

Instructor: John Czworkowski, Ph.D.
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Office hours: Wednesday 2:00–3:50 pm or by appointment
Course website: <http://webct.ucsd.edu>

Course description:

In this course, we will consider the following questions:

- How does research on human learning translate into practice in the science classroom?
- What are the recent innovations in science instruction that are grounded in research results?
- What kinds of preconceptions do students have about the natural world? How can instructional approaches build new scientific knowledge upon that foundation?
- What is the role of the teacher of science in the classroom? What do science teachers need to do their jobs properly?
- What is unique about science as subject-matter?

Participants in the course will have an opportunity to examine their own understandings about science; they will experience some approaches to instruction that depart from tradition; and they will carry out practice exercises in teaching with their peers in the course. We will expect a productive interplay between this course and the experiences gained in the Practicum in Mathematics & Science Teaching/Learning (EDS 39).

Course materials:

1. Principal readings from *How People Learn: Brain, Mind, Experience, and School: Expanded Edition* (2000). <http://orsted.nap.edu/books/0309070368/html>
2. Access to the WeTeach website
3. Additional readings and activities to be distributed during the quarter

Evaluation: Students will be evaluated on the basis of weekly homework assignments, classroom participation, an end-of-quarter in-class presentation, and the final exam. The relative weight of each of these components is as follows:

Homework:	25%
Participation:	25%
Presentation:	25%
Final exam:	25%

Homework: Homework assignments will consist of written analyses, summaries, reflections, and questions based on the assigned readings, classroom discussions, and classroom activities. Students will post their homework assignments to the WeTeach on-line system.

Academic integrity: *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, review the UCSD Policy on Integrity of Scholarship:

<http://www-senate.ucsd.edu/manual/appendices/app2.htm#AP14>

Course schedule:

Tuesday	Reading assignments and in-class activities
<u>Apr 3</u> HPL*: pp. 3–28	In class: an alternative approach to teaching science Read Ch 1: Learning: From Speculation to Science
<u>Apr 10</u> HPL: pp. 29–78	Read Ch 2: How Experts Differ from Novices Read Ch 3: Learning and Transfer
<u>Apr 17</u> HPL: pp. 79–113	Read Ch 4: How Children Learn
<u>Apr 24</u> HPL: pp. 114–154	Read Ch 5: Mind and Brain Read Ch 6: The Design of Learning Environments
<u>May 1</u> HPL: pp. 155–189	Read Ch 7: Effective Teaching: Examples in History, Mathematics, and Science
<u>May 8</u> HPL: pp. 190–205	Read Ch 8: Teacher Learning
<u>May 15</u> HPL: pp. 206–230	Read Ch 9: Technology to Support Learning
<u>May 22</u>	Supplementary reading assignment
<u>May 29</u>	In class: presentations/instructional activities
<u>Jun 5</u>	In class: presentations/instructional activities

* HPL = How People Learn: Brain, Mind, Experience, and School: Expanded Edition (2000)