

UC Merced, School of Natural Sciences
NSED 120, 4 units
Classroom Interactions in Math and Science Education
Course Syllabus, Fall 2021

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NSED 120-1 Tuesday 8:30 am - 11:20 am in COB2-265
NSED 120-2 Tuesday 4:10 pm - 7 pm in COB2-264
Office hours -- Wednesdays 2-3 pm on Zoom

Course Overview:

NSED 120 serves as an introduction to the educational aspects in a multicultural and multilingual diverse society. This course continues the process of preparing students to teach mathematics and science in middle and secondary settings by providing opportunities to evaluate challenges they face in instructional settings. We focus on students coming from a diverse society with different cultures and linguistic backgrounds. We will explore frameworks for thinking about equity issues in the classroom and beyond school settings, learn strategies for teaching students of diverse cultural and linguistic backgrounds, and reflect on how the interplay among teachers, students, and academic content enables students to develop a deep conceptual understanding of the subject matter. Classroom Interactions is a course that typically is a prerequisite to an accredited teacher credential program.

Objectives:

This course invites students to analyze and reflect upon the impact of institutional oppression and inequity in classrooms and communities in the US, with particular attention made to the way school structures and practices are responsive to communities of color, immigrants, and working-class students. This class will move beyond the understanding of differences and how they are constructed to interrogate the underlying assumptions that inform the current conservative, liberal, and radical debates over race, class, gender, sexuality, immigrant status, and education. In this class, theory is unashamedly emphasized yet the practical is always within reach. This course takes the position that only labor-intensive intellectual pursuits produce a self-reflective and self-critical praxis.

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

- Describe various forms of human diversity found in schools and society at large.
- Explain how individual differences impact teaching and learning.
- Describe methods of teaching across various cultural and linguistic differences.
- Examine issues of equity in its social, cultural, and pedagogical dimensions
- Modify lessons to be more accessible to a diverse range of learners.

Diversity, Equity, Inclusion

Local indigenous people, including the Yokuts and Miwuk who understand the earth as a place for everyone, first inhabited the land where UC Merced is located. When we address diversity on this campus, we do so boldly, daring to look forward and backward, imagining diversity's demand for the 21st century and the importance of diversity in addressing past wrongs, reaffirming humanity, and ensuring a reconciliatory path of redress for the future. If you are unfamiliar with local indigenous communities and liberation movements, I encourage you to spend some time with this [Indigenous Resistance Homework](#) sheet from Project Catalyst.

**I am new to the Merced area and am personally still learning about the local communities. If you have knowledge of the native communities here, or other knowledge about Merced that you think would help me become a respectful member of this community, I would be grateful to hear it.*

It is my intent that students from all backgrounds and with all perspectives feel included and are able to learn and achieve their goals in this course. The diversity that all students bring to this class is a resource, strength, and benefit to us all. It is my intent to bring to class materials and activities that embrace a diversity of perspectives, experiences, and positions. Your suggestions for making this learning community as inclusive as possible are

encouraged and appreciated. Please let me know if you identify ways to improve the effectiveness of the course for you personally or for other students or student groups. If any of our class meetings conflict with your religious or cultural events, please let me know so that we can work together to make alternative arrangements.

In our in-class discussions and dialogues, we will have the opportunity to explore challenging, high-stakes issues and increase our understandings of different perspectives. Our conversations may not always be easy. We sometimes will make mistakes in our speaking and our listening. Sometimes we will need patience or courage or imagination or any number of qualities in combination to engage our texts, our classmates, and our own ideas and experiences. Always we will need respect for others. Thus, an important aim of our classroom interactions will be for us to increase our facility with the sometimes difficult conversations that arise inside issues of social justice as we deepen our understandings of multiple perspectives – and make the most of being in a room with people of many backgrounds, experiences, and positions.

I am committed to providing an atmosphere for learning that respects diversity and supports inclusivity. We need to work together to build this community of learning. I ask all members of this class to:

- be open to and interested in the views of others
- consider the possibility that your views may change over the course of the term
- be aware that this course asks you to reconsider some “common sense” notions you may hold
- honor the unique life experiences of your colleagues
- appreciate the opportunity that we have to learn from each other
- listen to each other’s opinions and communicate in a respectful manner
- keep confidential discussions that the community has of a personal (or professional) nature
- ground your comments in the texts we are studying. Refer frequently to the texts and make them the focus of your questions, comments, and arguments. This is the single most effective way to ensure respectful discussion and to make the classroom a place where we are all learning together.

I aim to make our learning community as accessible as possible. This means that I aim to provide accessible materials and to create opportunities for different kinds of engagement in our classroom space. If you come across materials that are not accessible to you, or experience a barrier to your participation in a class or meeting, please bring this to my attention and I will gladly work with you to ensure accessibility. If you are a student with a disability (disabilities can include mental health and attention-related, learning, vision, hearing, physical or health impacts) who requires accommodations to achieve equal access in this course, please arrange a time to meet with me to discuss how I can best support your learning during your time in the course. Additionally, please contact Student Advising in the School of Natural Sciences Office. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with the Disability Services Center to verify their eligibility for appropriate accommodations.

Content Advisory

Some of the material in this course (reading, films, discussion) may be disturbing, and may re-stimulate (trigger) upsetting experiences from people’s past. I will do my best to provide individual warnings on the syllabus for course materials and in presentation slides for class content that are particularly sensitive. My hope is that these notifications will help your engagement by allowing you to prepare to work through challenging material. I encourage you to do what you need to care for yourself. If taking care of yourself means that you need to step outside during class, either for a short time or for the rest of the class, you may do so without academic penalty. If you do leave the room for a significant time, please make arrangements to get notes from another student or see me individually to discuss the situation.

Course Requirements: All assignments are due on the date indicated by the instructor, and may be formatted according to APA style. Assignments are to be typed using size 12 font and spaced at 1.5 lines

unless otherwise indicated by the instructor. ADA students are requested to make an appointment with the instructor during the first week of class in order to assure those necessary arrangements be made.

Academic Integrity:

Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. However, assignments that are submitted individually should be written exclusively by the student submitting the work. You can give "consulting" help or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of the work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action. The information listed above is for individual assignments. There are group assignments in this class that require full cooperation and participation of all group members. If a group member has not completed and/or contributed his/her portion of group work by the due date of the assignment, that group member will neither receive credit for the assignment nor have an opportunity to make up the work at a later date.

Course Elements:

- **Attendance and Participation**

Classes will consist largely of discussions and presentations by the instructor and students. Active participation in discussion is an essential part of learning and, hence, of evaluating your work. Participation means listening as well as talking, monitoring your own contributions to a discussion, helping others develop their ideas, and, of course, expressing your own thoughts in whole and small-group discussions. Participation also includes making every effort to arrive at class promptly and using electronic devices only for course-related purposes. Because the course emphasizes the creation of community in the classroom, participation and attendance are critical. Attendance to all of the classes is a must and unsatisfactory attendance might result in course failure. In case of an unavoidable circumstance, any absence must be communicated to the instructor prior to occurring. Particularly once student presentations have begun, tardy students could be required to wait outside until the presentation is over.

- **Reading Reflection and Discussion Facilitation**

To participate it is essential to complete the required readings before class and be prepared to discuss the readings in class. We encourage you to bring a paper or electronic copy of each reading to class for reference during discussions. You should come with an overall sense of each selection's content and argument as well as your own questions. It is important to read *actively* and *critically*, identifying the elements that inform your understanding of issues raised as well as the implications for effective classroom practice. It is also important to read *relationally*, identifying the ways in which a reading comments on other readings. Readings will be provided in Canvas/Cat Courses.

Reading Jigsaw Discussion

- The class will be divided into two groups (Group A and Group B) and every week each group will do their group's assigned reading(s). You can identify your groups on canvas. The schedule below clearly states which groups are responsible for which reading. We will make frequent use of jigsaw activities during class time:
 - A/B groups will each be divided randomly into 4 subgroups
 - The subgroups will have time to discuss their groups reading together
 - Next, we will "jigsaw"-- A/B subgroups will pair up and teach each other their papers, with time for Q&A
 - Finally, one pre-assigned subgroup from each A/B group will lead a full-class discussion on the paper they read that builds on students' reading reflection (posted in canvas) and

the previous small group discussions.

- [You must use this document to prepare for your discussion lead](#)

Reading Reflection and Notes

- You are expected to take notes and reflect on each week's set of readings. **Please submit your weekly reflections in CatCourses by Midnight on the Sunday before class.** All posts should be substantive in nature, length, and content. Please monitor the time and content of your posts, and be mindful of your contributions and personal details.

In-class submissions

- You will at times be responsible for submitting individual or group work during class time. I will make it clear (usually on the day's agenda) when you or your group will be expected to turn in an in-class submission on Canvas. These assignments are formative assessments; they help me understand what you understand at a given point in time. You will be graded on these submissions based primarily on their thoughtfulness and completeness, not necessarily on their "accuracy" (the assignments will usually be interpretive!).

After-class reflections

- You will be responsible for submitting an after-class reflection assignment most weeks of the semester. I will make it clear on the week's page and module when you will or will not be expected to submit an after-class reflection assignment. You will find these assignments in Canvas, and they will be due on at 11:59 pm on Wednesday immediately following the week's class meeting.

3. Final Individual Writing Assignments (20 points)

(i) Culturally and Linguistically Responsive Teaching

Culturally and Linguistically Responsive Teaching requires teachers to recognize the cultural and linguistic assets of students and focus on the strengths (rather than weaknesses) that students of color and diverse home language groups bring to the classroom. For this assignment, you will write an essay regarding your approach towards becoming a Culturally Responsive Teacher by focusing on your cultural perspectives, recognizing and redressing biases in the system, real-life issues, and how your future students' culture can inform your instruction.

(ii) Adapting for Diverse Learners

Part of being a competent educator is being familiar with and implementing effective teaching methodologies and learning strategies for diverse populations. For this assignment, you will choose from a selection of lesson plans and adapt it to meet different students' needs.

4. Final Group Project:

Your final exam project for the course is to investigate a contemporary educational issue of your own choosing by collaboratively writing a literature review, and to teach/present your findings to the class using some type of visual media such as a poster, PowerPoint, video, music video, charts and graphs, etc. This issue can be related to the weekly readings of the course (e.g. English language learners, tracking, teaching for social justice, culturally relevant teaching, equity and equality, deficit thinking model, model minority myth) but this is not a necessary condition. You will work with a small group and part of your final grade will be collective as well.

For the presentation portion, and in addition to having a visual presentation, you should incorporate activities that serve to illustrate your points and engage your viewers in an interactive, constructive and

meaningful way. This is not intended to be a direct lecture; engage your classmates in the issue. Students will also reflect upon the presentation of their fellow classmates.

General Guidelines:

- You will work with a small group assigned by the instructor
 - This design is intended to mimic the work of educators--in teaching (like most other jobs) you will not get to choose your colleagues, and you will need to practice communication and cooperation skills. Take this as an opportunity to practice those skills.
- Your research must consist of an intensive literature review. [Use this handout on literature reviews for guidelines. \(Links to an external site.\)](#)
- Each group must have a different topic – first come, first served.
 - Be specific and clear. Also, incorporate math or science education into your issue.

Part 1: Paper (13 pts)

- **Requirements for the paper** -- Cover & reference pages; 8-10 pages (not including cover & reference pages) and 15-20 sources; APA Format, 1.5 space, 12 pt Times New Roman font, 1-inch margins; Section headings
- The paper must include
 - **Introduction:** Gives a quick idea of the topic of the literature review, such as the central theme or organizational pattern.
 - **Body:** Contains your discussion of sources and is organized either chronologically, thematically, or methodologically (see below for more information on each).
 - **Conclusions/Recommendations:** Discuss what you have drawn from reviewing the literature so far. How does what you learned influence how you think about classroom instruction? Identify some specific methods or strategies teachers should use, based on the research you read?
- Division of labor
 - You must also decide on a division of labor with your group, and you each individually must submit your plan for division of labor on canvas by Nov 23
- Make sure you refer to the [Writing Supports and Templates folder](#)
- [Download Writing Supports and Templates folder](#)
- to aid your writing!

Part 2: Presentation (7 pts)

This Presentation is based on the final project

- Presentations should be 15 -20 minutes maximum.
- Be creative in your visual presentation!
- Incorporate meaningful discussion at the end of the presentation or activities and demonstrations to illustrate your points and engage your viewers.

Grading:

The use of grades is meant to record your accomplishments, as well as to guide focused feedback and progress. Letter grades are not used to rank or sort students; instead, they are meant to aid in your

understanding of completing assigned tasks as outlined. Expectations are set high in this course, and we will do our best to ensure that you are supported in meeting these expectations. Given the focus of this course, we hope that the outlined evaluation process will contribute to and inform our developing sense of teaching and learning.

Important notes about grading:

Assignments need to be submitted to CatCourses by the specified deadlines. Late assignments will only be accepted for full credit if prior arrangements have been made in a timely manner with the instructors. All other late assignments are not guaranteed to receive any credit.

Tardiness and absences will be recorded on CatCourses. Unexcused absences will affect your grade.

Grade Composition

- Reading discussion posts (Canvas): 33%
- After-class reflection assignments (Canvas): 13%
- In-class submissions (Canvas): 6%
- Presentation Discussion Facilitations: 13%
- Individual final assignments: 13%
- Group final assignments: 20%

Please note:

This syllabus is a living document. This schedule is subject to change due to extenuating circumstances and the overall needs of the class. Students will be informed accordingly.

Reading and Reflection Schedule					
Week	Class Date	Topic & Readings	Discussion Presentation Group	Reading Discussion Post Due	After-class Reflection assignment due
1	August 31	Introduction to the course: reading across disciplines	n/a	n/a	Sept 1
2	Sept 7	<p><u>Historical Contexts in Education: Savage inequality</u></p> <p><i>Reading to be Completed Before Class --</i> <u>The American Schooling Dilemma</u> Ch. 1 from <i>Teaching to Change the world</i> (Page 4 -17)</p>	n/a	Sept 5	Sept 8
3	Sept 14	<p><u>Historical Contexts Education</u></p> <p>Group A:</p>	n/a	Sept 12	Sept 15

		<p><u>Reading to be Completed Before Class --</u> <u>History and Culture of American Education</u> Ch. 2 from <i>Teaching to Change the world</i> (Page 34 -50)</p> <p>Group B: <u>Reading to be Completed Before Class --</u> <u>History and Culture of American Education</u> Ch. 2 from <i>Teaching to Change the world</i> (Page 50 -66)</p>			
4	Sept 21	<p>Tracking</p> <p>Group A: <u>Reading to be Completed Before Class --</u> <u>Rubin, B. C., Wing, J. Y., Noguera, P. A., Fuentes, E., Liou, D., Rodriguez, A. P. & McCready, L. T. (2006). Structuring inequality at Berkeley High.</u> In P. A. Noguera & J. Y. Wing (Eds.), <u>Unfinished business: Closing the racial achievement gap in our schools.</u> San Francisco: <u>JosseyBass.</u></p> <p>Group B: <u>Reading to be Completed Before Class --</u> <u>Oakes, J. (1985). Keeping track: How schools structure inequality.</u> New Haven: Yale University Press. [Chapter 1].</p>	A1 & B1	Sept 20	Sept 22
5	Sept 28	<p>Complex Instruction</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A: <u>Boaler, J. (2006). How a detracked mathematics approach promoted respect, responsibility, and high achievement.</u> <u>Theory into Practice, 45(1), 40 - 46.</u></p> <p>Group B: (Read either Chapter 3 OR Chapter 5)</p>	A2 & B2	Sept 27	Sept 29

		<p><u>Watanabe, M. (2012). "Heterogenius" classrooms: Detracking math and science, a look at groupwork in action. New York: Teachers College. [Mathematics: Chapter 3; Science: Chapter 5]</u></p>			
6	Oct 5	<p>English Language Learners</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A: <u>Quinn, H., Lee, O., & Valdes, G. (2012). Language demands and opportunities in relation to Next Generation Science Standards for ELLs.</u></p> <p>Group B: <u>Nieto, S. (2004). Affirming Diversity: The sociopolitical context of multicultural education. Boston: Pearson. [Chapter 6: Linguistic Diversity in U.S. Classrooms]</u></p>	A3 & B3	Oct 4	Oct 6
7	Oct 12	<p>Learners with "Special Needs"</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A: <u>Harry, B. & Klingner, J. (2007). Discarding the deficit model. Educational Leadership, 64(5), 1621.</u></p> <p>Group B: <u>Sayeski, K. L. & Paulsen, K. J. (2010). Mathematics reform curricula and special education: Identifying intersections and implications for practice. Intervention in School and Clinic, 46(1), 1321.</u></p>	A1 & B1	Oct 11	Oct 13
8	Oct 19	<p>Race, Culture, and Ethnicity</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A: <u>Wing, J. Y. (2007). Beyond black and white: The model minority myth and the invisibility of Asian American</u></p>	A2 & B2	Oct 18	Oct 21

		<p>students. <u>The Urban Review</u>, 39(4), 455 - 487.</p> <p>Group B: <u>Delpit, L. (2002). No kinda sense. In L. Delpit & J. K. Dowdy (Eds.), The skin that we speak: Thoughts on language and culture in the classroom. New York: The New Press.</u></p>			
9	Oct 26	<p>Culturally Relevant Teaching</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A:</p> <ul style="list-style-type: none"> • <u>Boutte, G., Kelly Jackson, C., & Johnson, G. L. (2010). Culturally relevant teaching in science classrooms: Addressing academic achievement, cultural competence, and critical consciousness. International Journal of Multicultural Education, 12(2), 120.</u> • <u>Lake, R. (1990). An Indian father's plea. Teacher Magazine, 2(1), 48-53.</u> <p>Group B:</p> <ul style="list-style-type: none"> • <u>Boutte, G., Kelly Jackson, C., & Johnson, G. L. (2010). Culturally relevant teaching in science classrooms: Addressing academic achievement, cultural competence, and critical consciousness. International Journal of Multicultural Education, 12(2), 120.</u> • <u>Lake, R. (1990). An Indian father's plea. Teacher Magazine, 2(1), 48-53.</u> 	<p>A3 (Boutte, Kelly & Johnson) & B3 (Lake)</p>	Oct 25	Oct 27
10	Nov 2	<p>Rethinking Math/Science</p> <p><u>Reading to be Completed Before Class --</u></p> <p>Group A: <u>Gilbert, W. S. (2011). Developing culturally based science curriculum for Native American classrooms. Honoring our heritage: Culturally appropriate approaches for teaching Indigenous education, 43-55.</u></p> <p>Group B: <u>Nelson Barber, S. & Estrin, E. T. (1995). Bringing Native American</u></p>	n/a	Nov 1	Nov 3

		<u>perspectives to mathematics and science teaching. Theory into Practice, 34(3), 174185.</u>			
11	Nov 9	<p>Teaching for Social Justice</p> <p><i>Reading to be Completed Before Class --</i></p> <p>Group A and B</p> <p>1) <u>Gutstein, E. & Peterson, B. (2005). Introduction. In E. Gutstein & B. Peterson (Eds.), Rethinking mathematics: Teaching social justice by the numbers. Milwaukee: Rethinking Schools, LTD.</u></p> <p>2) <u>Struggle for Smarts Gutstein and Peterson (2005).pdf</u></p>	n/a	Nov 8	Nov 10
12	Nov 16	Writing Workshop	n/a	n/a	n/a
13	Nov 23	<p>*CLASS WILL BE HELD ON ZOOM</p> <p>Virtual Group Assignments Workshop (no in-person class, happy Thanksgiving!)</p>	n/a	n/a	CRT Essay and Lesson Modification Assignment Due
14	Nov 30	<p>Final Project Presentations</p> <p>Final Group Project Submission & Individual Essay Submission</p>	n/a	n/a	Final Project Writing Assignments
15	Dec 7	No Class and No Final Exam			