

San José State University
College of Science, Science Education Program
SCED 220, Theories and Practices in Science Education, Section 01, Fall 2021

Course and Contact Information

Instructor: Dr. Cassandra Paul
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Class Days/Time: Mondays 4:00PM-6:45PM
Zoom Classroom: <https://sjsu.zoom.us/j/89559060168?pwd=a3YxSk5TUk1wcmZ0Nk1acVhpenBSdz09>
Canvas Classroom: <https://sjsu.instructure.com/courses/1433233>

Course Description

Analysis of current trends in science curriculum and instruction. Orientation for the philosophy and scope of the program. Emphasis on development of a theory of instruction and curriculum in science with implications for practice. Misc/Lab: Lecture/seminar 3 hours. Notes: Teaching experience preferred. Must be taken during first year in program. This course satisfies graduate-level GWAR in this master's program.

Course Format

Technology Intensive

This class will be held entirely online via synchronous Zoom sessions and the Canvas learning management system. You will need access to a computer with Internet to complete assignments and attend Zoom classes. All out-of-class communication with you will be through Canvas. Course materials such as syllabus, worksheets, notes, google docs, assignment instructions, etc. can be found on the Canvas website: sjsu.instructure.com. If you are an Open University student, see us for access to the site. During class, you are expected to participate in activities and discussions. This includes being prepared for class by completing assignments prior to attending as well as contributing to the classroom discourse. The course is a graduate level course; therefore, the expectation is that you are motivated to learn and apply what you learn to the best of your ability.

Science Education MS Program Information

This is the first required course in the Science Education MS program. You do not need to be enrolled in the MS program in order to have permission to take this course. The primary goal of this course is to help you identify an area of interest in Science Education, and assist you in situating this interest in the larger context of Science Education and Science Education research. If you are enrolled the Science MS program, the literature review you create as a final project in this class will be directly incorporated into your Science Education MS project paper. If you are not enrolled in the MS program, the literature review will still be required, but some assignments leading up to the final paper may be modified with permission to better suit your goals. This course is writing intensive and fulfills the graduate writing assessment requirement (GWAR).

Course Goals

Science Education MS Program Learning Outcomes (PLO)

This course can be taken to fulfill some of the credit hours required for a master's degree in Science Education. Therefore, this course (in addition to others) will help students make progress towards the following program learning outcomes:

1 – To enhance student's depth and breadth of understanding of selected topics in science education.

PLO 1.1 Students will be able to synthesize primary literature from science education research and apply how it fits to their project.

PLO 1.2 Students will demonstrate knowledge of at least two areas (e.g. inquiry based instruction, learning theory, assessment) that are related to, or supportive of research for their project.

2– To enhance communication skills, both written and oral, in science education discourse.

PLO 2.1 Students will present science and science education content in the form of graduate seminars or in the oral defense of their project (also known as the culminating experience).

PLO 2.2 Students will organize and write the results of their project in a manner consistent with standards in professional science education publications.

Course Learning Outcomes (CLO)

This course is meant as a general introduction to research in science education.

Upon successful completion of this course, students will be able to:

CLO 1 Use citation software (Refworks/CiteUlike/Mendeley) to collect and organize 25 sources of literature related to education or science education topics to create an annotated bibliography.

CLO 2 Communicate ideas about primary literature through writing, presentation, discussion and critique.

CLO 3 Identify a topic of interest for further investigation for deeper investigation through primary sources of literature.

CLO 4 Represent big ideas in science education theory and practice both visually, orally and through writing.

CLO 5 Synthesize a minimum of 15 sources from primary literature in the form of a literature review about a selected topic of interest.

Required Texts/Readings

Readings will be assigned to match the in-class discussions. These readings will be posted on the Canvas website under the sidebar menu titles 'files' and 'readings.'

Course Requirements and Assignments

Weekly assignments will usually be comprised of both a writing and a reading component. Students are required to come prepared to discuss the readings assigned each week.

Canvas Discussion. Online discussions will be used to build a collaborative learning community, this on-going assignment involves posting and responding to comments, thoughts, insights or reflections online with respect to the weekly readings and your own related educational experiences. Use this virtual space to connect with other classmates to help you think through the concepts we are learning in the course. As everyone's continuous participation is essential in creating this virtual community, a minimum of 3 posts per week is required—you must create an initial, original post in response to the discussion prompt and two responses to peer posts.

Writing Assignments. The writing assignments will help students make progress towards writing a literature review on a topic of interest in science education. Assignments will include annotations of papers, syntheses of ideas and drafts of the final literature review product.

Literature Review. The culminating project for this course is a literature review on a topic of interest to the student. Students should choose an area of interest and thoroughly investigate the relevant literature pertaining to their topic. The aim of this is to become thoroughly grounded in the literature in preparation for crafting a Masters project. Per SJSU writing requirements, the literature review should be at least 3000 words (~12 pages) in length and will be completed individually. Sources should be cited appropriately in APA format.

University Policy S16-9, *Course Syllabi requires the following language to be included in the syllabus:*

“Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.”

The above quotation means that you should expect **six hours** per week for homework assignments in this class.

Final Examination or Evaluation

The literature review and presentation serves as the culminating experience for this course.

Grading Information

In this course, you will be expected to complete assignments, participate in discussions, and demonstrate growth in your knowledge of, and skills with, the material. You will receive ample feedback from myself, and some from your classmates as well.

This course will not be graded in the traditional sense. I will grade all assignments as either ‘complete’ or ‘incomplete.’ Should you submit an assignment that is graded as ‘incomplete’ I will provide direct written feedback on what is needed for completion. I ask that assignments be completed on-time so that we can engage in meaningful classroom discussion. This is important because class activities are often based on assignments, and you and your classmates will not get the full benefit of the activity if you are not prepared. Students who complete all assignments, and thus demonstrate the course learning goals, will earn an “A” in this course. This is so that you can focus on getting the most out of your course experience without worrying about your course grade.

I have designed my course expectations in a way that it is possible and expected that every student can meet them. However, life happens (especially in the middle of a pandemic) and sometimes other things need to be prioritized. Should something unexpected come up, and you begin to fall behind assignments, please come talk to me so that we can make a plan for your success. I promise to listen, be compassionate with you, and together we can brainstorm a pathway to your success. Furthermore, you will never be required to reveal a reason, or provide a justification for falling behind the pace of the course. Please only tell me what you feel comfortable telling me.

In the event that there are any students who do not meet course expectations within the agreed upon timeframe (either by their due date, or by some time co-determined by the myself and the student) they will earn an “F” and need to repeat the course. I expect this to be an extremely rare occurrence. I also reserve the right to award “A+” course grades for comprehensive student work that goes above and beyond the expectations for this course. (Please note that an “A+” is numerically treated exactly the same as an “A” on transcripts, so it does not impact GPA.)

Classroom Protocol

Our class will engage in a variety of small group experiences and large group discussions. A successful class will depend on every member of the group actively collaborating as both learners and teachers. It is my assumption that each of us has valuable perspectives and experiences that will inform our collective, developing knowledge. It is important that you come to class on time. I expect that you will have read the texts carefully and will be prepared to actively participate in our class discussions both during synchronous Zoom sessions and on Canvas. Participation is essential in order for your success in this course. Often times the success of a classroom activity will depend on the participation of the entire class. Therefore, it is essential that notify us if you are going to miss class for any reason, as soon as you are able.

University Policies

Per [University Policy S16-9](#), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on [Syllabus Information web page \(https://www.sjsu.edu/curriculum/courses/syllabus-info.php\)](https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

The SJSU Writing Center is located in Clark Hall, Suite 126. All Writing Specialists have gone through a rigorous hiring process, and they are well trained to assist all students at all levels within all disciplines to become better writers. In addition to one-on-one tutoring services, the Writing Center also offers workshops every semester on a variety of writing topics. To make an appointment or to refer to the numerous online resources offered through the Writing Center, visit the [Writing Center website](http://www.sjsu.edu/writingcenter) at <http://www.sjsu.edu/writingcenter>. For additional resources and updated information, follow the Writing Center on Twitter and become a fan of the SJSU Writing Center on Facebook.

SCED 220 Theories and Practice in Sci Ed, Fall 2020 Course Schedule

The schedule lists the general topics covered in this course, but doesn't list readings or specific assignments because these are tailored to the interests and pace of the students in the course. Please see the canvas website for the most up-to-date information. Assignments and due dates will be posted on canvas.

Week	Date	Topics, Readings, Assignments, Deadlines
1	8/23	Learning & Knowing I: Scope of Course, Introduction
2	8/30	Learning & Knowing II: Everyday learning and cognition Guest: Dr. Elly Walsh
3	9/6	LABOR DAY NO CLASS
4	9/13	Psychological and Social Perspectives I: Behaviorism Guest: Dr. Jenifer Avena
5	9/20	Psychological and Social Perspectives II: Cognition Guest: Dr. Ellen Metzger
6	9/27	Psychological and Social Perspectives III: Sociocultural Theory Guest: Dr. Resa Kelly
7	10/4	Psychological and Social Perspectives IV: Constructivism Guest: Dr. Tammie Visintainer
8	10/11	Broad View of Learning I: Critical Theory and Cultural Studies

Week	Date	Topics, Readings, Assignments, Deadlines
		Guest: Dr. Alex Chakarov
9	10/18	Broad View of Learning II: Attitudes & Engagement
10	10/25	Broad View of Learning III: Identity
11	11/1	Synthesis: Comparing Theories
12	11/8	Bridging to Practice I: Situated Learning and Communities of Practice
13	11/15	Bridging to Practice II: Authentic Practice in the Classroom
14	11/22	Bridging to Practice III: "Nature of Science" and What is Science? Asynchronous week
15	11/29	Bridging to Practice IV: Learning Communities in the classroom
16	12/6	FINAL PRESENTATIONS Attendance on this date is mandatory to receive credit for the final presentation.
Final Exam	12/13	Final Literature Review and Annotated Bibliography Due by 11:59 PM