



ED 267A SCIENCE CURRICULUM & INSTRUCTION

ASSIGNMENTS, ASSESSMENTS, & EXPECTATIONS

COURSE INFORMATION

276(A) Summer C & I
Location CERAS #300
Monday- Thursday 2:15 – 5:05

INSTRUCTORS' INFORMATION

LEAD INSTRUCTORS

Bryan A. Brown, Ph.D.
Office: 228 CERAS
(650) 725-4662
brbrown@stanford.edu
Office Hours: by request

Jean Lythcott Ph.D.
Office: CERAS 304
(650) 736-1801
jlythcot@stanford.edu
Office Hours:
T, W, Th. 5:30- 9:00pm

ED 267A SUMMER C & I: ASSIGNMENTS, DUE DATES, GRADING, AND EXPECTATIONS

The summer session of curriculum and instruction (ED 267A) will provide an opportunity for participants to begin to develop a understanding of the basics of instructional planning. The models for planning will help you organize larger pieces of instruction in effective ways. Taking the time both to know your students, and to restructure your own science knowledge, are necessary elements in your development as a teacher.

READINGS TAKEN FROM:

1. DeBoer, G. (1991) *A history of ideas in science education*. New York, NY: Teachers College Press.
2. *McTighe, J.; & Wiggins, G. (1999) Understanding By Design* . Alexandria, VA: Association for Supervision and Curriculum Development Press.
3. *Atkin M. (1990) Teach Science for Science's Sake; For Global Competitiveness, Try Technology Education Week, vol x(4)*
4. *The California Standards for the Teaching Profession*. Sacramento, CA: California Department of Education
5. *The California Science Content Standards and Curriculum Frameworks*: Sacramento, CA: California Department of Education



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#	ASSIGNMENTS	DUE DATE	ASSESSMENT	% OF GRADE
1	Response to Course Materials	T. 6/30/09	CREDIT/NO CREDIT	10 %
2	20-Second Story & PodCast	TH. 7/2/08	CREDIT/NO CREDIT	10 %
3	Pre-Assessment: Design, Deliver & Analyze Data	T. 7/6/08	CREDIT/NO CREDIT	10%
4A	Instruct & Analyze: <i>Instruct</i>	T. 7/6/09	CREDIT/NO CREDIT	5 %
4B	Instruct & Analyze: <i>Analyze</i>	W. 7/7/09	CREDIT/NO CREDIT	5 %
5	Personal Science Text	TH. 7/8/09	CREDIT/NO CREDIT	15%
6	Letter Writing Task	F. 7/9/08	CREDIT/NO CREDIT	10%
7	Final Product Planning	SUN 7/11/09 (2:00PM)	RUBRIC	35%

DESCRIPTION OF INDIVIDUAL ASSIGNMENTS

ASSIGNMENT # 1: A WRITTEN RESPONSE TO THE ED 267A COURSE MATERIALS: DESCRIPTION, SYLLABUS AND ASSIGNMENTS

After the first class, you are asked to write a two-page (double-spaced) paper that provides a response to the course materials. In this response, you might provide your general reflections on the course design. You may also want to comment on what surprises or puzzles you about the design of the course. You may consider asking questions about what you may want further information about or are not crystal clear about the expectations of the course. This might include your comments regarding what feels satisfying or disconcerting, or the extent to which it works. Additionally, you may note where your expectations of what you anticipated learning in C & I will be met or not. This will be collected at the beginning of class on Tuesday June 30, 2009.

DUE DATE: This assignment is due by 2:15 on Tuesday June 30, 2009.

GRADE: C/NC -- 10%

ASSIGNMENT # 2: A 20-SECOND STORY + A PODCAST VERSION OF IT

You will write a 20-second story for your learning segment. You will create a videotape of you narrating this 20-Second story that will be hosted on the course website. This video can be turned *in* on a CD, DVD, or by using a Memory Stick. Additionally, you will have 10 people visit the site and comment on your 20-second story using the web survey that will be connected to your podcast. We will use these responses as a component of our class in the days after the assignment is submitted. This assignment must be turned into Dr. Brown by 2:15 on Thursday July 2, 2009.

DUE DATE: The video is Due by 2:15 on Thursday July 2, 2009.

GRADE: C/NC, 10%



ASSIGNMENT # 3 : PRE-ASSESSMENT - DESIGN, DELIVER, & ANALYZE DATA

DESIGN & DELIVER

You will develop a pre-assessment item designed to provide valuable information about ‘who’ your students at *Cabrillo Summer* Middle School are. This pre-assessment will be designed to identify two types of things about your students:

a) Background Information: Who are your students as people outside school, what are their strengths, loves, hopes, dreams, fears, accomplishments, etc.?

Candidates should talk with their mentor (*on Day Two of summer school*) about scheduling about 20 minutes of time to administer this pre-assessment.

ANALYZING THE RESULTS

After you have developed the pre-assessment, you will use it with your students during the first week of our course (*please negotiate the exact time & date with your cooperating teacher*). These instruments are designed to provide valuable information about individual students in the Cabrillo Middle School. In order to make it useful, however, you will have to collect their responses both for analysis and for use. This assignment it to collect the following materials and analyze them:

- The pre-assessment “instrument” as amended and given at school,
- The set of student responses you collected (copies or originals are acceptable)
- An analysis of what you have learned from reviewing the students’ responses to the pre-assessment. This should include:
 - i. An overview of the most common types of responses
 - ii. An indication of where these types of response might come from
 - iii. A description of how you can use the variety of responses provided by students as a resource to support their learning.
 - iv. A description of how you might be able to use the information you have gained to connect your students to the planned curriculum, and help them to succeed in the class.
 - v. What strengths do you note in your students’ responses that could be used as a resource for your teaching?

DUE DATE: This assessment assignment is due by 2:15 on Tuesday July 6, 2009.

GRADE: C/NC -- 10%

ASSIGNMENT #4 A: INSTRUCT AND ANALYZE - INSTRUCT

Instruct



Although effective instruction involves more than standing in front of students and telling them what you would like them to know, direct instruction does have a place in educating young people. This assignment involves an opportunity for you to teach your C&I Peers. In groups of 4, you will be assigned to teach a number of chapters from George DeBoer's (1991) text *A History of Ideas in Science Education: Implications for Practice*. After reading your assigned chapters, you will work with your group to design a 20-minute learning segment to teach your C&I classmates about the key ideas from the chapters you read. We will want to know that you understood the key issues in the reading, and you will want to know the extent to which your peers understood those ideas. We will videotape this instructional episode for you to use for an analysis activity. Each member of your group should play an equal role in the design and execution of this activity.

DUE DATES: Each of the groups will teach their lesson, in chronological order, on Tuesday July 6, 2009.

GRADE: C/NC. 10% Points will be assigned for completion of both tasks.

ASSIGNMENT #4 B: INSTRUCT AND ANALYZE - ANALYZE

Analyze

To assess the effectiveness of your instruction, you will work in your group to watch the video of your teaching. You will use an analysis template hosted on the course website (<http://stepscience.stanford.edu>) to analyze the video of your teaching.

DUE DATES: The analysis form is due in class by 2:15pm on Wednesday July 7, 2009.

GRADE: C/NC. 10% Points will be assigned for completion of both tasks.

ASSIGNMENT #5: PERSONAL SCIENCE TEXT

Although text books provide the primary source of science text-based content for students, teachers often rely on a variety of resources to gain a richer understanding of the science content being taught. Teachers transform their content knowledge for teaching, extending it to incorporate pedagogical content knowledge. As an exercise to transform your science content understanding in this way, you will write a "Personal Science Text." This text is a written description of all of the science concepts and ideas that are associated with the concept you are teaching. Ideally, this text could serve as the primary source of academic content for the teacher. It will include all of the science ideas in a coherent and detailed fashion that will ultimately serve as a resource for the teacher as they plan to teach the content.

Part #1: Science Language Text for Teacher

DUE DATES: This is due in class by 2:15pm on Thursday July 8, 2009.

GRADE: C/NC. 15% Points will be assigned for completion of both tasks.



ASSIGNMENT # 6: LETTER WRITING TASK

We will read 3 additional articles along with the reading we will do for the Instruct and Analysis task. Those readings include:

1. Atkin, M. (1990). Teach Sciences for Science’s Sake; For Global Competitiveness, Try Technology.
2. Olson, S. (1998, Sept. 30). Science Friction. Education Weekly.
3. Manzo, K. (1997) Scientists Protest Exclusion From Standards Writing. Education Weekly. November 26, 1997.

Since California is in process of reconstructing it’s Science Content Standards, you will use the content of these articles to help you write a short, crisp letter to State Superintendent of School Jack O’Connell. In that letter you will make specific recommendations about the following: (a) Who should decide what science gets taught in schools? (b) What concepts and key ideas should be taught in high schools, using one high school science course, as an example? (c) Why every California citizen-to-be should learn science?, and (d) How your suggestions will help the students and the State of California. This letter should be between 2-5 pages double-spaced and should be directly written to the State Superintendent.

DUE DATES: This is due in class by 2:15pm on Friday July 9, 2009.
GRADE: C/NC. 10% Points will be assigned for completion of both tasks.

ASSIGNMENT #7 FINAL PRODUCT OF THE COURSE:

We will together construct the first two parts of a plan for a learning segment, to span several lessons, for some typical ninth graders about “air”. We chose ‘air’ as a phenomenon that is connected to all three science disciplines, biology, chemistry and physics. We will be using the principles of “Backward Planning” as described in *Understanding by Design*, the course text. These beginning parts of a plan for a learning segment will be the start of a template for developing a “curriculum unit” that you will use for classroom instruction with your science students from here on.

You will work on drafts of the pieces of this assignment in class, using us as resources, as well as at home. The pieces of the plan that you make will grow and develop to a final copy as you apply both feedback from us and new understandings as the course unfolds.

(note) We expect and intend you to come and talk to us about it, and we also expect that you will need to revise your work from feedback that you receive from us as the course goes along. We hold both these expectations if you are to push and promote your own progress in becoming a teacher. These expectations, then, are to support you in that progress.



PART 1: WHAT YOU WANT THE STUDENTS TO COME TO UNDERSTAND

To structure what you want the students to come to understand about osmosis you will complete 4 pieces:

1. Some **results** from the use of **the pre-assessment probe**.
2. The **Rationales** for teaching this topic and why high school students might want to learn it.
3. A written **“20 second story”** about the concept of “Air”
4. A written **Science Text for Teachers**
5. Your **Goals for Understanding** written in both scientific vocabulary and ordinary, everyday language. These goals will be a set of small paragraphs that represent an unfolding of understanding about “Air”, in which the results of the pre-assessment are addressed, and that include some arguments from evidence that support why we trust the explanation of science for some real world phenomenon.

Details about each of these components of the plan are provided below.

PART 2: WHAT THE STUDENTS WILL DO TO DEMONSTRATE AND ARTICULATE THAT THEY DO HAVE THAT UNDERSTANDING IN THE END.

To decide what they will do to demonstrate and articulate that they have, in fact, built the understanding you intended in the end, you will create two pieces of work:

5. A summative assessment task that students would do, in class, to demonstrate and articulate their understandings of what you intended for them.
6. A rubric method of assessing the evidence of understanding provided by the completion of that summative assessment task.

DUE DATE: This completed assignment with all parts and versions is due no later than Sat. July 12 at 4.30pm

GRADE: This project earns 35% of the quarter’s grade. A 7-item rubric is provided, with the expectation and intention that you will reach levels 2 or 3 on each item. 35% means that your work reached that level of achievement. Any Level One rating will cause a 5.5% reduction.



CALENDAR

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
29	30 DUE: Assignment #1	1	2 DUE: Assignment #2 <i>(draft science statement due)</i>	3 NO CLASS	4 NO CLASS
5 NO CLASS	6 DUE: Assignment #3 DUE: Assignment #4a	7 DUE: Assignment #4b	8 DUE: Assignment #5	9 DUE: Assignment #6	10 NO CLASS DUE:



IMPORTANT REFERENCES

DESCRIPTION	WEB LINK
The California Science Education Standards	http://www.cde.ca.gov/be/st/ss/scmain.asp
The California Curriculum Frameworks	http://www.cde.ca.gov/ci/cr/cf/documents/scienceframework.pdf
The National Science Education Standards	http://www.nap.edu/readingroom/books/nses/
Inquiry and the National Science Education Standards: A Guide for Teaching and Learning.	http://www.nap.edu/books/0309064767/html/
Knowing What Students Know: The Science and Design of Educational Assessment	http://www.nap.edu/books/0309072727/html/
Virtual Labs & Simulations	http://www.hazelwood.k12.mo.us/~grichert/sciweb/applets.html
Lesson Plan Exchanges	http://www.teachers.net/cgi-bin/lessons/sort.cgi?searchterm=Science
How Students Learn: Science in the classroom	http://www.nap.edu/catalog/11102.html



