

Careers in Science and Math Education - NASC 192L

Winter 2022

Wednesdays 3:00 – 3:50 am

Location: INTS 1134

Instructor: Dr. Jack Eichler, CS 220, 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 5 Introductions, course goals, and objectives
Activity: Class discussion – how has online instruction from Covid-19 impacted student preparation for the current year? Discussion of using Atlas videos for observations.
- Jan 12 Student Discourse Part I; dialogic vs. authoritative discussion
Activity: Class discussion – Observation of dialogic or authoritative discussion in Atlas videos.
- Jan 19 Student Discourse Part II; eliciting conceptual understanding
Activity: Virtual lab demo – melting ice
Assignment 1: Literature reading – theoretical framework of conceptual understanding.
- Jan 26 Student Discourse Part III; eliciting conceptual understanding
Activity: Class discussion – Correlation of student performance on traditional exams and conceptual understanding? How to foster conceptual understanding?
- Feb 2 Example of effective student discussion and development of conceptual understanding
Activity: ATLAS video observation and class discussion.
Assignment 2: Find ATLAS video where teachers facilitates effective student discussion and helps facilitate conceptual understanding; written analysis.
- Feb 9 Examples of effective student discussion and development of conceptual understanding
Activity: Selected student presentations of ATLAS video analysis
- Feb 16 Analysis of active learning
Activity: Analysis of of ATLAS classroom video footage

Feb 23	Using lecture tutorials to foster conceptual understanding <u>Activity</u> : Greenhouse gases lecture tutorial <u>Assignment 3</u> : Create lecture tutorial
Mar 2	Student presentations – lecture tutorials
Mar 9	Student presentations – lecture tutorials

Grading

Attendance: 200 points (20 points each session)

Assignment 1: 100 points

Assignment 2: 100 points

Assignment 3 100 points

450-500 points = A

430-449 = B+

400-429 = B

375-399 = C+

350-374 = C

250-349 = D

< 250 = F

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.