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<b>Course Number</b>	<b>EDSS 543B, Section 1</b>
<b>Course Title</b>	<b>Secondary Mathematics Education</b>
<b>CRN Number</b>	<b>20651</b>
<b>Days</b>	<b>Thursdays</b>
<b>Time</b>	<b>4:15 pm – 7:00 pm</b>
<b>Course Location</b>	<b>University Hall 271</b>
<b>Semester / Year</b>	<b>Spring 2016</b>
<b>Instructor</b>	<b>Brian R. Lawler, Ph. D.</b>
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<b>Office</b>	<b>404 University Hall</b>
<b>Hours</b>	<b>By appointment</b>

**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. Prerequisite: EDSS 543A. Prerequisites Admission to the Single Subject Credential Program.

### ***Unique 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.

### ***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 Learning Outcomes***

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.

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

The course objectives, assignments, and assessments have been aligned with the CTC standards for the 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 districts 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:

*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

### **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).

To assist with your successful completion of the edTPA, a capstone class is part of your curriculum to address questions and logistical concerns. Additional support materials are available on the edTPA website: [http://www.edtpa.com/PageView.aspx?f=GEN\\_Candidates.html](http://www.edtpa.com/PageView.aspx?f=GEN_Candidates.html).

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

### **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.

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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

- Abbot, E. A. (1992). *Flatland: A romance of many dimensions*. Dover. [available on Cougar Courses; Originally published in 1884]
- California Department of Education (2013/2010). *California common core content standards for mathematics*. Sacramento, CA: Author. [free online at <http://www.cde.ca.gov/ci/cc/>]
- Cohen, E. G. (2014). *Designing groupwork: Strategies for the heterogeneous classroom* (3<sup>rd</sup> ed.). New York: Teachers College Press.
- Driscoll, M. J. (2007). *Fostering geometric thinking: A guide for teachers, grades 5-10*. Portsmouth, N.H.: Heinemann.
- 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. [borrow from me or look online for a used copy <http://tinyurl.com/pwfuwqp>]
- NCTM (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA NCTM.
- Smith, M. S., & Stein, M. K. (2011). *5 Practices for Orchestrating Productive Mathematics Discussions*. Reston, VA: NCTM. [available on Cougar Courses]

### Recommended Texts

- Boaler, J. (2015). *What's math got to do with it?: How teachers and parents can transform mathematics learning and inspire success*. New York: Penguin Books.
- California Department of Education (2012). *California English language development standards for grades 9–10*. Sacramento, CA: Author. [free online at <http://www.cde.ca.gov/sp/el/er/eldstandards.asp>]
- California Department of Education (2012). *California English language development standards for grades 11–12*. Sacramento, CA: Author. [free online at <http://www.cde.ca.gov/sp/el/er/eldstandards.asp>]
- Carr, J., Carroll, C., Cremer, S., Gale, M., Lagunoff, R., Sexton, U. (2009). *Making mathematics accessible to English learners*. San Francisco: WestEd.
- Horn, I. (2012). *Strength in numbers: Collaborative learning in secondary mathematics*. Reston, VA: NCTM

### Key Assignments

1. *Weekly Homework & Participation (20%)* – Each week, teacher candidates will be assigned to read, respond to readings, and prepare some mathematical investigation. Each of these activities are designed to be in preparation for discussion during the next course session. As such, it is critical that they are completed on time. The specifics of each weekly assignment will be provided in class. Some work is to be submitted online in Cougar Courses, and some directly to the *Interactive Notebook* (see next). In addition, all responses are to be available during class, either electronically or in hard copy.

2. *Interactive Notebook (10%)* – In essence, students will keep all classroom work, thinking, and who knows what else as it relates to this class in this notebook—much like a personal journal. This for me is my continued “teacher experiment” for the course; I am trying to understand how this classroom technique might be useful for a student, and more specifically useful in a methods class. My colleague Elizabeth Statmore kick-started this idea for me. Read more from her at <http://cheesemonkeysf.blogspot.com/2012/08/starting-new-year-right-buckle-up-for.html>
3. *Student Interview (10%)* – In small groups, teacher candidates will design prompts and/or a task in order to conduct a clinical interview with a grades 6-11 student. This interview protocol will be designed to inquire into the student's geometric ways of thinking. Each of you will carry out an actual student-interview based on this protocol. Groups will then reconvene to study student responses. 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. Further details will be distributed.
4. *Professional Reading (10%)* – Teacher candidates will select an article from a professional mathematics education journal to read, summarize, and present to colleagues in the course. Further details will be distributed
5. *Lesson Plan Development & Implementation (30%)* – Working in small groups and in conjunction with practicing teachers, teacher candidates will develop several iterations of a lesson plan, the last of which will be implemented in a secondary mathematics class. TCs will conclude this assignment with a presentation by the working group outlining the lesson, experiences with students, demonstration of formative assessment through the analysis of student work, teacher reflections, and change designed for the next use of the lesson. The purpose of this activity is to engage fully in the teaching cycle, with particular focus on the design of effective mathematical lessons. Further details will be distributed.
6. *Problems of the Week (10%)* – During the semester, teacher candidates will investigate 2-3 open-ended mathematical problems. Each teacher candidate will be asked to initiate and lead classroom discussion (10-15 min.) of one of these problems by sharing your thinking about the task. At the end of the semester, each teacher candidate will select one problem to formally write-up using a 5-part write-up format. Further details will be distributed.
7. *Portfolio of Learning (10%)* – Students will assemble evidence of learning related to this course, it's goals, and their personal goals toward preparing to be a secondary mathematics teacher. Further details will be distributed.

### **Final Exam Statement**

There will be no final exam, distinct from the final assessment of the portfolio in assignment 7.

### **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.

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Weights for each assignment are provided as percentages above; these weights are meant to express importance when considering overall course success. 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 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. Make *prior arrangements* with the instructor for work to be submitted late.

### **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:* Due to the intense and interactive nature of the course, regular attendance and full participation are expected. You will not grow/learn in the direction of the course objectives if not present for and engaged in the process. Therefore, the above SOE 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.

You are expected 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 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.

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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). [available <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>]

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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](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>.

## TENTATIVE SCHEDULE

Date	Topic*	Assignment to be Completed BEFORE Class Session
Session 1 21 jan 16 4:15-7:00	Problem-Based Approach to Develop Geometric Thinking	<i>Read Flatland – Part I</i>
Session 2 28 jan 16 4:15-7:00	Geometric Thinking Classroom Discourse	<i>Read Driscoll – Ch 1</i> <i>Read Smith &amp; Stein – Chs 1-3</i> <i>a mathematical task</i>
Session 3 4 feb 16 4:15-7:00	Geometric Thinking & Student Interview <i>online</i>	<i>Read Driscoll – Chs 2-3</i> <i>Read Smith &amp; Stein – Chs 4-5</i> <i>a mathematical task</i>
Session 4 25 feb 16 4:15-7:00	Developing Lessons, and Lesson Plans Equitable Mathematics Classroom Conditions	<i>Read Driscoll – Chs 4-5</i> <i>Read Smith &amp; Stein – Ch 7</i> <i>Read Cohen – Chs 1-3</i> <b>3. Interview</b>
Session 5 3 mar 16 4:15-7:00	Building Groupwork Norms	<i>Read Cohen – Chs 4-6</i> <i>a mathematical task</i>
Session 6** TBD	Lesson Observation Mathematics Education as a Learning Profession	
Session 7 7 apr 16 4:15-7:00	Changing Expectations of Ability: Multiple Ability Treatments & Status Treatments	<i>Read Cohen – Chs 7-9</i> <i>a mathematical task</i>
Session 8 14 apr 16 4:15-7:00	Effective & Equitable Mathematics Instruction - summary	<i>Read NCTM PtA – pp 1-34</i> <i>a mathematical task</i> <b>4. Lesson Plan</b> <b>6. POW</b>
Session 9 12 may 16 4:15-7:00	Reflections on the Profession	<i>Read NCTM PtA – pp 35-69</i> <b>1. Participation self-assessment</b> <b>2. Interactive Notebook</b> <b>5. Professional Reading</b> <b>7. Portfolio</b>

\*This schedule is an *approximation*. Given the nature of learning being non-linear and not as predictable as one might wish, 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.

\*\*These sessions will be outside our normal classroom, usually at a school. Details will be provided in class.