

# EDUC 263G: Quantitative Reasoning and Mathematics III

Stanford University, Winter 2022

Wednesdays, 2:30-5:00 pm in CERAS 204\*

\*Class 1 & 2 (01/05, 01/12) will meet on Zoom

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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>Unit Plan</i> Components of the plan due Class 2 - 7 (see summary below) A full draft of the UP is due in class on Feb 23. A revised UP is due in class on March 9.	Draft Unit Plan: Feb 23  Revised Unit Plan: March 9
<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:**

Our expectation is that everyone will receive an A grade. If your work – including the quality of your participation and Unit Plan assignment – 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, not evaluation.

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):**

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

Berry III, R. Q., Conway IV, B. M., Lawler, B. R., & Staley, J. W. (2020). *High school mathematics lessons to explore, understand, and respond to social injustice*. Corwin Press.

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

Fletcher, Graham. *Progression Videos*. Gfletchy. Retrieved December 7, 2021, from <https://gfletchy.com/progression-videos/>.

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.

Kang, H., & Furtak, E. M. (2021). Learning Theory, Classroom Assessment, and Equity. *Educational Measurement: Issues and Practice*.

Kokka, K. (forthcoming). Affective pedagogical goals for social justice mathematics. *Journal for Research in Mathematics Education*.

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., Kwon, F., Trinkle, M., & Langer-Osuna, J. (forthcoming). The Collaborative Math Classroom.

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>.

Zwiers, J., Dieckmann, J., Rutherford-Quach, S., Daro, V., Skarin, R., Weiss, S., & Malamut, J. (2017). *Principles for the Design of Mathematics Curricula: Promoting Language and Content Development*.

**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**

<b>Date</b>	<b>Pedagogy, Content, &amp; Political Foci</b>	<b>Readings</b>	<b>Due</b>
Class 1 <b>Jan 5</b>	Pedagogy Focus: Assessing - To sit beside  Content Focus: Number Sense  Political Focus: What is social justice?	Berry et al Chapter 1  Au	
Class 2 <b>Jan 12</b>	Pedagogy Focus: Assessing - Re-engagement  Content Focus: Time  Political Focus: Responding to pushback and backlash	Berry et al Chapter 2  <a href="#">Inside Math Re-engagement</a>	Unit plan: big ideas
Class 3 <b>Jan 19</b>	Pedagogy Focus: Assessing - Affective Goals  Content Focus: Fractions, Decimals, & Percents  Political Focus: Healing & Trauma	Berry et al Chapter 3  Kokka 2022	Unit plan: re-engagement opportunities
Class 4 <b>Jan 26</b>	Pedagogy Focus: Assessing - Conferring & Nudges  Content Focus: Knowing what to do when you don't know what to do  Political Focus: Surveillance, Accountability, & High-stakes Testing	In the Moment Chapter 4  Kang & Furtak  Skim: Gitomer et al	Unit plan: political considerations

Class 5 <b>Feb 2</b>	<p>Pedagogy Focus: Facilitating Collaboration - Collaborative Structures</p> <p>Content Focus: Teambuilders</p> <p>Political Focus: “Why do we have to work together?”</p>	<p>Designing Groupwork 1-2</p> <p>Munson et al, Chapter 3</p>	Unit plan: assessing opportunities
Class 6 <b>Feb 9</b>	<p>Pedagogy Focus: Facilitating Collaboration - Authority</p> <p>Content Focus: Factors &amp; Multiples</p> <p>Political Focus: Status, Competence, &amp; Power</p>	<p>Designing Groupwork 10</p> <p>Munson et al, Chapter 4</p>	Unit plan: collaboration
Class 7 <b>Feb 16</b>	<p>Pedagogy Focus: Facilitating Collaboration - Groupworthiness</p> <p>Content Focus: Primes &amp; Composites</p> <p>Political Focus: No such thing as ‘academic language’</p>	<p>Designing Groupwork 5-6</p> <p>Zwiers et al</p>	Unit plan: status & authority
Class 8 <b>Feb 23</b>	<p>Pedagogy Focus: Putting it all together</p> <p>Content Focus: Equivalence</p> <p>Political Focus: Becoming a student-led mathematics community</p>	<p>Berry et al Chapter 4</p> <p>Munson et al, Chapter 5</p> <p><a href="#">Graham Fletcher Progression Video</a></p>	<b>Full draft of Unit Plan</b>
Class 9 <b>March 2</b>	<p>Pedagogy Focus: Problems of Practice (TBD)</p> <p>Content Focus: Unitizing</p> <p>Political Focus: TBD</p>	<p>TBD</p> <p>TBD</p>	<b>Bring in student work from piloted unit</b>
Class 10 <b>March 9</b>	<p>Pedagogy Focus: Problems of Practice (TBD)</p> <p>Content Focus: Learning never ends</p> <p>Political Focus: TBD</p>	<p>TBD</p> <p>TBD</p>	<b>Revised Unit Plan</b>