

Course & Section Nos.	EDSS 543B
Course Title	SECONDARY MATHEMATICS EDUCATION
Class Roster No.	#20484
Course Day(s)	Thursdays
Time	4:15-7:00 pm
Course Location	University Hall 273
Semester / Year	Spring 2017
Instructor	Tina Shinsato, M.S. Mathematics
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Office Hours	By appointment

SCHOOL OF EDUCATION MISSION & VISION STATEMENT

(Adopted by SOE Governance Community, January 2013)

Vision

To serve the educational needs of local, regional, and global communities, the School of Education advances innovative practice and leadership by generating, embracing, and promoting equitable and creative solutions.

Mission

The mission of the School of Education community is to collaboratively transform education. We:

- Create community through partnerships
- Promote and foster social justice and educational equity
- Advance innovative, student-centered practices
- Inspire reflective teaching and learning
- Conduct purposeful research
- Serve the School, College, University, and Community

BASIC TENETS OF OUR CONCEPTUAL FRAMEWORK

- Student centered education
- Research and theory specific to the program field inform practice
- Connections and links between coursework and application
- Strong engagement between faculty and candidates
- Co-teaching clinical practice
- Culturally responsive pedagogy and socially just outcomes

COURSE DESCRIPTION

Focuses on developing an understanding of theory, methodology, and assessment of Mathematics in integrated and inclusive secondary classrooms: Part B.

Course Prerequisites

Admission to the Single Subject Credential Program and EDSS 543A.

Course Objectives

Learning to teach mathematics is a career-long inquiry. Thus you must expect that this course, in concurrence with your clinical practice, will only begin your education in learning how to teach mathematics. In concordance with this challenge, 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; learning to teach mathematics well will be the work of your career.

Specifically, the foci of this course are to: (1) developing an understanding of current practices in teaching mathematics, best practices in teaching mathematics, and the ways in which these practices intersect and conflict; (2) learning to teach (CCSS-M) content-specific concepts, algebraic thinking in particular, using effective, appropriate, and equitable strategies; and (3) experiencing and practicing how to teach for mathematical understanding through engaging students in practices of a mathematician (CCSS-M SMPs).

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.

Unique Course Requirements

Observation and participation in the public schools, including collaborative planning with teachers.

Credit Hour Policy Statement

Per the University Credit Hour Policy, students are expected to spend a minimum of two hours outside of the classroom each week for each unit of credit engaged in learning.

REQUIRED TEXTS, MATERIALS AND ACCOUNTS

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

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

Recommended Texts

Carr, J., Carroll, C., Cremer, S., Gale, M., Lagunoff, R., Sexton, U. (2009). *Making mathematics accessible to English learners*. San Francisco: WestEd.

Cohen, E. G. (2014). *Designing groupwork: Strategies for the heterogeneous classroom* (3rd ed.). New York: Teachers College Press.]

Smith, M. S., Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions*. Reston, VA: NCTM.

COURSE LEARNING OUTCOMES

Teacher Candidates will be required to complete a California Teaching Performance Assessment (CalTPA), show proof of Teacher Performance Expectations (TPEs) and complete critical assessment tasks- specific assignments for this course. It is the teacher candidates responsibility to understand expectations and complete assignments by stated due dates.

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. Candidates successfully completing this program receive a credential with authorization to teach English learners. *(Approved by CCTC in SB 2042 Program Standards, August 02)*

Teacher Performance Expectation (TPE) Competencies

The course objectives, assignments, and assessments have been aligned with the CTC standards for Single 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 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	How assessed
TPE 1B - Subject-Specific Pedagogical Skills for Single Subject Teaching Assignments <i>Understands and uses the state-adopted academic content standards</i> <i>Develops planning instruction that addresses the standards</i> <i>Consistently demonstrates the ability to teach to the standards</i>	ELD Infused Lesson Design and Reflection on Video-taped performance Lesson Analysis TPA 3 & 4
TPE 2: Monitoring Student Learning During Instruction <i>Uses progress monitoring during instruction to inform instruction</i> <i>Pace and re-teach content based on assessment evidence</i> <i>Anticipate, check for and address common misunderstandings</i>	ELD Infused Lesson Design and Reflection on Video-taped performance Lesson Analysis TPA 4
TPE 4: Making Content Accessible <i>States in every lesson plan the State standards</i> <i>Uses activities and materials that support stated objectives</i> <i>Uses multiple ways to reinforce the content of the standard</i> <i>Follows a logical, sequence of instruction in the lesson plan</i>	Lesson Analysis TPA 3 & 4
TPE 5 - Student Engagement <i>Ensures students understand the objective of the lesson</i> <i>Actively involves students with the lesson</i> <i>Uses a variety of strategies to involve the students and increase their understanding of the lessons objectives</i>	ELD Infused Lesson Design and Reflection on Video-taped performance Lesson Analysis
TPE 6c - Developmentally Appropriate Practices in Grades 9 -12 <i>Understanding important characteristics of the learners</i> <i>Designing instructional activities</i> <i>Providing developmentally appropriate educational experiences</i>	ELD Infused Lesson Design and Reflection on Video-taped performance Lesson Analysis
TPE 7 – Teaching English Learners <i>Applies pedagogy for comprehensive instruction of English learners</i> <i>Knows and can apply instruction for English Language development</i> <i>Draws upon information about students’ backgrounds to build new knowledge</i>	ELD Infused Lesson Design and Reflection on Video-taped performance TPA 3 & 4

TPE	How assessed
<p>TEP 8 Learning about Students <i>Using formal and informal methods, they assess students' prior mastery of academic language abilities, content knowledge, and skills.</i></p> <p><i>Through interpersonal interactions, they learn about students' abilities, ideas, interests and aspirations.</i></p> <p><i>They understand how multiple factors, including gender and health, can influence students' behavior.</i></p>	<p>Student Interview</p>
<p>TPE 9 - Instructional Planning <i>Establishing academic learning goals</i> <i>Connecting academic content to the students backgrounds, needs, and abilities</i> <i>Selecting strategies/activities/materials/resources</i></p>	<p>ELD Infused Lesson Design and Reflection on Video-taped performance</p> <p>Lesson Analysis</p>
<p>TPE 10 - Instructional Time <i>Appropriately allocates instructional time to maximize student achievement</i> <i>Effectively and efficiently maximizes instructional time through management based on reflection and consultation</i> <i>Adjusts the use of instruction time to optimize learning opportunities</i></p>	<p>ELD Infused Lesson Design and Reflection on Video-taped performance</p> <p>Lesson Analysis</p> <p>TPA 4</p>

Teacher Performance Assessment

Beginning July 1, 2008 all California credential candidates must successfully complete a state-approved Teacher Performance Assessment (TPA), as part of the credential program of preparation. During the 2015-16 academic year the CSUSM Single Subject credential program will use the edTPA (Educative Teacher Performance Assessment).

edTPA

Beginning in fall 2015, for newly entering initial candidates, the CSUSM assessment system is the edTPA. To assist with your successful completion of the edTPA, a capstone class is part of your curriculum. In this class edTPA related questions and logistical concerns are addressed. Additional support materials are available on the edTPA website:
http://www.edtpa.com/PageView.aspx?f=GEN_Candidates.html

Additionally, to support your success in your credential program and with TPA, SOE classes use common pedagogical language, lesson plans (lesson designs), and unit plans (unit designs).

Expected Dispositions for the Education Profession

Education is a profession that has, at its core, certain dispositional attributes that must be acquired and developed. Teaching and working with learners of all ages requires not only specific content knowledge and pedagogical skills, but positive attitudes about multiple dimensions of the profession. The School of Education has identified six dispositions that must be evident in teacher candidates: social justice and equity, collaboration, critical thinking, professional ethics, reflective teaching and learning, and life-long learning. These dispositions have observable actions that will be assessed throughout the preparation program. For each dispositional element, there are three levels of performance - *unacceptable*, *initial target*, and *advanced target*. The description and rubric for the three levels of performance offer measurable behaviors and examples.

The assessment is designed to provide candidates with ongoing feedback for their growth in professional dispositions and includes a self-assessment by the candidate. The dispositions and rubric are presented, explained and assessed in one or more designated courses in each program as well as in clinical practice. Based upon assessment feedback candidates will compose a reflection that becomes part of the candidate's Teaching Performance Expectation portfolio. Candidates are expected to meet the level of *initial target* during the program

SCHEDULE/COURSE OUTLINE

Date	Topic*	Assignment to be completed BEFORE Class Session
Session 1 1/5 4:15-7:00	Assignments Standards Progression Geometric Thinking	<i>none</i>
Session 2 1/12 4:15-7:00	Group work with Tiana and Katerina Lesson Planning	<i>Personalized project topics</i>
Session 3 1/19 4:15-7:00	Fostering Geometric Thinking	<i>Read F.G.T. – Driscoll, chs. 1-2</i>
Session 4/5 TBA 8-2:00	Lesson Analysis at VMMS	
Session 6 2/9 4:15-7:00	ELD Strategies continued Lesson Planning Practice Team A,B	<i>Read F.G.T. – Driscoll, ch. 3</i>
Session 7 3/2 9:00-3:00	Transformations Lesson Delivery Team A,B	1. ELD lesson <i>Read F.G.T. – Driscoll, ch. 4-5</i>
Session 8 3/16 4:15-7:00	Interview share out Lesson Planning Practice Team C,D	2. Interview 4. Lesson Analysis A,B
Session 9 4/13 4:15-7:00	Lesson Planning Practice Team C,D	
Session 10 4/27 4:15-7:00	Reflections on Student Teaching & Mathematics Education Mock interviews with department chairs.	3. Personalized Project 4. Lesson Analysis C,D

**The above is a tentative schedule of assignments. Based on the issues that arise during the course, additional readings and resources will be provided.*

COURSE ASSIGNMENT DESCRIPTIONS

1. *ELD infused lesson design with reflection on video-taped performance (25%)* - In this assignment, you will design a content lesson that is based on a Common core state standard and is differentiated for English Learners so as to ensure that your English Learner students have access to the core curriculum. You will implement the lesson, film yourself, and reflect upon your teaching. You will need to obtain permission from each student for the filming. Use the permission forms for TPA 4.

2. *Student Interview (25%)* – Students 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 geometric ways of thinking. 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 interact with students about mathematics.

3. *Personalized Project (25%)* – This assignment is designed to empower you as a teacher. Each site has its individual strengths and challenges. Others may impose what they believe you need but ultimately you are the one guiding 180 or more students throughout the year. In this assignment you will find one area that is a challenge and come up with a plan to work towards making things better.

4. *Lesson Analysis (25%)* – You will develop a lesson based on Problem Solving and present it to our class. In teams you will have the opportunity create a problem solving lesson using the lesson plan template provided by our guest speakers. In your analysis you should address what you learned and what you could do to make improvements. Remember, this takes practice.

Student Interview Assignment

Task: In a one-on-one setting you will conduct an interview with a student from grades 6-11. Instructions are attached below. This interview protocol is designed to inquire into the student's geometric ways of thinking.

Purpose: Most concisely, to *learn to listen* for a child's ways of thinking mathematically and of knowing mathematically. The student interview is designed to provide you with opportunities to focus on and build a model of a single child's thinking about mathematics. The purposes of this activity are to begin thinking about students' mathematical understanding, interpret the meaning of students' answers, and to provide you with an opportunity to interact with students about mathematics. It will also help you to improve your use of inquiry for assessment purposes and to better understand secondary level students with different understandings.

Prior to the interview:

- Identify a (one) student. Although there are many good reasons to select a student from within a classroom you may be teaching, *any* student (grades 6-11) could make for a productive experience. One that you have found to be verbally expressive may be best. Arrange with the student and his/her teacher to interview this one child for 20-30 minutes in a quiet place outside the classroom.
- Consider what clarifying prompts you may have to give to the student during the interview.

During the interview:

Work with the child in a setting removed from the classroom environment. Begin the interview by informing the child that you will be giving her/him a series of math problems to solve and that you are interested in his/her thinking process and in the strategies s/he uses to solve these problems. Inform the child that s/he can solve the problems in any way s/he wants. Please remind the child that the interview is voluntary and that s/he can end the interview at any time (if a student does cut the interview very short, then please find another willing student). Do everything you can to help make the child comfortable. Orally provide the child with your task and provide her/him with sufficient time to complete each problem. You will be challenged to establish comfort, for both you and the student, to think quietly for the extended period of time necessary for the child to meaningfully engage in the task. You may also want to prepare a written copy of each problem, in case you find the child prefers this way of interpreting the task.

Note the questions you ask and the child's responses. It may be necessary to ask the child to wait while you are writing—it is OK to ask the child to wait. *You should not tape-record/video-tape the interview.*

During the interview, be sure to consider the following:

- The best thing you can be is genuinely curious. Remember the point of the interview is to discover how the child thinks—*NOT* to guide the child to the correct answer (try to fight the urge to be “teacher”).
- Although you may prepare a script to help guide your interview, I encourage you to not feel limited to your script. Allow your interaction to explore a student’s idea, to learn more about the child’s insights into a question, their disposition toward exploration, what may constrain what they are able to do, and to practice your own interaction with children.
- Do respect the suggested and arranged time limit.
- Be careful to respond similarly to all responses, whether you may consider it to be a “correct” or “incorrect” answer. Be curious about all solution strategies; how is this student thinking? What question may they be asking?—is it the one you first assumed they were asking? What question may they be answering?—is it the one you first assumed you asked?
- This is not a teaching episode; it is an interview.
- Your primary role is to listen (Davis, 1997). Make sure you allow enough *wait time*—many children need time to think before speaking and/or answering.
- Make sure the child feels comfortable during the entire interview. If the child clearly cannot answer a problem, you may need to probe to help develop connections the child may have to similar mathematical experiences. Two useful questions: *tell me what you do know about the problem*, and *tell me about a similar problem you’ve worked on before*. If you feel that the child is really struggling and frustrated, you may want to end the interview or give the child a problem you are fairly certain s/he can solve and then end the interview. It is worthwhile to come with this sort of simpler problem, as well as an extension to the task you intend to ask for those who respond quickly. If you cut an interview short for any reason, be sure to discuss in your write-up.

After the Interview:

Write a three to four-page (double-spaced) reflection that includes a brief discussion on each of the following points:

- What *specifically* did you learn about this child’s mathematical understanding? Here you will want to make some claims about the mathematics your student understands or doesn’t understand. I intend for this portion to emphasize what the child **CAN** do, and what might be a worthwhile next instructional focus, rather than what the child *cannot* do.
- Suggest some specific ideas for instruction based on what you have observed about the students understanding and methods of approaching the problems.
- Discuss what types of geometric thinking you observed the student use.
- Share some thoughts on your role as a listener in this activity, and as you consider your profession as a mathematics teacher.
- Attach any recorded work generated by the student without the student’s “actual” name listed.

Grading: Specifically, I expect a well-written paper (3-4 pages, double-spaced) that clearly and specifically expresses what you learned about: (a) the child’s mathematical understanding, (b) the experience of observing mathematical thinking.

Personalized Project

Task: Identify an aspect of your practice that you would like to improve upon. Research possible solutions and create a measurable action plan. Implement your plan, collect data and reflect.

Purpose: Each site poses its own challenges. There is an abundance of research that addresses how students learn and what you should do as an educator in various situations. Teaching is complex in that there are a variety of variables that define success. You will be exposed to many professional developments throughout your career however, knowing is different than doing. This is your opportunity to focus on one aspect of your practice and making a difference in something you believe is a crucial aspect of your teaching. We cannot be simply lifelong learners but rather lifelong doers.

Details: Identify an aspect of your practice that you would like to improve or change. Investigate the existing research and come up with a plan.

Report: The report should be 2-3 pages with evidence supporting the progress toward your goal. This might include student work, pictures or data.

Grading: Worth 25 points, awarded for completion of the specifics of the task, and the quality of the response. A grade of **B** will be awarded for completing the task; an **A** for doing so exceptionally well, and a **C** for partial completion.

Teaching English Learners: Lesson Design, Implementation, and Reflection

In this assignment, you will design a content lesson that is based on a Common core standard and is differentiated for English Learners so as to ensure that your English Learner students have access to the core curriculum. You will implement the lesson, film yourself, and reflect upon your teaching. You will need to obtain permission from each student for the filming. Use the permission forms for TPA 4.

The following information should be included in your write-up.

Design the Lesson

- Information about your whole class, including linguistic background, content and academic language abilities, cultural considerations, and interests. You will likely have some of this information from your student survey.
- Physical, social, and emotional factors that influence the instruction of adolescents and how you use this knowledge to inform your teaching, especially in this particular class.
- Briefly describe the lesson, including content standards, an ELD standard, where the lesson fits into a unit or sequence of instruction, formative and summative assessment. (Attach the actual lesson plan as an appendix).
- Describe the adaptations you have made to the lesson to ensure that your English Learners, at their particular levels, can access the curriculum, build academic language skills, and reach the learning goals you have identified for this lesson.
- Describe the assessment based on the content and ELD standards stated

Analyze the lesson after viewing

- Overall, what worked, what did not work, what would you modify the next time you teach the lesson?
- To what extent did the whole class achieve the learning goals?
- Overall, how well did the lesson connect with student backgrounds and interests?
- What will you do for students who did not achieve the learning goals?
- With regard to your English Learners, how well did the lesson work? Not work?
- To what extent did the student achieve the content learning goals and the development of English?

Reflect on the lesson

- Given your analysis of this lesson and the student learning, how will you use this information to guide your planning for future lessons?
- What have you learned about the need for making adaptations for English Learners as you plan for differentiated instruction? Cite specific information about the students, your plan for instruction, and the analysis of the lesson to explain your answer.
- What are your professional development goals for continued progress and learning with regard to planning and differentiating instruction for English Learners?

Grading Standards

According to the *CSUSM Course Catalog*, each grade means that student performance has been:

- A** at the highest level, showing sustained excellence in meeting all course objectives and exhibiting an unusual degree of intellectual initiative. **Excellent**
- B** at a high level, showing consistent and effective achievement in meeting course objectives. **Good**
- C** at an adequate level, meeting the basic objectives of the course. **Satisfactory**
- D** less than adequate, meeting only the minimum course requirements. **Passing**
- F** such that minimum course requirements have not been met. **Failing**

I interpret these levels of student performance to mean that meeting the basic requirements detailed for a course assignment will typically result in a **B**-level grade. An **A** grade is meant to acknowledge achievement that goes beyond specified requirements and/or criteria. **A**'s are reserved for special efforts that exceed expectations, that demonstrate exceptional creativity, boldness, commitment, involvement, ingenuity, or elegance. By this nature, **A**-level performance cannot be spelled out clearly in advance; else it would not be unexpected.

Assignments will be provided feedback only, no grades, numbers, or rubric scores (cf. <http://blog.mathed.net/2011/08/rysk-butlers-effects-on-intrinsic.html>). Compare the nature of the feedback received with the grade expectations described above. A student is encouraged to confirm their self-assessment of their progress toward meeting course objectives in the class at any time with the professor. Similarly, if a student would like feedback on projecting a final course grade, a similar conversation is welcome. Please request an office appointment.

Final Exam Statement

There will be no final exam.

School of Education/Course Attendance Policy

Due to the dynamic and interactive nature of courses in the School of Education, all candidates (course participants) are expected to attend all classes and participate actively. At a minimum, candidates (course participants) 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 candidate (course participants) have extenuating circumstances, s/he should contact the instructor as soon as possible. (*Adopted by the COE Governance Community, December, 1997*).

You are expected to inform the instructor *prior* to an absence.

Policy on Late/Missed Work

Make *prior arrangements* with the instructor for work to be submitted late.

GENERAL CONSIDERATIONS

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 assignments must be original work, clear and error-free. All ideas/material 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 accordingly.

Academic Honesty and Integrity: Students are responsible for honest completion and representation of their work. Your course catalog details the ethical standards and penalties for infractions. There will be zero 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.

Refer to the full Academic Honesty Policy at:

http://www.csusm.edu/policies/active/documents/Academic_Honesty_Policy.html

Plagiarism

As an educator, it is expected that each candidate (course participant) 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.

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 Disabled Student Services (DSS). This office is located in Craven Hall 4300, 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.

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.

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 School 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.