Education 263A: Curriculum and Instruction in Mathematics Summer 2020
1:30 - 3:15 pm    July 30 - August 18

Teaching Team:
Jo Boaler: joboaler@stanford.edu
Kyalamboka Brown: kyabrown@stanford.edu
Miriam Leshin: mleshin@stanford.edu

Introduction
This is the first of a 3-course sequence focusing on mathematics teaching and learning. The course provides an opportunity for sustained learning and professional growth. Our goals are to help you:

● understand the nature of effective teaching and learning of mathematics,
● increase your knowledge of mathematics and mathematics pedagogy,
● increase your theoretical knowledge and practical experience in planning, teaching, and assessing mathematics,
● understand the mathematical needs of a diverse range of students,
● understand the complexities of diverse, multiple-ability classrooms while broadening your repertoire of teaching techniques, and
● learn from your experiences in schools through informed reflection.

Throughout the three-course sequence, we will consider the Common Core State Standards for Mathematics.

In the first quarter we will analyze teaching practices in many ways, considering the role played by mathematics, the teacher, and the students. Several different examples of practice will be analyzed on video. We will also engage in mathematical tasks that will place you as learners of mathematics and pedagogy. There will be a joint focus throughout the course on research and practice.

Course Requirements
We expect you to come to class having completed the reading, discussion posts, and assignments due for that day and to be prepared to participate in class discussions and activities. This means that you have a clear idea of the main points; you may have formulated some questions; and/or you have noted any related issues that the reading or topic raised for you.

Your participation depends upon your timeliness in attendance. If for any reason, you will miss or be late to class, please email the instructors ahead of time. In the summer quarter, you will be required to complete several assignments, conduct readings (see Course Schedule) and complete daily tasks, which will be described during class.

**Major Assignments:**
● Maths History: due Wednesday, July 29 at 10 pm
● Number Talk Assignment: due Wednesday, August 12 at 10 pm
● Reflecting on Summer Mathematics: due Wednesday, August 19 at 10 pm
Your Grade
Our expectation is that everyone will receive an A grade. If your work – including the quality of your participation and assignments, the Final Reflection Assignment and Maths History – is not at that standard we will discuss ways to improve it.

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 two weeks, we should have heard your thoughts and ideas in both small and whole group discussions. This will help your learning as well as the learning of the group.

Course Schedule

Wednesday, July 29th by 10 pm Maths History Due to Canvas

Session 1 – July 30: Mathematical Mindsets


Session 2 – August 3: What is Mathematics?


Session 3 – August 4: Exploring Number Sense


Session 4 – August 6: Calculus

Session 5 – August 10: Data Science


Session 6 – August 11: Cultural Analyses of Teaching

- Stigler & Hiebert. (1999). The Teaching Gap: Best Ideas from the World’s Teachers for Improving Education in the Classroom. The Free Press. (Chapter 6)


Session 7 – August 13: Equity Focused Teaching and Learning


Session 8 – August 17: Language Learners and Culturally Relevant Pedagogy


Session 9 – August 18: Classroom Culture and the Establishment of Socio-mathematical Norms

What to turn in and where:

<table>
<thead>
<tr>
<th>What:</th>
<th>By When:</th>
<th>Where:</th>
<th>Formatting &amp; Length:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maths History: An Informal Essay</td>
<td>Wednesday, July 29 by 10 pm</td>
<td>Upload to Canvas</td>
<td>500 words</td>
</tr>
<tr>
<td>Number Talk Assignment</td>
<td>Wednesday, August 12 by 10 pm</td>
<td>Upload to Canvas</td>
<td>planning sheet, memo, record of strategies, reflection (500-1000 words)</td>
</tr>
<tr>
<td>Reflecting on Summer Mathematics</td>
<td>Wednesday, August 19 by 10 pm</td>
<td>Upload to Canvas</td>
<td>1000-1500 words</td>
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