding poster session Details for this project will be provided in class.

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 1/26/09	Course Introduction – seeds of semester topics Equity & Social Justice in Mathematics Education Doing Mathematics	
Session 2 2/02/09	Work day	
Session 3 2/09/09	Introduce Geometric Habits of Mind Ideas for Personalized Project	POW 1 investigation **Flatland Lesson**
Session 4 2/16/09	Geometric Habits of Mind Introduce Complex Instruction High Cognitive Tasks	
Session 5 2/23/09	Geometric Habits of Mind Lesson Planning Complex Instruction – Status Treatment	POW 2 investigation **Professional Reading** **Interview**
Session 6 3/02/09	Geometric Habits of Mind Assessment & Rubrics in Mathematics	**Social Justice Lesson**
Session 7 *3/14/09*	Lesson Planning Workshop	POW 3 investigation **POW Rubric** **Orchard Hideout Portfolio**
Session 8 *5/04/09*	Reflections on Student Teaching Presentations of Personalized Project	**Portfolio of Weekly Assignments** **Personal Project**

*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.