

## Careers in Science and Math Education - NASC 192L

Winter 2019

Wednesdays 9:10 – 10:00 am

Location: Chemical Sciences Skye Hall 170

Instructor: Dr. Jack Eichler, CS 220, [jack.eichler@ucr.edu](mailto:jack.eichler@ucr.edu)

**Course Goals:** The broader goals of the field work are three-fold: 1) Provide for you a chance to see how classroom discussion/student discourse can be used to foster conceptual understanding; 2) help you develop a lecture tutorial activity that can be used to foster conceptual understanding in a topic of your choice; and 3) give you a chance to implement the lecture tutorial in a real classroom setting.

### Course Schedule:

- Jan 9                    Introductions, course goals, and objectives  
Activity: Class discussion - Most effective teaching practices previously observed  
Assignment 1: Document how your mentor teachers facilitate classroom discussion.
- Jan 16                    Student Discourse Part I; dialogic vs. authoritative discussion  
Activity: Class discussion – Observation of dialogic or authoritative discussion in classroom observations?  
Assignment 2: Literature reading – theoretical framework of conceptual understanding
- Jan 23                    Student Discourse Part II; eliciting conceptual understanding  
Activity: Class discussion – Correlation of student performance on traditional exams and conceptual understanding? How to foster conceptual understanding?  
Assignment 3: Document how your mentor teachers use classroom discussion or other activities to help students develop conceptual understanding.
- Jan 30                    Reflection on student discourse and conceptual understanding  
Activity: Class discussion – Observation of classroom discussion or activities that foster conceptual understanding?  
Assignment 4: Written reflection of how your mentor teachers have promoted student conceptual understanding in their classes; how will you help your students develop conceptual understanding in your class?
- Feb 6                    Example of effective student discussion and development of conceptual understanding  
Activity: ATLAS video observation and class discussion.  
Assignment 5: Find ATLAS video where teachers facilitates effective student discussion and helps facilitate conceptual understanding; written analysis.
- Feb 13                    Examples of effective student discussion and development of conceptual understanding  
Activity: Selected student presentations of ATLAS video analysis
- Feb 20                    Using lecture tutorials to foster conceptual understanding  
Activity: Greenhouse gases lecture tutorial  
Assignment 6: Create lecture tutorial

Feb 27                      Student presentations – lecture tutorials  
Mar 6                        Student presentations – lecture tutorials  
Mar 13                      Student presentations – lecture tutorials

## **Grading**

Attendance: 50 points (5 points each session)

Assignment 4 (written reflection of classroom observations): 150 points

Assignment 5 (written analysis of ATLAS video): 150 points

Assignment 6 (lecture tutorial): 150 points

450-500 points = A

430-499 = B+

400-429 = B

375-399 = C+

350-374 = C

250-349 = D

< 250 = F

**Note: If you do not complete your required classroom field work hours this will result in a 200 point penalty.**

**Assignments** – Detailed instructions for each writing assignment will be distributed separately prior in lecture.

**Class attendance:** Attendance will be taken each week. Absences will not be excused unless a valid documented excuse can be provided (hospitalization that prevents attendance or death in the immediate family). Attendance will be taken at the beginning of lecture. If you arrive late after the attendance has been taken this will count as an absence.