

Instructor: John Czworkowski, Ph.D.
Office: 2258 Urey Hall
E-mail: jczworkowski@ucsd.edu (or better: use WebCT e-mail)
Telephone: 858/822-6665
Office hours: After class, or by appointment
Course website: <http://webct.ucsd.edu>

Course description and goals:

Spring 2010: WF 3:00p-4:50p, 3211 Natural Sciences Building.

The aim of this course is to strengthen students' ability to teach science subject-matter, by deepening their understanding of the nature of science, the process of scientific inquiry, and fundamental science concepts. The course will also include implicit and explicit treatment of research in science learning and pedagogy, and examination of various science curriculum materials and teaching tools. The course will also include a selection of special lectures and demonstrations on several important topics at the forefront of science education. The regular group work and class presentations during the course will be important opportunities for teaching practice.

Course materials:

1. A simple scientific calculator (may be needed during class)
2. Access to WebCT (to post homework, etc.)
3. A notebook/laptop computer (optional, for occasional use with advance notice)

Readings will be selected from National Academy Press publications and other sources, including the following:

- Perspectives on Science Learning (2002): Anderson, GW, in: *Handbook of research on science education*
- National Science Education Standards (1996): NAP
- Benchmarks for Science Literacy – On-line: Project 2061, American Association for the Advancement of Science

Evaluation: Students will be evaluated on the basis of in-class assignments, homework assignments, the end-of-quarter research paper, and a final exam. Regular attendance and participation is essential for success in the course; absence and late arrival/early departure from class will affect the student's grade. The weighting of the bases for evaluation is as follows:

In-class work:	30%
Homework:	30%
Research report:	20%
Final exam:	20%

The **research report** will investigate a question addressed in at least two articles in the education research literature, and includes a presentation. More details on the report will be discussed in separate handouts.

Academic integrity is the foundation of a university. A core guideline of academic integrity for students is summed up in the following statement: *No student shall engage in any activity that involves attempting to receive a grade by means other than honest effort.* For details on the responsibilities of students with regard to academic integrity, and the manner in which cases of dishonesty may be handled, please review the UCSD Policy on Integrity of Scholarship at this web page:

<http://www-senate.ucsd.edu/manual/appendices/app2.htm>

- University guidelines require that an instructor report any suspected violation of academic integrity, such as cheating on an exam or plagiarism on an assignment.
- Any student found guilty of cheating on any assignment or exam in this course will receive a grade of F for the course.

Approximate course schedule (likely to change; will be updated on WebCT)

Week	Wednesday	Friday
1	Introduction to the course	Conceptual learning
2	Perspectives on science learning	Special lecture (Library resources for science education)
3	Evaluating and creating scientific arguments	Evaluating and creating scientific arguments
4	Models of scientific inquiry Research report milestone	Problems in science inquiry
5	Problems in life science	Problems in life science
6	Problems in physical science	Problems in physical science
7	Special lecture (chemistry)	Special lecture (scientific literacy)
8	Special demonstration (computer multimedia)	Special demonstration (biotechnology)
9	<i>Student reports & presentations</i>	<i>Student reports & presentations</i>
10	<i>Student reports & presentations</i>	<i>Student reports & presentations</i>