EDUC 100C Cal Teach 2 Science/Math Seminar

EDUC 100C - WINTER 2016
CAL TEACH 2 SCIENCE/MATH SEMINAR
Thursday 6:00 to 7:45 p.m.

Course Instructor: Sarah Baumgart
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Office Hours: Thursday before or after class
Web page: http://calteach.ucsc.edu/courses/Sarah.html (readings & handouts)

Course description
This seminar is a continuation of Cal Teach1, and is open to students enrolled in the Cal Teach program. The goals of Cal Teach 2 are to get you thinking critically about how you will teach, planning how you will teach, and finally designing a lesson, which you will teach in your host classroom. How does a good teacher impart knowledge? We will discuss this question through various perspectives, and help you better define yourself as a teacher.

Course requirements

1. Attend all seminars, complete all assignments, and participate in discussions. Please contact me ahead of time if you must miss a seminar. Three absences will cause you to be dropped from the program. More than one absence will lower your grade. Participation in seminar is expected where you are engaged in discussions with your peers and instructor, using electronic devices during seminar is not participatory and the instructor will ask you to remove it. You will be teaching a mini-lesson. **The mini-lesson should teach a simple topic in 10 minutes.** This lesson should have a "hook" in the introduction, contain direct instruction, check for understanding and independent practice, followed by closure. **Presented Weeks 4-6.**

2. Written Observations (5) based on a different aspect of good teaching as observed in your host classroom. When not directly stated in the assignment, choose a focus for the observation, we will brainstorm a list in the first seminar. You will record what the teacher says and what the students do for 30 minutes, then include your reflection (for example: is this how you would have taught that concept or dealt with that student, etc.), and make connections between what you observe and what we talk about in seminar. In addition, include any classroom involvement. Examples include: working with students individually or in small groups, leading or designing a review activity, introducing a lab or activity, grading an assignment, and so on working up to teaching the whole class. Please **print** these observations and give them to me at seminar. **If late they will be scored down by 25%.** Use the format for the observation that is attached.

3. Four short papers (1-2 pages long is typical) based on your thoughts from the readings and the specific assignments connected to them. Please **print** and give to me at seminar. **Late papers are marked down 25%.**

4. Design a draft lesson (2-11), a final lesson (3-3) and teach it (presented Weeks 8-10). You and your host teacher will collaborate on the content and scheduling**. (Discuss and arrange this ASAP!) Include in this lesson one or more vocabulary activities and make sure this lesson has active student participation, checks for understanding and an assessment**. This lesson must **not** be only lecture based. Your grade on this project will be determined by your adherence to the project-grading rubric, included with the sample lesson plan template. You will introduce your lesson and are encouraged to "hook us" during your 10 minute presentation and then give any student handouts created and an overview/outline of the lesson.

Course Grading Policy

1. **Attendance and Participation in Seminar:**
   10% Attendance/Involvement in Seminar
   10% Mini-lesson completed
   20% Written summary and reflection on readings. (4)
2. **Observations and Reflections of Internship Classroom:**
   25% Classroom Observations with written reflections. (5)
3. **Content Standard Planning and Teaching Project:**
   35% Final Lesson Plan and Reflection

Readings in alphabetical order

1. Cleaves, Wendy Pelletier (2008) "Promoting Mathematics Accessibility through Multiple Representations...Jigsaws". Mathematics Teaching in the Middle School, April 2008

2. Griffiths, P. (2000) "How a teacher can influence a whole life", The New York Times 9/3/00

3. Hoffert, Sharon B. (2009) "Mathematics: The Universal Language", Mathematics Teacher, September 2008

4. Krajcik, J. and Merritt, J. (2012) " Engaging Students in Scientific Practices: What does constructing and revising models look like in the science classroom?" The Science Teacher, NSTA March 2012

5. Marzano, R. (2003). Rules and procedures. Classroom Management that Works. Association for Supervision and Curriculum Development, Alexandria, VA

6. Marzano, R. (2004). Direct vocabulary instruction: An idea whose time has come. *Closing the Achievement Gap*. Belinda Williams, (ed.). Association for Supervision and Curriculum Development, Alexandria, VA

7. McDonnough J and Cho, S (2011) "Making the Connection; Practical Techniques for Accommodating English Language Learners in the science classroom" *The Science Teacher, NSTA,* March 2009

8. Perfors, A. (2008) "Another classroom demo: The scientific method." *California Journal of Science Education,* Vol. VIII, Issue 2 (Spring, 2008)

9. Rosenshine, Barak (2010) "Principles of Instruction: Research-Based Strategies That All Teachers Should Know", *American Educator,* Vol.36, No. 1 Spring 2012. Online available http://www.aft.org/pdfs/americaneducator/spring2012/Rosenshine.pdf 4/1/12

10. Ross Terrance F (2014) "How Black Students Tend to Learn Science", *The Atlantic,* December 2014. Online available. http://www.theatlantic.com/education/archive/2014/12/how-black-students-tend-to-learn-science/383387/?single_page=true

11. Santa Cruz, Rafalela M. (January/February 2009) "giving Voice to English Language Learners in Mathematics", **NCTM *News Bulletin.*** http://www.nctm.org/news/content.aspx?id=16895

12. Santa Cruz, Rafalela 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

13. Lesson Design. http://members.tripod.com/teaching_is_reaching/lesson_design.htm

14. The "Rule of Four"

15. Teaching Tips to Promote Active Learning, Class Participation and Effective Teaching, adapted from "Student Participation/Active Learning", University of the Sciences in Philadelphia.

Schedule of class meetings

IN CLASS	**OUTSIDE CLASS: Prep for next meeting**
Week 1 – January 7th Introductions Discuss course syllabus, Cal Teach Intern Activity timesheet/log, writing rubric and Host Teacher Evaluation. Discuss format for observational paper; includes 30 minutes of formal observation (teacher did, students did) followed by a reflection of what you thought about the lesson and how you focused your observation. Brain-storm topics for observation Distribute Reading #1 Distribute Mini-Lesson Rubric for peer grading	**Reading #1:** *"How a teacher can influence a whole life"* *"Another classroom demo: The Scientific Method"* **Observation #1**: Write a formal observation for 30 minutes. Then write your general reflections. Focus on the physical attributes of the classroom along with the general atmosphere of the class. How does the teacher relate to the students? Are interactions formal or informal? Are there cooperative activities or does this seem a lecture class? What are your impressions of the teacher's style? **If you are not in the classroom yet, consider doing next weeks assignment to pace yourself!**
Week 2 – January 14 Discuss Reading #1 and your classroom observations. Collect observations and reflections. Class Discussion of Common Core Standards for Mathematical Practice and Content & discussion of Next Generation Science Standards. Brainstorming for student mini-lessons: using a simple math or science standard, work in a group of three to four to plan a unique10 minute lesson using some of the practices of active learning. Review mini-lesson Rubric. Adjust if necessary. **Sign up for mini-lessons week 4-6**	**Reading #2:** NGSS Performance Expectations and pp 6-8 of Common Core State Standards for Mathematical Practice. Links available on my website. "Rules and Procedures" "Teaching tips to promote Active Learning, Class Participation and Effective Teaching" **Assignment #1: Part 1** Describe the difference between classroom rules and classroom procedures. Then choose 3 of the 6 general categories as described in depth under the section Action Step one and describe how you might incorporate these in your future classroom or even in your observational classroom now. **Part 2** Describe 3 of the 43 suggested teaching tips and discuss how you might apply these in a math or science classroom and how you think they would be helpful in increasing student achievement. The writing rubric will be used to grade your assignment.
Week 3 – January 21 Discuss reading #2 and your observations then collect papers. Work in a different group of 3 to 4 students to create a mini lesson using a math or science standard. Sign up for mini-lessons next 2-3 classes. Instructor models lesson for active participation.	**Reading #3** *"Direct Vocabulary instruction"* -Science *"Rule of Four"* - both *" Promoting Mathematical Accessibility through Multiple Representations...Jigsaws"* – Math **Observation #2:** Write a formal observation for 30 minutes. Choose a focus from the brainstorm list. Then write your general reflections.

Week 4 – January 28 Discuss reading #3, observations, and collect observations. ~ 6 Student Mini-lessons (using one or more techniques from the readings or discussions)	**Reading #4** *"Principles of Instruction"* *"How Black Students Tend to Learn Science"* **Assignment #2 Part1** Chose at least 5 of the 10-17 principles of effective instruction to that you can use in your mini lesson or class lesson. Describe in detail how your lesson can incorporate these. **Part 2** Write a reflection about active participation of students in STEM classes you have taken and your thoughts about the article. The writing rubric will be used to grade your assignment.
Week 5 – February 4 Discuss reading #4 and observations. ~ 6 Student Mini-lessons (continued) Review Lesson Template and Demonstration Lesson **Sign up for Lesson Presentations weeks 8-10**	**Reading #5** *Lesson Design* **Draft of Lesson** – Must be word processed! Use the lesson plan template to prepare a draft of your lesson. Include strategies and teaching tips that you have learned in the readings and class discussions. **-include student handouts even if it is a work in progress. Drafts are not graded, but are a way to give you feedback and improve the product.**
Week 6 – February 11 Discuss observations. Student Mini-lessons (completed) Class activity: Collaborative Lesson Planning and meet with instructor for clarifications and changes. Collect draft lessons	**Reading #6** *"Mathematics the Universal Language"* - Math *"Making the connection"* - Science **Assignment #3:** Summarize and reflect on the reading. Choose a strategy presented in your reading and apply it to a standard being taught in the classroom you are interning in. The writing rubric will be used to grade your assignment. **Observation #3:** Write a formal observation for 30 minutes. Then write your general reflections.
Week 7 – February 18 Discuss reading #6 and observations. Return drafts lessons Class activity: Collaborative Lesson Planning and meet with instructor for clarifications on lessons.	**Reading #7** *'Engaging Students in Scientific Practices"*-Science *"Giving Voice to ELLs in Mathematics"*-math *"Support writing skills in ELLs"* - both **Observation #4:** Write a formal observation for 30 minutes. Then write your general reflections. **Assignment #4:** Summarize and reflect on your reading. How could these same techniques serve SPED students? The writing rubric will be used to grade your assignment.
Week 8 – February 25 Discuss reading #7 and observations. Lesson Presentations (1-6)	Work on writing/revising your formal lesson plan. **Final Lesson Plans Due March 3**
Week 9 – March 3 Discuss observations. Collect lessons Plans Lesson Presentations (7-12)	**Observation #5:** Write a formal observation for 30 minutes. Then write your general reflections.
Week 10 – March 10 **Final Class – Attendance Required. Graded Lesson Plans returned to interns.** Lesson Presentations (13-18) **Any work turned in after class will be marked down by 25%.**	**All class assignments and classroom documentation (**timesheet and host teacher evaluation**) should be completed <u>and turned in by this class.</u> Please email any remaining work to me.**

Observation #1 Observe and record what the teacher and students do for 30 minutes. Focus on: the classroom set up, the atmosphere of the classroom and the relationship between the teacher and students. Then write your reflection and include any activities you participated with. **Use this format for other observations, but change your focus from our brainstorming list.**

Time	Teacher Did	Students did

Adapted from the San Francisco Unified School District

LESSON PLAN TEMPLATE

Name:		**School:**
Grade Level:	**Subject:**	**Date:**
Unit Theme/Topic:		
Lesson Title/ Topic:		
Expected Student Learning Outcomes:	What will students know and be able to do as a result of this lesson? (Be Specific)	
CA Academic Standards Addressed:	Which *California Academic Content and Performance Standards* will your lesson address?	
Materials Used:	What instructional materials and equipment/supplies will you use in this lesson?	

Lesson Outline: (Opening/Do Now/Anticipatory Set; Major Activities; Transitions, Review; Closure)

Time	***Teacher Actions***	**Student Actions**

Monitoring & Assessment:	How will you monitor student learning during the lesson? How will you assess student work?	
Modifications to Address Individual Student Learning Needs	How will you modify your instruction as needed to ensure that all students meet learning outcomes?	
Follow-up Activities/ Homework	How will you follow up this lesson with homework or other extension activities?	

Lesson Plan Grading Rubric for EDUC 100C Cal Teach 2 (Baumgart)
Winter 2016
Under the course requirements for the Cal Teach 2 class, you will find the following description of the lesson-plan component:

"Design and teach a lesson. You and your host teacher will collaborate on the content and scheduling. Include in this project one or more assessment tools that you will use after your lesson to determine how successfully you imparted new information to your students along with at least one vocabulary activity or assignment. Your grade on this project will be determined by your adherence to the project-grading rubric." Your lesson plan project is worth 35% of your quarter grade.

I have provided you a lesson-plan template. If you choose instead to create your own lesson-plan structure, I will grade you on the efficacy, content, and rationale of your lesson. In any case, practically any lesson has these elements in common: engagement, exploration, explanation, extension, and evaluation.

Grading criteria
Standards and Objectives, Resources (1-10 points)

1. Identify the key standard as written from the California Content Standards.
2. What skills and/or content do you want your students to learn from this lesson? What vocabulary words are "must know" for the lesson?
3. List the resources you will need for your lesson, such as textbooks, other readings, teacher-created materials, videos, lab equipment, manipulatives, computers, art supplies, etc. be specific and thorough.

Learning Activities, Assessment, and Resources (1-20 points)

1. Provide a detailed list of teacher and student activities that make up the lesson. Include details such as your prepared questions to promote discussion, special equipment, and extended tasks for early finishers. If any part of lesson is lecture, include power point slides or textbook pages used and any student handouts.
2. How will you engage the students at the start of the lesson? (Examples: review prior knowledge, demonstrate a real-world example, ask an open-ended question to elicit discussion, etc.)
3. Describe how you will monitor student progress (check for understanding) at key points of instruction to determine whether students are achieving your lesson objectives. Where are these key points?
4. Describe the modifications you will employ to address individual student learning needs. (ELL's or RSP students)

Reflection (1-20 points)

1. What parts of the lesson were effective in moving students toward your objectives?
2. Why do you think they were effective? What assessment tools did you use? Examples might include: direct questioning, review activities, post-lesson quiz, summation by students, etc.
3. What parts of the lesson were not effective – or were less effective – in moving students toward your objectives? How did you know this?
4. Why do you think they were less effective?
5. How will you use this reflection to inform your plan for the next lesson, or the next time you teach this particular lesson?
6. Was the lesson your design or was it your host teachers? Do you feel this lesson demonstrated the "Principles of Good Instruction" learned in this class? Explain.