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Course Objectives:

The EDUC263E (Quantitative Reasoning and Mathematics I) course is Part 1 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 sensitive to the needs of the class, therefore, the syllabus is subject to change.
Course Assignments:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
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</thead>
<tbody>
<tr>
<td>Mathstory Assignment</td>
<td>Tuesday, July 10th</td>
</tr>
<tr>
<td>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.</td>
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<tr>
<td>Math Task Analysis</td>
<td>Thursday, July 26th</td>
</tr>
<tr>
<td>Analyze 3-5 math tasks from your CT’s classroom. Describe the actions and thinking needed to complete the task and characterize the tasks’ learning opportunities.</td>
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<tr>
<td>Participation</td>
<td>Every class</td>
</tr>
<tr>
<td>Our whole-class learning is enhanced when everyone reads carefully and fully participates in class activities and discussions.</td>
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</tbody>
</table>

Course Grades:

Course grades will be based on attendance and punctuality, participation in classroom activities (discussion about the readings, math content activities, etc.), and the quality and completion of the written assignments for the course, including the Mathstory and Math Task Analysis assignments.

Course Readings:

Van de Walle, Karp, and Bay-Williams, Elementary and Middle School Mathematics: Teaching Developmentally, 10th Edition.


Both texts can be purchased at the Stanford bookstore. Copies are also on reserve at Cubberley Library. Any other readings will be accessible through our Canvas course site https://canvas.stanford.edu. Assignments will also be submitted through this site.

*Please bring your textbooks and your computer to every class.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topics and In-Class Activities</th>
<th>Readings</th>
<th>Due</th>
</tr>
</thead>
</table>
| Class 1  | **Pedagogy Focus**: Exploring problem-based learning  
**Math Focus**: How Much is a Billion?  
**Equity Focus**: Locating equity in the classroom: the importance of attending to student thinking and identities                                                                                     | None                |                                       |
| July 3    | **Pedagogy Focus**: The relationship between pedagogy, learning mathematics, and math identity.  
**Math Focus**: Number talks  
**Equity Focus**: Listening to and reflecting on student thinking puts students at the center of teaching                                                                                       | VW Chapter 1        |                                       |
|           |                                                                                                                                                                                                                                   | VW Chapter 2        |                                       |
| Class 2  | **Pedagogy Focus**: Understanding math tasks  
**Math Focus**: Attributes of number and space: Which One Doesn’t Belong?  
**Equity Focus**: Good math tasks increase learning opportunities for all students                                                                                   | 5P Chapter 2        | Mathstory Assignment Due by class     |
| July 5    |                                                                                                                                                                                                                                   | VW Chapter 3        |                                       |
| Class 3  | **Pedagogy Focus**: Anticipating student thinking: Number sense and place value  
**Math Focus**: Place value (Exploring Base 7)  
**Equity Focus**: Anticipating and honoring a range of student thinking prepares you to teach all students and support positive math identities                                                                   | 5P Chapter 1        |                                       |
| July 10   |                                                                                                                                                                                                                                   | and Chapter 4       |                                       |
|           |                                                                                                                                                                                                                                   | (up to “Monitoring”)|                                       |
|           |                                                                                                                                                                                                                                   | VW Chapter 8        |                                       |
|           |                                                                                                                                                                                                                                   | VW Chapter 10       |                                       |
| Class 4  | **Pedagogy Focus**: Children’s strategies for addition and subtraction  
**Math Focus**: Number talks  
**Equity Focus**: Understanding children’s strategies as part of a developmental process enables a focus on growth                                                                 | VW Chapter 8        | Bring to class notes and/or student work from tasks |
| July 12   |                                                                                                                                                                                                                                   | (pg. 153-166 – Focus on addition and subtraction)                   |                                       |
|           |                                                                                                                                                                                                                                   | VW Chapter 10       |                                       |
| Class 6 | July 19 | **Pedagogy Focus:** Children’s strategies for addition and subtraction (continued)  
**Math Focus:** Place value  
**Equity Focus:** Focusing on children’s strategies fosters a mathematics sense-making community in your classroom | Review VW Chapter 10 and VW Chapter 11 |
| --- | --- | --- |
| Class 7 | July 24 | **Pedagogy Focus:** Children’s strategies for multiplication and division  
**Math Focus:** Number sense (Ordering Rational Numbers)  
**Equity Focus:** When students share their strategies with one another, they enact powerful math identities | VW Chapter 8 (pg. 166-182 – focus on multiplication and division)  
VW Chapter 12 |
| Class 8 | July 26 | **Pedagogy Focus:** Anticipating, monitoring, selecting, and sequencing  
**Math Focus:** Operations with fractions  
**Equity Focus:** Teachers can intentionally select the intellectual work of mathematically marginalized students to position their contributions as central to the mathematics classroom community | VW Chapter 14  
5P Chapter 4 (From “Monitoring” to end)  
Task Analysis Due |
| Class 9 | July 31 | **Pedagogy Focus:** Sequencing and Connecting student work through classroom discussion  
**Math Focus:** Cracker Problem  
**Equity Focus:** Listen for the mathematics in student talk and utilize peers to help make sense of student thinking | 5P Chapter 5 |
| Class10 Aug 2 | **Pedagogy Focus**: Putting the 5 Practices Together  
**Math Focus**: The Mixing Juice Problem  
**Equity Focus**: When students’ social identities are included in what it means to be a young mathematician in your classroom, all students can identify with the discipline. |   |   |