



The Science Education
Partnership & Assessment Lab
San Francisco State University

Biol 860
Advances in Biology Education Research
Course Syllabus, Spring 2017

- Instructor:** Kimberly Tanner, Professor of Biology
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- Course credit:** 2 units; Attendance and active participation in course sessions and completion of all assignments is required to receive credit for the course. Grading may be + / - letter, CR/NCR.
- Prerequisites:** The course is open to graduate students and advanced undergraduate students with permission of the instructor.
- Schedule:** Fridays, 1:10 pm – 3:00 pm
- Location:** SEPAL Classroom, Hensill Hall 245, SFSU main campus

Course goals:

- To develop SFSU biology graduate students with a scholarly grounding in biology education research
- To provide a forum in which students explore science teaching and learning from a research perspective
- To provide students opportunities to develop facilitation, evaluative writing, and presentation skills
- To establish a seminar-based entry point for graduate students into the content area of biology education

Course description: This graduate-level biology course is intended for graduate students and advanced undergraduate students interested in exploring the field of science education research, with a primary emphasis on biology education research. Students will engage in reading primary research articles in the field, both classic papers and more recent publications. Following introductory sessions giving an overview of the history of science education research and methodological approaches, students will have opportunities both to present an article for discussion and facilitate an article discussion. All articles will be collaboratively chosen with instructor input and will be related to the course topics outlined in the syllabus. In conjunction with this primary literature reading, students will submit written analytical responses to each article, which will be posted publicly on Blackboard and accessible to the entire class. At the end of the course, each student will also develop a mini-grant proposal on a biology education research question of interest; all proposals will be reviewed in a study section format in class.

Student Learning Objectives: Through participation in the Bio 860 course, students will...

- build a community of graduate students with strong interests in biology education and research
- explore the research literature in science education with a focus on issues in biology education
- compare and contrast biological science research and social science research
- practice composing written evaluative critiques of research design, data analyses, and study findings
- develop a written mini-grant proposal on a biology education research question of their choosing
- review and constructively critique mini-grant proposals developed by peer
- create and deliver an oral presentation on the mini-grant proposal that is highly interactive


Course requirements:

- Attend and actively participate in weekly seminar.
- Prepare for weekly seminar by completing readings and contributing to the discussion of articles.
- Write and post brief, weekly electronic reflections on each article for peer reading and comment.
- Co-facilitate at least one class discussion of a presented paper.
- Prepare and present a biology education research mini-grant proposal that includes a review of the literature in that field.

Course Components/Grading Scheme:

Attendance and class participation is essential! If you must miss a class, please notify the instructor in advance.

COURSE COMPONENT	TOTAL POINTS	% OF GRADE
Reflection		
Weekly Reflections (14 @ 10 points each)	140	25%
Participation		
Weekly Attendance and Participation (14 @ 10 points each)	140	25%
Class Projects		
Journal Club Co-Facilitation	70	12.5%
Mini-Grant Written Proposal	70	12.5%
Mini-Grant Oral Presentation	70	12.5%
Final Semester Reflection	70	12.5%
TOTAL	560	100%

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(The topic sequence is approximate and subject to modification.)

Class #1 1/27/17	Class Topic: Welcome, Introductions, Course Goals, and Exploring the Field of Biology Education Research
Class #2 2/3/17	Class Topic: Journal Club Team Assignments & Planning Time Introduction of Mini-Grant Proposal Assignment
Class #3 2/12/17	Journal Club Discussion #1: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #4 2/17/17	Journal Club Discussion #2: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #5 2/24/17	Journal Club Discussion #3: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #6 3/3/17	Journal Club Discussion #4: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #7 3/10/17	Journal Club Discussion #5: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #8 3/17/17	Journal Club Discussion #6: Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
No Class 3/24/17	Submit Mini-Grant Proposals SPRING BREAK!
No Class 3/31/17	CESAR CHAVEZ HOLIDAY!

Class #9 4/7/17	Mini-Grant Proposal Peer Review Panels
Class #10 4/14/17	Journal Club Discussion #7 or Wild Card Session! Article for Discussion: <i>To be determined by the group...</i> Co-Facilitators: who? and who?
Class #11 4/21/17	Mini-Grant Proposal Presentations Presenters (n=3-4): <i>Schedule to be determined...</i>
Class #12 4/28/17	Mini-Grant Proposal Presentations Presenters (n=3-4): <i>Schedule to be determined...</i>
Class #13 5/5/17	Mini-Grant Proposal Presentations Presenters (n=3-4): <i>Schedule to be determined...</i>
Class #14 5/12 or 19/17	Class Topic: Discussion of Final Reflection Papers; Making Bio 860 Better...
