

**San José State University**  
**Department of Mathematics & Statistics**  
**MTED 394 Secondary School Mathematics (Section 1, Fall 2016)**

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- Office Hours:** TR 2:45 – 4:30 PM and by appointment
- Class Days/Time:** T 4:30-7:15 PM
- Classroom:** MH 425
- Prerequisites:** Passing score on all 3 CSET math exams or be within 3 courses of completing the subject matter preparation program, or instructor consent.

**Faculty Web Page and MYSJSU Messaging**

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on my web page at <http://rfdr26.wix.com/ferdinandriviera> and on Canvas at <http://sjsu.instructure.com>. You are responsible for regularly checking with the messaging system through MySJSU at <http://my.sjsu.edu> (or other communication system as indicated by the instructor) to learn of any updates.

**Course Description**

The place and function of mathematics in secondary education, improvement and evaluation of instruction. Teaching the subject matter of secondary mathematics.

**Course Goals**

Students in this course will learn what it means to engage in skillful teaching in mathematics. They will learn to develop and orchestrate efficient and meaningful content-practice learning of mathematics and use assessment strategies to help all students achieve deep understanding of mathematics. They will learn to construct unit and lesson plans that are informed by learning progressions and scientifically proven practices in the science of learning. All students are expected to explore learnings from this course in the early/beginning phase of their student-teaching (EDSC 184X) and fully test and refine them in the advanced phase (EDSC 184YZ).

*Underlying Theory of Teaching and Learning:* Teaching and learning involve engaging in a cycle of plan-do-study-act, coupled with the following three fundamental questions that are

meant to improve one's own practice: (1) What am I trying to accomplish? (2) How will I know that a change is an improvement? (3) What change can I make that will result in improvement?

### Learning Outcomes

Upon successful completion of this course, students will be able to provide rigorous, coherent, and focused instruction, teaching, learning, and assessment in mathematics for all students that lead to deep understanding of mathematics.

### Course Learning Outcomes (Aligned with the CCTC Standards)

Subject-Specific Pedagogical Skills: Students in this course -

1. Demonstrate knowledge of and ability to teach content aligned with the California State Standards and the English Language Development Standards.
2. Demonstrate the ability to teach the state-adopted academic standards for students to meet or exceed the end of the year expectations for their grade or course in order to be college and career ready by the end of grade 12.
3. Enable students to understand basic mathematical computations, concepts, and symbols, to use them to solve common problems, and to apply them to novel problems.
4. Help students understand different mathematical topics and make connections among them.
5. Help students solve real world problems using mathematical reasoning and concrete, verbal, symbolic, and graphic representations. They require student collaboration and written and oral communication that demonstrates students' ability to construct logical arguments based on substantive claims, sound reasoning, and relevant evidence.
6. Provide students the opportunity to use and evaluate strengths and limitations of media and technology as integral tools in the classroom.
7. Provide a secure environment for taking intellectual risks, model and encourage students to use multiple ways of approaching mathematical problems, and encourage discussion of different solution strategies.
8. Demonstrate positive attitudes toward mathematics, and encourage student curiosity, flexibility, and persistence in solving mathematical problems.
9. Use developmentally appropriate and diverse strategies to engage students in grades 7-12 to understand mathematics as a logical system that includes definitions, axioms, and theorems, and to understand and use mathematical notation and advanced symbols.
10. Assign and assess work through progress-monitoring and summative assessments that include illustrations of student thinking such as open-ended questions, investigations, and projects.
11. Engage students in the Standards for Mathematical Practice.

All weekly course activities align with the program standards and TPEs.

<i>Teaching Performance Expectations – Teacher candidates –</i>		<i>Expectation</i>
<b><i>C1. Engage and Support All Students in Learning</i></b>		
1. Apply knowledge of students, including their prior experiences, interests, and social emotional learning needs, as well as their funds of knowledge, cultural, language, and socioeconomic backgrounds to engage them in learning.		Introduce (I) & Practice (P)

2. Maintain ongoing communication with students and parents regarding achievement expectations.	N/A
3. Connect subject matter to real-life contexts and provide hands-on experiences to engage student interest, support student motivation, and allow students to extend their learning.	I & P
4. Use a variety of developmentally and ability-appropriate instructional strategies, resources, and assistive technology, including principles of Universal Design (and a Multitiered System of Supports(MTSS)), to support access to the curriculum for a wide range of learners within the (general education) classroom (and environment).	I, P, & Assess (A)
5. Promote students' critical and creative thinking and analysis through activities that provide opportunities for inquiry, problem solving, responding to and framing meaningful questions, and reflection.	I, P, & A
6. Provide a supportive learning environment for students' first and/or second language acquisition by using research-based instructional approaches, including focused English Language Development, Specially Designed Academic Instruction in English (SDAIE), scaffolding across content areas, structured English immersion, and determine communicative intent, particularly with students with low verbal abilities.1	P & A
7. Provide students with opportunities to access the curriculum by incorporating the visual and performing arts, as appropriate to the content and context of learning.	N/A
8. Monitor student learning and adjust instruction while teaching so that students continue to be actively engaged in learning.	N/A
<b><i>C2. Create and Maintain Effective Environments for Student Learning</i></b>	
1. Promote students' social-emotional growth, development, and individual responsibility using positive interventions and supports, restorative justice, and conflict resolution practices to foster a caring community where each student is treated fairly and respectfully by adults and peers.	I
2. Create learning environments (i.e., traditional, blended, and online) that promote productive student learning, encourage positive interactions among students, reflect diversity and multiple perspectives, and are culturally responsive.	I
3. Establish, maintain, and monitor inclusive learning environments that are physically, mentally, intellectually, and emotionally healthy and safe to enable all students to learn, and recognize and appropriately address instances of intolerance and harassment among students, such as bullying, racism, and sexism.	I
4. Know how to access resources to support students, including those who have experienced trauma, homelessness, foster care, incarceration, and/or are medically fragile.	N/A
5. Maintain high expectations for learning, with appropriate support for the full range of students in the classroom.	I & P
6. Establish and maintain clear expectations for positive classroom behavior and for student to student and student to teacher interactions by communicating classroom routines, procedures, and norms to students and families.	I
<b><i>C3. Understand and Organize Subject Matter for Student Learning Content Specific Pedagogy</i></b>	
1. Demonstrate knowledge of subject matter, including the adopted California state standards and curriculum frameworks.	I, P, & A

2. Use knowledge about students (e.g. IEP, IFSP, ITP, and 540 plans) and learning goals to organize curriculum to facilitate student understanding of subject matter, and make accommodations and/or modifications as needed to promote student access to the curriculum.	I, P, & A
3. Plan, design, implement, and monitor instruction consistent with current subject-specific pedagogy in the content area(s) of instruction, and design and implement disciplinary and cross-disciplinary learning sequences, including integrating the visual and performing arts as applicable to the discipline.	I, P, & A
4. Individually and through consultation and collaboration with other educators and members of the larger school community, plan for effective subject matter instruction and use multiple means of representing, expressing, and engaging students to demonstrate their knowledge.	I, P, & A
5. Adapt subject matter curriculum, organization, and planning to support the acquisition and use of academic language within learning activities to promote the subject matter knowledge of all students, including the full range of English learners, Standard English learners, students with disabilities, and students with other learning needs in the least restrictive environment.	I, P, & A
6. Use and adapt resources, standards-aligned instructional materials, and a range of technology, including assistive technology, to facilitate students' equitable access to the curriculum.	P, & A
7. Model and develop digital literacy by using technology to engage students and support their learning, and promote digital citizenship, including respecting copyright law, understanding fair use guidelines and the use of Creative Commons license, and maintaining Internet security.	I & P
8. Demonstrate knowledge of effective teaching strategies aligned with the internationally recognized educational technology standards.	
<b><i>C4. Plan Instruction and Design Learning Experiences for All Students</i></b>	
1. Locate and apply information about students' current academic status, content- and standards-related learning needs and goals, assessment data, language proficiency status, and cultural background for both short-term and long-term instructional planning purposes.	
2. Understand and apply knowledge of the range and characteristics of typical and atypical child development from infancy through adolescence to plan instruction for all students.	P & A
3. Design and implement instruction and assessment that reflects the interconnectedness of academic content areas and related student skills development in literacy, mathematics, science, and other disciplines across the curriculum, as applicable to the subject area of instruction.	I, P, & A
4. Plan, design, implement and monitor instruction, making effective use of instructional time to maximize learning opportunities and provide access to the curriculum for all students by removing barriers and providing access through instructional strategies that include: * appropriate use of instructional technology, including assistive technology; * applying principles of UDL and MTSS; * use of developmentally, linguistically, and culturally appropriate learning activities, instructional materials, and resources for all students, including the full range of English learners; * appropriate modifications for students with disabilities in the general education classroom; * opportunities for	I, P, & A

students to support each other in learning; and use of community resources and services as applicable.	
5. Promote student success by providing opportunities for students to understand and advocate for strategies that meet their individual learning needs and assist students with specific learning needs to successfully participate in transition plans (e.g., IEP/IFSP/ITP/504 plans.)	I, P, & A
6. Access resources for planning and instruction, including the expertise of community and school colleagues through in-person or virtual collaboration, co-teaching, coaching, and/or networking.	I & P
7. Plan instruction that promotes a range of communication strategies and activity modes between teacher and student, and among students, that encourage student participation in learning.	I, P, & A
8. Use digital tools and learning technologies across learning environments as appropriate to create new content and provide personalized and integrated technology-rich lessons to engage students in learning, promote digital literacy, and offer students multiple means to demonstrate their learning.	I, P, & A
<b><i>C5. Assess Student Learning</i></b>	
1. Apply knowledge of the purposes, characteristics, and appropriate uses of different types of assessments (diagnostic, informal, formal, progress monitoring, formative, and summative) to design and administer classroom assessments, including use of scoring rubrics.	I, P, & A
2. Collect and analyze assessment data from multiple measures and sources to plan and modify instruction and document students' learning over time.	I, P, & A
3. Involve all students in self-assessment and reflection on their learning goals and progress and provide students with opportunities to revise or reframe their work based on assessment feedback.	I & P
4. Use technology, as appropriate, to support assessment administration, conduct data analysis, and communicate learning outcomes to students and families.	I & P
5. Use assessment information in a timely manner to assist students and families in understanding student progress in meeting learning goals.	I & P
6. Work with specialists to interpret assessment results from formative and summative assessments to distinguish between students whose first language is English, English learners, Standard English learners, and students with language or other disabilities.	N/A
7. Interpret English learners' assessment data to identify their level of academic proficiency in English as well as in their primary language, as applicable, and use this information in planning instruction.	N/A
8. Use assessment data, including information from students' IEP, IFSP, ITP, and 504 plans, to establish learning goals and to plan, differentiate, make accommodations and/or modify instruction.	I, P, & A
<b><i>C6. Develop as a Professional Educator</i></b>	
1. Reflect on their own teaching practice and level of subject matter and pedagogical knowledge to plan and implement instruction that can improve student learning.	I, P, & A
2. Recognize their own values and implicit and explicit biases, the ways in which these values and implicit and explicit biases may positively and negatively affect teaching and learning, and work to mitigate any negative impact on the teaching and learning of	I & P

students. They exhibit positive dispositions of caring, support, acceptance, and fairness toward all students and families, as well as toward their colleagues.	
3. Establish professional learning goals and make progress to improve their practice by routinely engaging in communication and inquiry with colleagues.	P
4. Demonstrate how and when to involve other adults and to communicate effectively with peers and colleagues, families, and members of the larger school community to support teacher and student learning.	P
5. Demonstrate professional responsibility for all aspects of student learning and classroom management, including responsibility for the learning outcomes of all students, along with appropriate concerns and policies regarding the privacy, health, and safety of students and families. Beginning teachers conduct themselves with integrity and model ethical conduct for themselves and others.	P
6. Understand and enact professional roles and responsibilities as mandated reporters and comply with all laws concerning professional responsibilities, professional conduct, and moral fitness, including the responsible use of social media and other digital platforms and tools.	P
7. Critically analyze how the context, structure, and history of public education in California affects and influences state, district, and school governance as well as state and local education finance.	P

### Required Texts

California Department of Education. (2015). *Mathematics framework for California Public Schools: Kindergarten through grade twelve*. Sacramento, CA: Author. Available online: <http://www.cde.ca.gov/ci/ma/cf/draft2mathfwchapters.asp>.

Schwartz, D., Tsang, J., & Blair, K. (2016). *The ABCs of how we learn: 26 scientifically proven approaches, how they work, and when to use them*. New York: W. W. Norton. (Paperback ISBN-10: 0393709264 (\$24); Kindle (\$12))

### Required Readings and Materials

Bressoud, D. (2015). Insights from the MAA national study of college calculus. *Mathematics Teacher*, 109(3), 179-185.

California Department of Education. (2015). *Classroom management*. Available online: <http://pubs.cde.ca.gov/tcsii/ch8/clsrmmngnt.aspx>.

Easton, L. B. (2009). *Protocols for professional learning*. Alexandria, VA: ASCD. (E-book version available for free download at [sjlibrary.org](http://sjlibrary.org).)

Franke, M., Turrou, A., Webb, N., Ing, M., Wong, J., Shin, N., & Fernandez, C. (2015). Student engagement with others' mathematical ideas. *Elementary school journal*, 116(1), 126-48.

- Geogebra Docu Team. (n.d.). The dynamic worksheet editor. Retrieved online: [http://www.geogebra.org/manual/en/The\\_Dynamic\\_Worksheet\\_Editor](http://www.geogebra.org/manual/en/The_Dynamic_Worksheet_Editor)
- Geogebra Docu Team. (2016). Intro-Book 2: Algebraic input, commands, and functions. Retrieved online: <https://www.geogebra.org/b/fPYPxVRv>
- Geogebra Docu Team. (2015). Intro-Book 1: Basic geometric constructions. Retrieved online: <https://www.geogebra.org/b/KTc2odjh>
- Geogebra Docu Team. (2015). Intro-Book 3: Visualizing mathematical concepts. Retrieved online: <https://www.geogebra.org/b/SoDHkCM7>
- Iris Center. (2016). Universal Design for Learning: Creating a Learning Environment that Challenges and Engages All Students. Available online: <http://iris.peabody.vanderbilt.edu/module/udl/#content>.
- Kastberg, S. & Frye, R. (2013). Norms and mathematical proficiency. *Teaching children mathematics*. Reston, VA: NCTM. Available online: [http://www.nctm.org/Publications/teaching-children-mathematics/2013/Vol20/Issue1/tcm2013-08-28a\\_pdf/](http://www.nctm.org/Publications/teaching-children-mathematics/2013/Vol20/Issue1/tcm2013-08-28a_pdf/).
- Larson, R. & Boswell, L. (2015). *Big ideas math: Integrated mathematics I, II, and III*. Erie, PA: Big Ideas Learning, Inc. Copies in MH 425.
- Larson, R. & Boswell, L. (2015). *Big ideas math: Algebra I, Algebra II, and Geometry*. Erie, PA: Big Ideas Learning, Inc. Copies in MH 425.
- Star, J. R., Caronongan, P., Foegen, A., Furgeson, J., Keating, B., Larson, M. R., Lyskawa, J., McCallum, W. G., Porath, J., & Zbiek, R. M. (2015). *Teaching strategies for improving algebra knowledge in middle and high school students* (NCEE 2014-4333). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Available online: [https://ies.ed.gov/ncee/wwc/pdf/practice\\_guides/wwc\\_algebra\\_040715.pdf](https://ies.ed.gov/ncee/wwc/pdf/practice_guides/wwc_algebra_040715.pdf)
- Stols, G. (2009). *Geogebra in 10 lessons*. South Africa: University of Pretoria.
- Supovitz, J. (2012). Getting at student understanding – the key to teachers’ use of test data. *Teachers College Record*, 114, 1-29.
- Supovitz, J., Ebby, C., & Sirinides, P. (2013). *Teacher Analysis of Student Knowledge: A Measure of Learning Trajectory-Oriented Formative Assessment*. Philadelphia: Consortium for Policy Research in Education. DOI: [10.12698/cpre.2013.taskir01](https://doi.org/10.12698/cpre.2013.taskir01)
- Texas Instruments. (2004). *Getting started with the CBR 2 sonic motion detector including 5 student activities*. USA: Author.
- Texas Instruments. (2012). *TI-84 Plus C Silver Edition Guidebook*. USA: Author.

Texas Instruments. (2006). *Ti-nspire: CX Teacher Software Guidebook*. USA: Author.

## Course Requirements and Assignments

<b>Grading Policy</b>	
Technology Presentation	50 pts
Chapter submission	20 pts
Unit plan	100 pts
UDL lesson plans (3 @ 100 pts)	300 pts
Teaching Statement	30 pts
<b>TOTAL</b>	<b>500 points</b>

<b>Grading Scheme</b>		
A – 95 and above	A- 90-95	
B+ 85 – 90	B – 80 – 85	B- 75 – 80
C+ 70 – 75	C – 65 – 70	C- 60 – 65
D+ 55 – 60	D – 50 – 55	F – Below 50

## Classroom Protocols

1. Be on time. If you work, please let your employer know that you need to come to class on time. Three late arrivals constitute an absence.
2. An absence from class requires make up work. You are expected to develop a reflective essay on a topic that is related to the missed session. An essay needs to contain at least 2000 words and is graded 0 or 10 points. Expect the grading scheme to change in your case.
3. There is no revise-resubmit on your Teaching Statement and Lesson Plans 2 and 3. If you need to revise your Unit Plan and Lesson Plan 1, you have one week to resubmit.
4. Late work is docked 10% for each day it is overdue.
5. All classroom discussions and collaborative activity require face-to-face interaction, so please know how to respond in a respectful manner if your technology-obsessed behavior is getting in the way of good conversation.
6. *Basic Guidelines for the Technology Presentation:* (a) You have 10-15 minutes from 4:30 – 4:45 PM. (b) Present the target skill/s. Leave out the background/introductory stuff. (c) Engage the class with problems and exercises. *How You Will Be Graded* (maximum of 50 points): (a) Each student will grade your presentation from 0 – 3 points. (14 students x 3 = 42 points). I will grade your presentation from 0 – 8 points. (8 points)

***I reserve the right to change classroom and grading protocols and schemes. You have the right to be notified of any changes in a timely manner, but I make all final decisions.***

## University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and

Undergraduate Programs' Syllabus Information web page at  
<http://www.sjsu.edu/gup/syllabusinfo/>.

Week	Date	Target Pedagogy, TPEs, and Essential Question (EQ)	Target CACSM Topics and Tasks (Based on Traditional HS Pathway; IM – Illustrate Mathematics; ATC – Achieve the Core; Technology Presentation – TP)	Themes	In-Class Activities and Readings	Assignments, Deadlines
0		Sense of inclusion		Belonging, norms, participation, listening & sharing		To read for Aug 30: B, L, N, and P of ABC book
1	Aug 30	<p>Setting Up an Effective Math Classroom 1</p> <p>EQ 1: How do I set up my classroom in ways that support active learning and deep understanding of math?</p> <p><i>TPEs: C1:1, 3, 5, 7, 8; C2.1-6; C3.1-3, 6; and C6.4, 5, &amp; 7</i></p>	<p><b>TP #0: TI Emulator Software for TI-nspire CAS and 84+ and Geogebra (Complex numbers in TI 84+, pp. 47-64)</b></p> <p>Understanding mathematical structures: Integers, rational numbers, exponents, and radicals in Algebra 1</p> <p><i>IM Task 1: Evaluating Exponential Expressions (N.RN.A.1)</i></p> <p><i>IM Task 2: Evaluating a Special Exponential Expression (N.RN.A.1)</i></p> <p><i>IM Task 3: Rational or Irrational? (N.RN.A.2 and N.RN.B)</i></p>	<p>Social norms, sociomathematical norms, classroom practices, Content-practice math knowledge; B, N, P, L</p> <p>CACSM learning progression for numbers and exponents K-8-Algebra 1</p>	<p>Kastberg &amp; Frye and Bressoud articles</p> <p>Instructional strategies: <a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwinstructstrategies.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwinstructstrategies.pdf</a></p>	To read for Sep 6: A, C, D, V, and W of ABC book

2	Sep 6	<p>Skillful Bundling 1: Learning, Teaching, &amp; Assessing</p> <p>EQ2: How do I teach and assess for growth in deep understanding of math?</p> <p><i>TPEs: C1.3-8; C2.2, 5, &amp; 6; C3:1-7; C4:1-7; and C5:1-8</i></p>	<p><b>TP #1 TI-nspire CAS 1 (Calculator application and using variables, pp. 187-222)</b></p> <p><b>TP #2 Geogebra 1 (Intro-Book 2: Algebraic input, commands, and functions)</b></p> <p>Representing algebraic symbols and relationships: Irrational numbers in Algebra 1 and complex numbers in Algebra 2; Visualizing irrational and complex numbers</p> <p><i>Task 4: Tracing irrational numbers on the number line</i></p> <p><i>IM Task 5: Complex number patterns</i></p> <p><i>IM Task 6: Complex Distance</i></p> <p><i>IM Task 7: nth Roots of Unity</i></p>	<p>Pedagogical troika, Content-practice standards; A, C, D, V, W</p> <p>CACSM learning progression for numbers and equations K-8-Algebra 1-Algebra 2</p>	Star et al. article	<p><u>To read for Sep 13:</u> E, H, K, U, V. M of ABC book</p>
3	Sep 13	<p>Skillful Bundling 2: Focus on Learning</p> <p>EQ3: How can I help my students to develop mathematical habits that lead to deep understanding of math?</p>	<p><b>TP #3 TI-84+ 2 (Function graphing, pp. 72-94, Draw instructions, pp. 123-129, solving a system of nonlinear equations, pp. 309-310)</b></p> <p>Visualizing mathematical relationships: Expressions, equations, and inequalities in</p>	<p>E, H, K, U, V. M, Standards for mathematical practice</p> <p>CAASPP framework structure of conceptual/procedural fluency, problem</p>	<p>Technology in the teaching of math: <a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwtechnology.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwtechnology.pdf</a></p>	<p><u>To read for Sep 20:</u> E, H, K, U, V. M of ABC book</p>

		<p><i>TPEs: C1.3, 5, &amp; 7; C2.2 &amp; 5; C3.1-7; C4.3; C5.8; and C6.1 &amp; 7</i></p>	<p>Algebra 1 and 2</p> <p><i>IM Task 8: Same Solutions?</i></p> <p><i>IM Task 9: Reasoning with Linear Inequalities</i></p> <p><i>IM Task 10: An Extraneous Solution</i></p> <p><i>IM Task 11: Visualizing Completing the Square</i></p> <p><i>ATC Task 12: Domino Effect</i></p>	<p>solving and modeling, and communicating reasoning</p>		
4	Sep 20	<p>Skillful Bundling 3: Focus on Teaching</p> <p>EQ4: How can I support my students to engage with each other's mathematical ideas in a productive manner?</p> <p><i>TPEs: C1.1, 5, 6, &amp; 8; C3.2, 5, &amp; 6; and C6.1</i></p>	<p><b>TP #4 Calculator-Based Ranger (Getting started with the CBR 2)</b></p> <p>Functions as a unifying concept in mathematics: Interpreting and Building Functions in Algebra 1 and 2</p> <p><i>IM Task 13: The Customers</i></p> <p><i>IM Task 14: Cell phones</i></p> <p><i>IM Task 15: Warming and Cooling</i></p> <p><i>IM Task 16: Kimi and Jordan</i></p>	<p>Teacher Moves for Productive Struggle; G, J, Q, T, H</p>	<p>Franke et al. article; Universal access chapter of CACSM</p> <p><a href="http://assist.educ.msu.edu/ASSIST/classroom/leads_discussions/index.htm">http://assist.educ.msu.edu/ASSIST/classroom/leads_discussions/index.htm</a></p>	<p><b>Chapter due</b></p> <p><u>To read for Sep 27:</u> G, J, Q, T, H of ABC book</p>
5	Sep 27	<p>Skillful Bundling 4: Focus on</p>	<p><b>TP #5: TI-nspire CAS 3</b></p>	<p>Linking formative</p>	<p>Supovitz and Supovitz</p>	<p><u>To read for Oct</u></p>

		<p>Learning Trajectory-Oriented Formative Assessments</p> <p>EQ5: What formative assessment principles and practices are necessary to teach the high expectations of the CACSM?</p> <p><i>TPEs: C1.1, 5, &amp; 8; C2.5, C3.1-3, 6, C4.2, 3; and C5.1-8</i></p>	<p><b>(Graph application, pp. 223-243, graphing piecewise functions and inequalities, pp. 306-309)</b></p> <p><b>TP #6: Geogebra 2 (Using sliders to transform graphs - Lesson 4 of Stols)</b></p> <p>Mathematical Modeling: Linear, Quadratic, and Exponential Models in Algebra 1 and 2</p> <p><i>IM Task 17: Exponential Parameters</i></p> <p><i>IM Task 18: Linear or Exponential?</i></p> <p><i>ATC Task 19: Xbox Xponential</i></p>	<p>assessment cycle and learning trajectories; F, L, S, J</p> <p>Using teacher invitation and support moves (Franke et al.) in a formative assessment context</p>	<p>et al. articles; assessment chapter of CACSM</p>	<p><u>4</u>: F, L, S, J of ABC book</p>
6	Oct 4	<p>Unit and Lesson Planning 1</p> <p>EQ6: How do I conceptualize a unit plan that is coherent, focused, and rigorous?</p> <p><i>TPEs: C1.1, 2, 3, 5-8; C2.1-3, 5; C3.1-7; C4.2, 3, 5-7; C5.1-8, and C6.1</i></p>	<p><b>Oct 4: TP #7 TI-84+ 4 (Parametric, polar, and sequence graphing, pp. 95-117, split screen, pp. 140-145, graphing the unit circle and trigometric curves, pp. 313-314)</b></p> <p><b>Octo 11: TP #8 Geogebra 3 (Creating dynamic worksheets)</b></p>	<p>ULP process; A, W, X, V, U, S, Q, P, G, F, E, D, C</p>	<p><a href="http://assist.educ.msu.edu/ASSIST/classroom/activities2/indexactivities.htm">http://assist.educ.msu.edu/ASSIST/classroom/activities2/indexactivities.htm</a></p>	<p><u>To read for Oct 11</u>: A, W, X, V, U, S, Q, P, G, F, E, D, C of ABC book; UDL IRIS module</p>
7	Oct 11	<p>Unit and Lesson Planning 2</p>		<p>UDL process; A, W, X, V, U, S, Q, P, G,</p>	<p>Possible adaptation for students with MD:</p>	<p><u>To read for Oct 18</u>: A, W, X, V,</p>

		<p>EQ7: How do I write lessons that support deep understanding of math?</p> <p><i>TPEs: C1.1, 2, 3, 5-8; C2.1-3, 5; C3.1-7; C4.2, 3, 5-7; C5.1-8, and C6.1</i></p>	<p>Algebraic and Transcendental Functions: Logarithmic and Trigonometric Functions in Algebra 2</p> <p><i>Task 20:</i> Chapters 6 (Exponential and Logarithmic Functions) and 9 (Trigonometric Ratios and Functions) of Larson &amp; Boswell's Big Ideas: Algebra 2</p>	F, E, D, C	<p><a href="http://www.cde.ca.gov/ci/ma/cf/documents/aug2013apxcpossadpts.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/aug2013apxcpossadpts.pdf</a></p> <p><a href="http://iris.peabody.vanderbilt.edu/module/udl/challenge/#content">http://iris.peabody.vanderbilt.edu/module/udl/challenge/#content</a></p> <p><a href="http://www.udlcenter.org/aboutudl/whatisudl">http://www.udlcenter.org/aboutudl/whatisudl</a></p>	U, S, Q, P, G, F, E, D, C of ABC book
8	Oct 18	<p>Assessment &amp; CAASPP</p> <p>EQ8: What kinds of assessment tasks support deep understanding of math?</p> <p><i>TPEs: C4.2 and C5.1-8</i></p>	<p><b>TP #9 TI-84+ 5 (Tables, pp. 117-123, Matrices, lists, statistics, inferential statistics and distributions, pp. 145-252 )</b></p> <p><b>TP #10 Geogebra 4 (Spreadsheet view and basic statistics concepts &amp; Lessons 8 and 10 of Stols)</b></p> <p>Discrete Modeling: Statistics and Data Analysis in Algebra 1 and 2</p> <p><i>Task 21:</i> Chapter 11 (Data Analysis and Displays) and Chapter 11 (Data Analysis and Statistics) of Functions) of Larson and Boswell's Big</p>	Developing and writing formative and summative assessment tasks following Smarter Balanced item type categories; F, G, S, E, D	<p><a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwassessment.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwassessment.pdf</a></p>	To read for Oct 25: F, G, S, E, D of ABC book

			Ideas: Algebra 1 and 2			
9	Oct 25	Teaching Algebra  EQ9: How do I teach algebra in ways that deepen students' understanding of math?  <i>TPEs: C1.3, 5, &amp; 7; C3.1, 3, &amp; 5; C4.3, &amp; 7; and C6.1</i>	<i>Task 22: Analysis of Larson &amp; Boswell's Big Ideas: Algebra 1 and 2</i>	High school algebra learning progression, graphing calculator; I, M, O, U, A	<a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwalgebra1.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwalgebra1.pdf</a>  <a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwalgebra2.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwalgebra2.pdf</a>	<b>Unit Plan due</b>  <u>To read for Nov 1:</u> I, M, O, U, A of ABC book
10	Nov 1	Teaching Geometry  EQ10: How do I teach geometry in ways that deepen students' understanding of math?  <i>TPEs: C1.3, 5, &amp; 7; C3.1, 3, &amp; 5; C4.3, &amp; 7; and C6.1</i>	<b>TP #11 TI-84+ 6 (Draw instructions, pp. 130-140, computing areas of regular n-sided polygons, pp. 319-320)</b>  <b>TP #12 Geogebra 5 (Basic geometric constructions and visualizing math concepts - Intro-Books 1 &amp; 3, and lines, angles, and transformation geometry - Lessons 1, 2, and 5 of Stols)</b>  <i>Task 23: Analysis of Larson &amp; Boswell's Big Ideas: Geometry</i>	High school geometry learning progression, graphing calculator; I, M, O, U, A	<a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwgeometryjl.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwgeometryjl.pdf</a>	<u>To read for Nov 8:</u> I, M, O, U, A of ABC book

11	Nov 8	<p>Teaching Statistics, Data Analysis, and Probability</p> <p>EQ11: How do I teach statistics, data analysis, and probability in ways that deepen students' understanding of math?</p> <p><i>TPEs: C1.3, 5, &amp; 7; C3.1, 3, &amp; 5; C4.3, &amp; 7; and C6.1</i></p>	<p><i>Task 24:</i> Analysis of Larson &amp; Boswell's Big Ideas: Geometry, Algebra 1, and Algebra 2 chapters involving statistics, data analysis, and probability</p>	<p>High school statistics, data analysis, and probability learning progression, graphing calculator; I, M, O, U, A</p>	<p><a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwstatandprobability.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwstatandprobability.pdf</a></p>	<p>To read for Nov 15: I, M, O, U, A of ABC book</p>
12	Nov 15	<p>Teaching Precalculus</p> <p>EQ12: How do I teach precalculus in ways that deepen students' understanding of math?</p> <p><i>TPEs: C1.3, 5, &amp; 7; C3.1, 3, &amp; 5; C4.3, &amp; 7; and C6.1</i></p>	<p>Trigonometric modeling: Trigonometry in Geometry</p> <p><i>Task 25:</i> Analysis of Larson &amp; Boswell's Big Ideas: Geometry and Algebra 2 chapters on trigonometry</p>	<p>High school precalculus learning progression, graphing calculator; I, M, O, U, A</p>	<p><a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwprecalculus.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwprecalculus.pdf</a></p>	<p>To read for Nov 22: I, M, O, U, A of ABC book</p>
13	Nov 22	<p>Teaching Calculus</p> <p>EQ13: How do I teach calculus in ways that deepen students' understanding of math?</p> <p><i>TPEs: C1.3, 5, &amp; 7; C3.1, 3, &amp; 5; C4.3, &amp; 7; and C6.1</i></p>	<p><b>TP #13 TI-nspire CAX 7 (Graph application, pp. 244-260, and 3D graphs, pp. 301-311)</b></p> <p><b>TP #14 Geogebra 6 (Calculus - Lesson 9 of Stols)</b></p> <p>Limits, Math of Change, and</p>	<p>Big ideas and instructional approaches; I, M, O, U, A</p>	<p><a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwcalculus.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwcalculus.pdf</a></p> <p><a href="https://secure-media.collegeboard.org/digitalServices/pdf/ap/a-p-calculus-ab-and-bc-course-and-exam-">https://secure-media.collegeboard.org/digitalServices/pdf/ap/a-p-calculus-ab-and-bc-course-and-exam-</a></p>	<p><b>Lesson Plan 1 due</b></p> <p>To read for Nov 29: O, E, I of ABC book</p>

			Area Under the Curve  <i>Task 26: Analysis of Sample AP Calculus Exam Questions</i>		description.pdf	
14	Nov 29	Analysis of Student Work  EQ14: How do I use student work to improve my instruction and student achievement? More generally, what assessment and data knowledge and literacy skills facilitate skillful math teaching and better learning for all students?  <i>TPEs: C1.1, 5, &amp; 8; C2.5, C3.1-3, 6, C4.2, 3; and C5.1-8</i>	Content-practice standards  <i>Task 27: Analysis of Algebra 1 student work</i>	Protocols for examining and analyzing student work; O, E, I	<a href="http://assist.educ.msu.edu/ASSIST/classroom/assesses_learning/index.htm">http://assist.educ.msu.edu/ASSIST/classroom/assesses_learning/index.htm</a>  Chapter 3 (Protocols for examining student work) of Easton book	<b>Lesson Plan 2 due</b>  <u>To read for Dec 6:</u> R, N, F, P, Y, Z, B of ABC book; Chapter 6 (Protocols for effective discussion) of Easton book
15	Dec 6	Orchestrating an Effective Math Classroom 2  EQ 15: How do I foster a productive learning environment that supports deep understanding of math?  <i>TPEs: C1:1, 3, 5, 7, 8; C2.1-6; C3.1-3, 5, 6; C4.2-7, C5.1-8, and C6.1, 2, and 5</i>	Content-practice standards	Classroom issues; R, N, F, P, Y, Z, B	<a href="http://www.cde.ca.gov/ci/ma/cf/documents/mathfwsupportingh-q.pdf">http://www.cde.ca.gov/ci/ma/cf/documents/mathfwsupportingh-q.pdf</a>  <a href="http://assist.educ.msu.edu/ASSIST/classroom/responds_to_students/index.htm">http://assist.educ.msu.edu/ASSIST/classroom/responds_to_students/index.htm</a>  <a href="http://assist.educ.msu.edu/ASSIST/classroom/community/indexcomm.htm">http://assist.educ.msu.edu/ASSIST/classroom/community/indexcomm.htm</a>	

					CDE monograph on effective classroom management	
<b>Final Exam</b>	<b>Dec 20</b>	<b>Lesson Plan 3 and Teaching Statement due</b>				