

**EDUC 100B – Spring 2012**  
**CAL TEACH 2 MATHEMATICS SEMINAR**  
**Wednesday 7:00 p.m. – 8:45 p.m.**  
**Thimann Labs 391**

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<http://calteach.ucsc.edu/courses/VivianMoutafian.html>

**COURSE DESCRIPTION:**

This course is open only to students in the Cal Teach Program. In this quarter, students continue to write and share classroom observations, plan lessons, and discuss readings in mathematics education. The purpose of the course is to deepen the internship experience by providing opportunities to explore the content standards, multiple strategies for teaching and learning, and classroom management. Students prepare and teach a lesson as their final project for the course. The focus is on issues in teaching mathematics. In particular we will explore and practice the following:

- Strategies that promote active engagement of all students
- Questioning techniques that discourage “blurring” and ensure participation by all
- Providing a forum for increased mathematical discourse among students
- Using multiple representations of problems to deepen understanding
- Providing access to all, including English Language Learners and students with special needs

**COURSE GRADING POLICY**

**1. Attendance and Participation in Seminar:**

15% Attendance/Involvement in Seminar

15% Mini-lesson

20% Written summary and reflection on readings (due at each seminar meeting)

**2. Observations and Reflections:**

15% Classroom observations, with written reflections (due at each seminar meeting)

**3. Active Participation in the Observation Classroom:**

15% Determined by Classroom Activities Log entries and host teacher evaluation

**4. Content Standard Planning/Teaching Project:**

20% See description on the following page.

## COURSE REQUIREMENTS:

### 1. Attendance and Participation in Seminar:

- Attend weekly seminar meetings.
- Complete assigned readings.
- Write a short summary and your reflections on the readings. These must be prepared before class begins. I will use UCSC's writing rubric to evaluate your work.
- Participate fully in class discussions of the readings.
- Participate fully in class activities. We will continue your CaT 1 tradition of student presentations of mini-lessons each week, beginning in Week 2 and continuing through Week 9. **Use the mini-lesson to try out some of the techniques or strategies you've learned.**

As this is a seminar, **attendance of all students is essential**. Please contact me if you must miss a seminar.

### 2. Observations and Reflections:

- Conduct observations in placements arranged by Cal Teach coordinators. You must complete 27 hours of observations during the quarter. At least once each week make a written record of your observation followed by a short reflection. Please include the date, the school, course name and grade level of the class observed. In addition, number your observation. Eight observations are required. They are to be turned in weekly.

### 3. Active Participation in the Observation Classroom:

- Get involved in the observation classroom early in the quarter. Talk with your host teacher and consider the following options to help you to get to know the students and to enhance your experience in the classroom:
  - Ask your host teacher for a seating chart.
  - Work with students individually who may need extra help.
  - Work with small groups of students.
  - Lead a warm-up activity.
- Update the Classroom Activities Log after each classroom visit.

Note: Your last day for work in the classroom will vary by district. Check with your host teacher to be sure of the date that applies to you. You should, in any case, be finished with observations and have your **paperwork turned in by June 8**. Any extension of that date would require prior approval by Patrick Kent. As our last class meeting is June 6, I will appreciate your effort to turn in your paperwork by that date.

### 4. Planning/Teaching Final Project:

A requirement for CaT 2 interns is that you actually teach a class! You will coordinate with your host teacher to plan and teach a lesson. You will find the rubric for how I will score your project on my website. You will also find a form called "Host Teacher Evaluation of Intern Lesson" on the website. Give this to the teacher before you present your lesson.

- Meet with your host teacher to decide on a lesson.
- Create a lesson plan with specific objectives. Incorporate some of the strategies you will learn this quarter.
- In your plan, note how you will check for understanding as the lesson progresses.
- Create a worksheet or activity for use during the lesson. This may be a group assignment.
- Create an **individual** assessment to determine how well each student has met the objectives. This may be given at the end of the lesson or on a subsequent day. It need not be long, but should clearly address the objectives of the lesson.
- Compile and analyze the results of student performance on the assessment.
- Submit a written report that includes the components listed above, as well as your host teacher's written comments.

**Week No.      REQUIRED READINGS/BIBLIOGRAPHY (see website if direct link is not provided).**

**1.** The “Rule of Four”.

Cleaves, Wendy Pelletier (Vol. 13, No. 8, April 2008). “Promoting Mathematics Accessibility through Multiple Representations...Jigsaws”. *Mathematics Teaching in the Middle School*, pp. 446 – 452.

**2.** Friedlander, Alex and Arcavi, Abraham (April, 2012) “Practicing Algebraic Skills...A Conceptual Approach” *Mathematics Teacher*, pp. 609 – 614.

**3.** *Teaching Tips to Promote Active Learning, Class Participation and Effective Teaching*, adapted from “Student Participation/Active Learning”, University of the Sciences in Philadelphia.

**4.** Lesson Design. [http://members.tripod.com/teaching\\_is\\_reaching/lesson\\_design.htm](http://members.tripod.com/teaching_is_reaching/lesson_design.htm)

Lesson Plan Template (Revised), UCSC Education Dept.

**5. Math:** Santa Cruz, Rafaela M. (January/February 2009). “Giving Voice to English Language Learners in Mathematics”, *NCTM News Bulletin*. <http://www.nctm.org/news/content.aspx?id=16895>

Santa Cruz, Rafaela M. and Sanchez-Gutierrez, Ivette (March 2009). “Supporting Writing Skills in English Language Learners”, *NCTM News Bulletin*.  
<http://www.nctm.org/news/content.aspx?id=2147483746>

Hoffert, Sharon B. (September, 2009) “Mathematics: The Universal Language?”, *Mathematics Teacher*, pp. 130-138.

**6.** Johnson, David R. (1994). “Motivating Through Good Questioning Techniques”. Chapter 2 in *Motivation Counts, Teaching Techniques That Work*. Dale Seymour Publications.

**7.** Instructional Strategies to Increase Accessibility, p.1.

<http://www2.edc.org/accessmath/resources/StrategiestoConsider.pdf>

Guiding Questions for Accessibility Strategies, p. 1

<http://www2.edc.org/accessmath/resources/GuidingQuestions.pdf>

Accessibility Strategies for Mathematics, Pp. 1 – 7.

<http://www2.edc.org/accessmath/resources/strategiestoolist.pdf>

Powell, Beth (March, 2010) “Support in the Classroom for Students with Learning Disabilities in Mathematics”. *The California Mathematics Council Communicator*, p. 32.

**8. Math:** Vazquez, Lorna Thomas (August 2008). “A, E, I, O, U and Always Y...A Simple Technique for Improving Communication and Assessment in the Mathematics Classroom”, *Mathematics Teacher*, pp. 16 – 23.

**Week 1 April 4, 2012**

**Main Topic: Using Multiple Representations to Deepen Understanding of Mathematics**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Introductions</li><li>• Discuss course syllabus, Cal Teach Intern Activity Timesheet/Log, and Writing Rubric.</li><li>• Develop Mini-Lesson Rubric</li><li>• Discuss format for Observations</li><li>• Model lesson for Rule of Four</li></ul>	<p><b>Reading #1:</b></p> <ul style="list-style-type: none"><li>• “Rule of Four”</li><li>• “Promoting Mathematics Accessibility through Multiple Representations...Jigsaws”</li></ul> <p><b>Assignment:</b> Include in your summary/reflection, your choice of a topic for which multiple representations or multiple methods might be used to deepen understanding. You may use any high school math topic. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #1:</b> Write a formal observation for 30 minutes. Then write your general reflections. Also note the physical attributes of the classroom and the general atmosphere of the class. How does the teacher relate to the students? Are the interactions formal or informal? Are there cooperative activities or does this seem to a lecture class. What are your impressions of the teacher’s style?</p>

**Week 2 April 11, 2012**

**Main Topic: Common Core State Standards – Helping Students To Develop Expertise and Deep Understanding in Mathematics**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Discuss Reading #1 and your observations</li><li>• Student Mini-Lessons</li><li>• Class Activity: Discussion of Common Core Standards for Mathematical Practice and Content</li></ul>	<p><b>Reading #2:</b> <i>Practicing Algebraic Skills...A Conceptual Approach</i></p> <p><b>Assignment:</b> Reflect on how the nine processes discussed in the article and the examples of given are consistent with the Common Core Standards for Mathematical Practice. Specifically, which of the standards for mathematical practice are addressed? The Writing Rubric will be used to grade your assignment.</p> <p>Refer to pp. 6-8 of the Common Core State Standards for Mathematical Practice in the website given below. <a href="http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf">http://www.corestandards.org/assets/CCSSI_Math%20Standards.pdf</a></p> <p><b>Observation #2:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 3 April 18, 2012**

**Main Topic: Increasing Student Engagement and Active Participation**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Discuss Reading #2 and your observations</li><li>• Guest speaker, Judith Montgomery, MBAMP</li><li>• Student Mini-Lesson (using one or more techniques from the readings or discussions).</li></ul>	<p><b>Reading #3:</b> <i>Teaching Tips to Promote Active Learning, Class Participation and Effective Teaching</i></p> <p><b>Assignment:</b> Describe 3 of the 43 suggested teaching tips and discuss how you might apply these in a math classroom and/or why you think they would be helpful. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #3:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 4 April 25, 2012**

**Main Topic: Lesson Planning/Design**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Discuss Reading #3 and your observations</li><li>• Student Mini-Lessons (using one or more techniques from the readings or discussions).</li><li>• Class Activity: Collaborative Lesson Planning</li></ul>	<p><b>Reading #4:</b> <i>Lesson Design</i></p> <p><b>Assignment:</b> Use the Lesson Plan Template (Revised) (online), to prepare a draft of your lesson plan. Include strategies or teaching tips that you have learned in the readings.</p> <p><b>Assignment:</b> Write a summary/reflection of your reading. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #4:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 5 May 2, 2012**

**Main Topic: Activities Designed to Build Language Skills of English Language Learners (ELL's)**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Discuss Reading #4 and your observations</li><li>• Student Mini-Lessons (using one or more techniques from the readings or discussions)</li><li>• Class Activity: Collaborative Lesson Planning</li></ul>	<p><b>Reading #5:</b></p> <ul style="list-style-type: none"><li>• “<i>Giving Voice to ELLs in Mathematics</i>”(online)</li><li>• “<i>Supporting Writing Skills in ELLs</i>”(online)</li><li>• <i>Mathematics: the Universal Language?</i></li></ul> <p><b>Assignment:</b> Summarize and reflect on the reading. Choose a strategy presented in your reading and show how you could apply in teaching a standard from the class in which you are interning. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #5:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 6 May 9, 2012**

**Main Topic: Questioning Techniques**

<b>IN CLASS</b>	<b>OUTSIDE CLASS</b> <b>Preparation for next meeting</b>
<ul style="list-style-type: none"><li>• Discuss Reading #5 and your observations</li><li>• Student Mini-Lessons (using one or more techniques from the readings or discussions).</li><li>• Class Activity: Try the authors’ (Santa Cruz and Sanchez-Gutierrez) suggested strategies for supporting ELL students</li></ul>	<p><b>Reading #6:</b> <i>“Motivating Through Good Questioning Techniques”</i></p> <p><b>Assignment:</b> Write a summary/reflection of your reading. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #6</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 7 May 16, 2012**

**Main Topic: Equity: Meeting the Needs of ALL Students...Culturally Diverse, Special Ed, ADD, ADHD, Dyslexic, Other?**

IN CLASS	OUTSIDE CLASS Preparation for next meeting
<ul style="list-style-type: none"> <li>• Discuss Reading #6 and your observations</li> <li>• Student Mini-Lessons (using one or more techniques from the readings or discussions).</li> <li>•</li> </ul>	<p><b>Reading #7:</b></p> <ul style="list-style-type: none"> <li>• <i>Instructional Strategies to Increase Accessibility</i>, (online)</li> <li>• <i>Guiding Questions for Accessibility Strategies</i> (online)</li> <li>• <i>Accessibility Strategies for Mathematics</i> (online)</li> <li>• <i>Support in the Classroom for Students with Learning Disabilities in Mathematics</i> (online)</li> </ul> <p><b>Assignment:</b> Revise your lesson plan to include at least one of the strategies to increase accessibility for all students.</p> <p><b>Observation #7:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 8 May 23, 2012**

**Main Topic: Improving Communication and Assessment**

IN CLASS	OUTSIDE CLASS Preparation for next meeting
<ul style="list-style-type: none"> <li>• Discuss Reading #7 and your observations</li> <li>• Student Mini-Lessons (using one or more techniques from the readings or discussions).</li> </ul>	<p><b>Reading #8:</b> <i>"A, E, I, O, U and Always Y...A Simple Technique for Improving Communication and Assessment in the Mathematics Classroom"</i></p> <p><b>Assignment:</b> Write a summary/reflection of your reading. The writing rubric will be used to grade your assignment.</p> <p><b>Observation #8:</b> Write a formal observation for 30 minutes. Then write your general reflections.</p>

**Week 9 May 30, 2012**

**Main Topic: Common Core Standards**

IN CLASS	OUTSIDE CLASS Preparation for next meeting
<ul style="list-style-type: none"> <li>• Discuss Reading #8 and your observations</li> <li>• Student Mini-Lessons (using one or more techniques from the readings or discussions).</li> <li>• Class Activity: CST Released Items (Connect to Standards)</li> <li>• Begin Content Standard Planning/Teaching Project Presentations</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Finish Planning/Teaching Final Project</b></li> </ul>

**Week 10 June 6, 2012**

**Main Topic: Content Standard Lesson Presentations**

IN CLASS	
<ul style="list-style-type: none"> <li>• Content Standard Lesson Planning/Teaching Project Presentations</li> </ul>	<p><b>* Turn in Planning/Teaching Final Project</b></p>

