

Syllabus: CHEM 87.
Teaching Science: The Challenge

Winter 2011
Freshman Seminar

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Office hours: Wednesday 2:30–3:45 pm

Class meetings:

Tuesdays: January 11 & 25; February 1, 8, 15, & 22.
11:00 am – 12:20 pm
3211 Natural Sciences Building

Course description: This seminar will expose students to some of the issues involved in learning and teaching science. Questions addressed by the course include the following:

- Is knowing science more important now than ever before?
- What are students expected to know in science? Are many students unable or unwilling to learn science? What are the standards for learning? How is learning assessed and measured?
- How do students learn science? How is it taught? How can instruction in science be improved? Can and should science be made an interesting and engaging subject for all students?
- What is like to be a science teacher?

Course resources:

- *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academy Press, 2005
- *How Students Learn: Science in the Classroom*, National Academy Press, 2005
- *National Science Education Standards*, National Academy Press, 1996
- *Science Content Standards for California Public Schools* (adopted 1998), California Department of Education (www.cde.ca.gov)
- Additional readings and activities

Approximate course schedule:

Week	Tuesday	Topics
2	<u>Jan 11</u>	Introduction to the course and to the California Teach Program The drive for improvement in science education
4	<u>Jan 25</u>	Goals, standards, and assessments for science education
5	<u>Feb 1</u>	Issues important to learning science: preconceptions and misconceptions, conceptual frameworks, metcognition, multiple representations, etc.
6	<u>Feb 8</u>	National and international comparisons of performance in science
7	<u>Feb 15</u>	Observing science classroom practices
8	<u>Feb 22</u>	Additional issues in science learning