

Careers in Science and Math Education - NASC 192

Winter 2021

Tuesdays 3:00 – 3:50 am

Location: Zoom

Instructor: Dr. Jack Eichler, CS 220, jack.eichler@ucr.edu

Course Goals: The broader goals of this seminar course are two-fold: 1) Encourage you to think about the science of learning and introduce you to pedagogical tools designed to help improve student learning in STEM classrooms; and 2) Introduce you to issues related to assessment in the California secondary education system, and how your approaches to teaching will fit within this framework.

Course Schedule:

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| Jan 5 | Introductions, course goals, and objectives <u>Activity:</u> Think-Pare-Share/Five Fundamental Ideas on Learning |
| Jan 12 | Student Discourse Part I; dialogic vs. authoritative discussion <u>Activity:</u> Analysis of classroom transcript |
| Jan 19 | Student Discourse Part II; eliciting conceptual understanding <u>Activity:</u> Conceptual understanding and energy changes in chemical reactions |
| Jan 26 | Analysis of student discussion <u>Activity:</u> Analysis of ATLAS classroom video footage <u>Assignment 1:</u> Written analysis of student discussion in ATLAS classroom |
| Feb 2 | Active Learning Part 1; accessing prior knowledge and developing new conceptual understanding <u>Activity:</u> Discovery learning and student misconceptions - phases of the moon interactive demonstration |
| Feb 9 | Active Learning Part 2 <u>Activity:</u> Discovery learning and student misconceptions - in-class response systems (clickers) and calculating probability |
| Feb 16 | Analysis of active learning <u>Activity:</u> Analysis of ATLAS classroom video footage <u>Assignment 2:</u> Written analysis of active learning and evidence of student learning |
| Feb 23 | Common Core and NGSS (Next Generation Science Standards) <u>Activity:</u> Turn and Talk/How will your class learning objectives be influenced by Common Core/NGSS? |
| Mar 2 | Analysis of NGSS/common core ideals in classrooms <u>Activity:</u> Analysis of ATLAS classroom video footage <u>Assignment 3:</u> Interview former mentor teacher about implementation of NGSS/Common Core. |
| Mar 9 | Reporting on mentor teacher interviews. |

Grading

Attendance: 50 points (5 points each session)

Assignment 1: 150 points

Assignment 2: 150 points

Assignment 3: 150 points

450-500 points = A

430-499 = 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.