



**EDMS 543  
ELEMENTARY MATHEMATICS EDUCATION  
Section 2 CRN #48831  
Fridays  
9:30 – 2:45 pm  
Farr Ave. Elementary School Rm. 11  
Fall 2014**

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*Conceptual Framework Theme: Engaging diverse communities through leading and learning for social justice.*

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**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
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**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
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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. *This course is aligned with California's SB 2042 Standards.*

### **Prerequisites**

Admission to the Multiple Subject Credential Program.

### **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)*

### **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 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.

## **STUDENT LEARNING OUTCOMES**

### **Course Objectives**

1. deepen understanding of the mathematics taught at the elementary level, including such topics as place value, base systems, number theory, fractions, proportions, statistics, and algebra.
2. develop understanding of the current issues and practices in mathematics education.
3. familiarity with the NCTM and CA Common Core mathematics standards.
4. develop an understanding of children's content specific thinking.
5. learn to teach content specific concepts using effective and appropriate strategies, including the educational use of technology.
6. practice how to teach for mathematical understanding
7. understand the nature, purposes, and application of mathematics assessment and its relationship with teaching and learning.
8. develop strategies to create a classroom environment that promotes the investigation and growth of mathematical ideas and to ensure the success of all students in multicultural settings.
- 9.

### **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 a California teaching credential to develop the skills, knowledge, and attitudes necessary to assist schools and districts in implementing effective programs for all students. Those given primary emphases:

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

### **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, SoE 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 SoE website: <http://www.csusm.edu/education/CalTPA/ProgramMaterialsTPA.html>

### **Assessment of Professional Dispositions**

Assessing a candidate's dispositions within a professional preparation program is recognition that teaching and working with learners of all ages require 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 – social justice and equity, collaboration, critical thinking, professional ethics, reflective teaching and learning, and life-long learning—and developed an assessment rubric. 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.

## **COURSE REQUIREMENTS**

### **Required Texts**

California Department of Education (2013/2010). *California Common Core Content Standards for Mathematics*. Sacramento, CA: Author. This document can be found at <http://www.cde.ca.gov/ci/cc/>

Kamii, C. (2000). *Young Children Reinvent Arithmetic: Implications of Piaget's Theory (2nd ed.)*. New York: Teachers College Press.

### **Recommended Texts**

Boaler, J. (2008). *What's math got to do with it?: Helping children learn to love their most hated subject—and why it's important for America*. New York: Viking.

California Department of Education (2012). *California English language development standards*. Sacramento, CA: Author. [free online at <http://www.cde.ca.gov/sp/el/er/eldstandards.asp>]

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

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

National Council of Teachers of Mathematics (2014). *Principle to actions: Ensuring mathematical success for all*. Reston, VA: Author. [online at <http://www.nctm.org/PrinciplestoActions/>]

Smith, M. S., Stein, M. K. (2011). *5 Practices for Orchestrating Productive Mathematics Discussions*. Reston, VA: NCTM.

Van de Walle, J. A., Karp, K. M., & Bay-Williams, J. M. (2013). *Elementary and middle school mathematics: Teaching developmentally (8th ed.)*. Boston: Allyn & Bacon.

### Assignments

Teacher education is a professional preparation program. It is expected students will come to class prepared to discuss the readings, submit required assignments, and participate in class activities. Students are expected to adhere to academic honesty and integrity, standards of dependability, confidentiality and writing achievement. Because it is important for teachers to be able to effectively communicate their ideas to students, parents, colleagues, and administrators, each written assignment is expected to have a clear organizational presentation and be free of grammar, punctuation, or spelling errors. There will be a reduction in points for the above mentioned errors. It is expected that work will be turned in on time; late assignments will be accepted only under extenuating circumstances and could receive penalty points. Prepare carefully for class, be ready to discuss readings and assignments thoughtfully and actively participate in all class activities.

Assignment	percentage	Due Date
Reading Responses	20	ongoing
Mathography	5	5 sep 2014
Math standards presentation	5	12 sep 2014
Clinical Student Interview	15	15 sep 2014
Mathematics Learning Activity (MLA)	20	19 oct 2014
Mathematical Lesson Design	20	19 oct 2014
Professional Dispositions/Participation	15	ongoing

Detailed information about the assignments will be given in class and via Cougar Courses. All assignments should be submitted through Cougar Courses when possible. You are responsible for ensuring that assignments are submitted correctly and on time.

1. *Reading Responses (20%)* – To focus your reading, help you remember the content, and assist you with meaningful class participation, you will submit reading responses based the assigned chapters. Further details will be given in class and the response activity choices will be available on Cougar Courses.
2. *Mathography (5%)* – Given prompts, you will write a brief mathematics autobiography. Details will be provided via Cougar Courses.
3. *Math Standards Activity (5%)* – In a group, you will analyze the California Common Core State Standards. In particular, you will consider the Standards for Mathematical Practice and the K-8 Mathematics Content Standards. You will then present your findings to the class. Requirements for the activity will be discussed in class.
4. *Clinical Interview (15%)* – You will conduct a mathematical interview with one student. 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. Sample interview questions will be provided, but you are encouraged to use your own invention with instructor approval. Further details on assignment write-up will be provided.

5. *Mathematical Learning Activity (MLA) (20%)*
  - *MLA—Small group activity:* You will work with a group to select math topics in K-5 curriculum and be responsible for presenting activities from the correspondent chapters in the textbook. Each member of your group will plan/design a 7-10 minute learning activity in the assigned topic and then teach the activity in our EDMS 543 class in a learning center type format. As you select your task, consider how it creates the opportunity for engaging children in cognitively demanding activity that requires interaction with others.
  - *MLA—Individual activity:* You will implement your MLA with students (may range from a small group to entire class) in your practicum class. Be prepared to discuss modifications made to your activity based on your “experience” teaching it in the 543 class. You will submit a reflection on student experiences with the task and your experiences with the project.
6. *Mathematics Lesson Design (20%)* – You will design a problem-based math lesson that incorporates both ELA and ELD standards. You may work with classmates (up to 3 total), whose practicum is at a similar grade level, in lesson planning. Several lesson planning templates will guide this project for you. The final report will be little more than the completion of these templates, with a brief introduction and commentary.
7. *Professional Dispositions/Participation (15%)* – Students are expected to adhere to a professional code of ethics including: being in class on time and prepared with assignments and readings; actively participating in small and large group discussions and tasks; using computers during class time for note-taking or directed tasks; being respectful to peers and instructors; refraining from texting or checking e-mail during class; demonstrating willingness to help all students succeed. A positive professional disposition includes a willingness to consider and discuss new ideas objectively, curiosity, perseverance, and seriousness about improving one’s self as a teacher. It can also include a sense of humor and social intelligence (e.g., the tact and ability to make others feel comfortable and to contribute).

### 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.

Weights for each assignment are provided. Assignments will be provided feedback only, no grades, numbers, or rubric scores<sup>1</sup> (cf. <http://blog.mathed.net/2011/08/rysk-butlers-effects-on-intrinsic.html>). Compare the nature of the feedback received with the 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.

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.

### **School of Education Attendance Policy**

Due to the dynamic and interactive nature of courses in the School 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 College of Education Governance Community, December, 1997.*)

*Attendance and Participation:* Teacher education is a professional preparation program. Therefore, for this course: Students missing more than one class session cannot earn an A or A-. Students missing more than two class sessions cannot earn a B or B+. Students missing more than three classes cannot earn a C+. Arriving late or leaving early by more than 20 minutes counts as an absence. Notifying the instructor does not constitute an excuse. All assignments must be turned in on due date even in case of an absence. You are expected to make a reasonable effort to 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.

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<sup>1</sup> Butler, R. (1988). Enhancing and undermining intrinsic motivation: The effects of task-involving and ego-involving evaluation on interest and performance. *British Journal of Educational Psychology*, 58. (pp. 1-14).

[<https://www.dropbox.com/s/kc5lmw3cey6zes2/feedback%20and-or%20grades%3F.pdf?dl=0>]

Lipnevich, A. A. & Smith, J. K. (2008). *Response to assessment feedback: The effects of grades, praise, and source of information.* [online at <http://www.ets.org/Media/Research/pdf/RR-08-30.pdf>]

**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, 6<sup>th</sup> edition. If there are questions about academic honesty, please consult the University catalog.

### TENTATIVE SCHEDULE

Date	Topic*	Assignment to be completed BEFORE Class Session**
Session 1 29 aug 14 9:30-2:45	Course Introduction A Vision for the Elementary Mathematics Classroom	<i>Preview the CaCCSS-M, pp. ii-56</i>
Session 2* 5 sep 14 9:30-2:45	Mathematical Learning & Knowing	<b>2. Mathography</b>
Session 3 12 sep 14 9:30-2:45	Arithmetic to Algebraic Thinking <i>guest: Dr. Virginia Bastable, Mount Holyoke</i> Listening to Student Thinking (Student Interview)	<b>3. Math Standards Activity</b>
Session 4 19 sep 14 9:30-2:45	Developing Lessons and Lesson Plans Teaching Multiplication	<b>4. Clinical Interview</b>
Session 5 26 sep 14 9:30-2:45	Strategies for Differentiation & Language Learners <i>guest: Victor Vargas, CSUSM Distinguished Teacher in Residence</i> Planning Lessons to Maintain Cognitive Demand	
Session 6 3 oct 14 9:30-2:45	Number Talks Teaching Angle	
Session 7 10 oct 14 9:30-2:45	Stations, Rotations, and Centers <i>guest: Sue Ritchie, Vista USD Teacher on Special Assignment</i> Teaching Fractions	
Session 8 17 oct 14 9:30-2:45	Equity & Social Justice in Mathematics Education Mathematics Education as a Learning Profession	<b>5. Mathematical Learning Activity</b> <b>6. Mathematics Lesson Design</b>

\*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. In particular, \*\*reading assignments (in italics) are likely to adjust as the class unfolds.