# EDUC 263E: Quantitative Reasoning and Mathematics I

**Stanford University, Summer 2022**

**August 10, 17, 24, 31, September 7, 14 | 2:15-5:00 in CERAS 204**

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**Course Objectives:**

The EDU263E (Quantitative Reasoning and Mathematics I) course is Part 1 of a 3-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 sensitive to the needs of the class, therefore, the syllabus is subject to change.

**Course Assignments:**

| Assignment | Due Date |
|---|---|
| *Mathstory Assignment*<br>Write a narrative reflection on your past and present experiences as a math learner and how these experiences shape your identity and beliefs as a teacher. | August 31st |
| *Readings*<br>Assigned readings should be done before class. There will be no lectures in this course. We assume you have read the texts and are prepared for discussion and activity based on your understandings of the readings. | Before every class |
| *Participation*<br>Our whole-class learning is enhanced when everyone reads carefully and fully participates in class activities and discussions. | Every class |

**Course Grades:**
Course grades will be based on attendance and punctuality, completion of pre-work activities, participation in synchronous activities (discussion about the readings, math content activities, etc.), and the quality and completion of the Mathstory written assignment.

**Course Readings:**
California Mathematics Framework (2023). https://www.cde.ca.gov/ci/ma/cf/

Munson, J., Garcia de Osuna (Langer-Osuna), J., Kwon, F., Trinkle, M. (In Press). *The Collaborative Math Classroom.* Heinemann.

Zager, T. (2017). Becoming the Math Teacher You Wish You'd Had: Ideas and Strategies from Vibrant Classrooms. Stenhouse Publishers.

**Note:** While Van de Walle is not necessary for Summer, the Van de Walle text will be used throughout the year so if you wish to purchase it, it is available through the Stanford Bookstore, Amazon and other sellers. Copies are also on reserve at Cubberley Library. All readings for summer will be accessible through the Canvas website https://canvas.stanford.edu. Assignments will also be submitted through this site.

**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**

| Date | Topics and In-Class Activities | Readings | Due |
|---|---|---|---|
| Class 1<br>**Aug 10** | *In Class Focus:* Exploring problem-based learning through task "How Much is a Billion?"<br><br>*Equity Focus:* Locating equity in the classroom: The importance of attending to student thinking and participation | Chapters 1 and 2 of CA Math Framework (2023) | |
| Class 2<br>**Aug 17** | *In Class Focus:* Dot Talks and Number Talks<br><br>*Equity Focus:* When students share their strategies with one another, they develop powerful math identities | Chapter 3 of CA Math Framework (2023) | Bring Mathstory draft to class |
| Class 3<br>**Aug 24** | *In Class Focus:* The relationship between pedagogy, learning mathematics, and math identity<br><br>*Equity Focus:* Listening to and reflecting on student thinking puts students at the center of teaching | Chapters 1 and 2 Zager (2017)) | |
| Class 4<br>**Aug 31** | *In Class Focus:* A Vision for Teaching and Learning Mathematics * GGI Noticing<br><br>*Equity Focus:* Honoring a range of student thinking prepares you to teach all students and support positive math identities | Chapters 1 and 2 Munson et al (In Press) | Final Mathstory Assignment |
| Class 5<br>**Sept 7** | *In Class Focus:* Analyzing Math Tasks<br><br>*Equity Focus:* Good math tasks increase learning opportunities for all students and support positive math identities | Chapter 6 Zager (2017) | |
| Class 6<br>**Sept 14** | *In Class Focus:* Sorting Student Strategies and Representations | Chapter 12 Zager (2017) | |

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| | *Equity Focus:* Understanding children's strategies as part of a developmental process enables a focus on growth | | |