

EDUC 263G: Quantitative Reasoning and Mathematics III
Stanford University, Winter 2024
Wednesdays, 2:30-5:15 pm in CERAS 204

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Course Objectives:

The EDU263G (Quantitative Reasoning and Mathematics III) course is Part 3 of a three-course sequence in elementary mathematics teaching methods. This sequence is designed to provide teacher candidates with a coherent set of experiences for mathematics teaching and learning in elementary schools. Through assigned readings, classroom discussions, content rich mathematics activities, and assignments that require data collection in your field placement, you will be supported as you make sense of how to approach the profession of teaching. Through thinking about ourselves as teachers and examining classroom activity, we will set the stage for our development as elementary mathematics teachers.

Please note: We will adhere to the syllabus as much as possible. However, we are responsive to the needs of the class, therefore, the syllabus is subject to change.

Course Assignments:

Assignment	Due Date
<i>First Year Teacher Toolkit</i> Vision Statement Floorplan String of lessons Formative Assessment	Draft of First Year Teacher Toolkit: by Feb 21 (optional) Final Toolkit: March 13 Showcase: March 13
<i>Readings</i> Assigned readings should be done before class.	Before every class
<i>Participation</i> All of our learning is enhanced when everyone reads carefully and fully participates in class activities and discussions.	Every class

Course Grades:

This is an active, collaborative, experience-rich course. Attendance and participation are central to the learning experience. Our expectation is that everyone will engage in and revisit their work throughout the quarter such that all can receive an A grade. If your work – including the quality of your participation and

assignments – is not at that standard we will discuss ways to improve it and you will have the opportunity to revise and resubmit. Our goal is learning, with continued opportunities for mastery.

Regarding participation, we are looking for you to contribute to both small and whole group discussions. Whether you are more talkative or more introverted in nature, we expect that you make concerted efforts to both listen and contribute, monitoring your level of sharing, and making space for others to join in. We recognize that you may have more to say about one topic over another, but across the ten weeks, we should have heard your thoughts and ideas in both small and whole group discussions and those ideas should be connected in some way to our shared readings. This will help your learning as well as the learning of the group.

Course Readings (All readings will be made available on Canvas):

****Required readings will be finalized in accordance with class needs; remaining readings are optional.***

Au, W. (2017). Can we test for liberation? Moving from retributive to restorative and transformative assessment in schools. *Critical Education*, 8(13).

Aguilar, J., & Telese, J. A. (2018). Mathematics Understanding of Elementary Pre-Service Teachers: The Analysis of their Procedural-Fluency, Conceptual-Understanding, and Problem-Solving Strategies. *Mathematics Teaching Research Journal*, 10(3), 24-37.

Borba, M. C., & Skovsmose, O. (1997). The ideology of certainty in mathematics education. For the learning of Mathematics, 17(3), 17-23.

Burton, L. (1995). Moving towards a feminist epistemology of mathematics. *Educational Studies in Mathematics*, 28(3), 275-291.

Cohen, E. G., & Lotan, R. A. (2014). *Designing groupwork: strategies for the heterogeneous classroom third edition*. Teachers College Press.

Gargroetzi, E. C., Chavez, R. D., Munson, J., Langer-Osuna, J. M., & Lange, K. E. (2019). Can off-task be on-track? *Phi Delta Kappan*, 100(8), 62-66. <https://doi.org/10.1177/0031721719846892>

Gitomer, D. H., Martínez, J. F., Battey, D., & Hyland, N. E. (2021). Assessing the assessment: Evidence of reliability and validity in the edTPA. *American Educational Research Journal*, 58(1), 3-31.

Gresalfi, M., & Hand, V. M. (2019). Coordinating situated identities in mathematics classrooms with sociohistorical narratives: A consideration for design. *ZDM*, 51(3), 493-504.

Langer-Osuna, J. M., Gargroetzi, E., Munson, J., & Chavez, R. (2020). Exploring the role of off-task activity on students' collaborative dynamics. *Journal of Educational Psychology*, 112(3), 514–532. <https://doi.org/10.1037/edu0000464>

Munson, J. (2018). *Responding to Student Thinking in the Moment: Examining Conferring Practices and Teacher Learning in the Elementary Mathematics Classroom*. Stanford University.

Munson, J., Langer-Osuna, J., Kwon, F., & Trinkle, M. (2023). *The Collaborative Math Classroom: Launching a student-centered mathematical community*. Heinemann.

Oakes, J., & Rogers, J. (2006). *Learning power: Organizing for education and justice*. Teachers College Press.

Osuna, J., & Cirillo, M. (2018). Using Classroom Discourse as a Tool for Formative Assessment. In *A fresh look at formative assessment in Mathematics teaching* (pp. 21–39). essay, National Council of Teachers of Mathematics.

Sengupta-Irving, T., & Enyedy, N. (2015). Why engaging in mathematical practices may explain stronger outcomes in affect and engagement: comparing student-driven with highly guided inquiry. *Journal of the Learning Sciences*, 24(4), 550-592.

Shepard, L. A., Penuel, W. R., & Pellegrino, J. W. (2018). Using learning and motivation theories to coherently link formative assessment, grading practices, and large-scale assessment. *Educational measurement: issues and practice*, 37(1), 21-34.

The University of Texas Dana Center. (2001). *Formative re-engaging lessons: Inside mathematics*. Inside Mathematics. Retrieved November 29, 2021, from <https://www.insidemathematics.org/classroom-videos/formative-re-engaging-lessons>.

Two-thirds math. (2022, April 20). How to write a vision statement for your classroom. Medium. <https://medium.com/@twothirdsmath/how-to-write-a-vision-statement-for-your-classroom-e8061babb657>

Yeh, C., & Rubel, L. (2020). Queering mathematics: Disrupting binary oppositions in mathematics pre-service teacher education. In *Borders in mathematics pre-service teacher education* (pp. 227-243). Springer, Cham.

Students with documented disabilities:

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Student Disability Resource Center (SDRC) located within the Office of Accessible Education (OAE). SDRC staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an *Accommodation Letter* for faculty dated in the current quarter in which the request is being made. Students should contact the SDRC as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 650-723-1066, 650-723-1067 TTY).

At a Glance Summary

Please check back for updated week-to-week information

	Pedagogy, Content, & Political Foci	Homework	Due
Class 1 1/10	Why student-centered classrooms are important for robust learning and social justice in mathematics. Hint:	Reading (Shepard, Penuel, Pellegrino 2018)	Vision Statement (in class)

	<p>when teachers are learners of students, students feel seen, heard, and actually learn.</p> <p>Why fostering both self-direction and collaboration really matters for mathematical proficiency, life-long learners, and healthy development for all students, especially those who routinely experience dehumanization in school.</p> <p>What are the different strands of mathematical proficiency prioritized in edTPA?</p>	Gather 2-3 math tasks from placement	Floor Plan (in class)
Class 2	No class this week		No class
Class 3 1/24	<p>Why assessment is more than a test and what belonging has to do with it.</p> <p>The centrality of math tasks in the creation of powerful math learning opportunities.</p>	<p>Reading (Cirillo & Langer-Osuna)</p> <p>Field notes on classroom math talk (whole class and partner/table talk)</p>	<p>2-3 math tasks from placement that elicit 3 strands of proficiency</p> <p>Reading</p>