



Department of Education
MATTC
EDUC 259A
Elementary Mathematics Methods I (3 units)
Fall 2023

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Course Meeting Dates: Tuesdays, 5-8 pm, GH Room 203

Mission and Goals of the Department of Education

Rooted in the Jesuit tradition at Santa Clara University, the mission of the Department of Education is to prepare professionals of competence, conscience, and compassion who will promote the common good as they transform lives, schools, and communities. Our core values of reflective practice, scholarship, diversity, ethical conduct, social justice, and collaboration guide both theory and practice.

Faculty, staff, and students in the Department of Education:

- Make student learning our central focus
- Engage continuously in reflective and scholarly practice
- Value diversity
- Become leaders who model ethical conduct and a commitment to social justice
- Seek collaboration with others in reaching these goals

MS/SS Teaching Credential Program Learning Goals (PLGs)

The PLGs represent our commitment to individuals who earn their MS/SS credential at Santa Clara University. The MS/SS faculty focus on ensuring each student will begin their teaching career ready to:

1. Maximize learning for every student.
2. Teach for student understanding.
3. Make evidence-based instructional decisions informed by student assessment data.
4. Improve your practice through critical reflection and collaboration.
5. Create productive, supportive learning environments.
6. Apply ethical principles to your professional decision-making

The PLGs guide our program. Therefore, all MS/SS teaching credential program course objectives are cross-referenced with the PLGs. (A fully elaborated version of the MS/SS PLGs can be found in the Teacher Candidate Handbook, Pre-Service Pathway.)

Course Description

EDU259A (Elementary Math Methods) course is Part 1 of a two-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, examining classroom culture and structure, and conducting clinical interviews on number concepts, we will set the stage for our development as elementary mathematics teachers. The course builds teacher candidate's understanding of how to organize math instruction to support the learning of **all** students including students with identified learning disabilities.

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 Objectives

This course will develop students' knowledge of or skills with...		Standard/Goals Addressed			
		DG #	PLG #	TPE #	MMSN TPE #
1	Examining knowledge, beliefs, and assumptions about mathematics, teaching, and students with particular attention to the impact language, culture, socio-economic status, and identified disabilities have had on mathematical learning opportunities.	2,4	4,6	6.2	1.1, 1.2, 3.1, 4.3
2	Increasing knowledge of mathematics content.	2	1	3.1	
3	Increasing theoretical knowledge and practical experience in planning, teaching, and assessing mathematics with particular attention for how modify teaching to meet the needs of diverse learners, including students with identified disabilities while maintaining the cognitive demand of tasks	1	1,2,3	1.3,2.5,3.4,3.5, 4.7,5.2,5.3	1.1, 1.2, 1.7, 2.1, 2.4, 3.1, 3.2, 4.1., 4.2, 4.3, 4.4
4	Understanding the mathematical needs of a diverse range of students and adopting an asset-based view of students and families, particularly from populations that have traditionally been positioned as low status in mathematics classrooms including students with identified learning disabilities.	1,3	1,2,5	1.1,1.3,1.6, 3.2.3.5	1.1, 1.2, 1.7, 2.1, 2.4, 3.1,3.2, 4.1, 4.2, 4.3, 4.4

5	Understanding the complexities of diverse, multiple-ability classrooms while broadening your repertoire of teaching techniques to engage all students, including students with identified disabilities, in rich, complex, and multi-dimensional mathematics.	1,3	1,5	1.1,1.3,1.6, 3.2,3.5	1.1, 1.2, 1.7, 2.1 2.4, 3.1, 3.2, 4.1., 4.2, 4.3, 4.4
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Required Texts

N/A

Course Requirements/Assignments

Distribution of points across assignments is as follows:

	Course/Requirements/Assignments	Points	TPE Assessed	MMSN TPE #
1	Math Autobiography	10	6.2	2.4, 3.1
2	Student Interviews	50	1.1, 1.3, 1.6, 2.5, 3.2, 3.5, 6.1	1.1, 1.2, 1.7, 2.1, 3.1; 4.3 2.4, 4.4, 4.5, 4.7, 5.6
3	Number Talk	60	1.3, 2.5, 3.4, 4.7, 5.2, 5.3, 6.1	1.7, 3.1, 4.3,
4	Reading Reflections	30	2.2, 6.1, 6.2	1.1, 1.2, 1.7, 3.1, 3.2, 4.3
5	Mathematics Current Event	10	1.3, 3.1	1.7, 2.4, 3.2

1. **Math Autobiography:** This assignment is to write a ‘math life story’ to reflect on your own experiences with mathematics as a student, and in life, and to think about how those experiences impacted your attitude towards mathematics as well as your understanding of mathematics. You will also reflect on how your own experiences may impact you work as a teacher with particular attention to how various aspects of your background (e.g., linguistic, cultural, racial, socio-economic, parental involvement, and/or identified disabilities) may have impacted your mathematical learning opportunities.

2. **Student Interview:** This assignment focuses on learning more about a single student in your placement class. Please focus on a student who have identified disabilities if possible.

There are three parts to this assignment, each having a reflection component:

- **Getting to Know You:** The goal of this part is to find out more about a student including (a) his/her interests, (b) activities s/he engages in outside of school, (c) his/her cultural and linguistic background, and (d) what s/he identifies as activities at which s/he excels. Another goal is to identify places, locations, and activities in the community that are familiar to children.
- **Addition & Subtraction Interview:** The goal of this part is to find out what the student understands about addition and subtraction, without your assistance. If a child is having difficulty with a problem,

you may change the numbers or move on to a new problem type. There is no need to show students how to solve a problem.

- **Multiplication and Division Interview:** This third part is like the second part, but the focus is on understanding the student's thinking around multiplication and division.
- **Instructional Implications:** The final part of this assignment will reflect on what was learned from the interviews, interactions, and observations of the case study student to inform future mathematics instruction. You will create a written reflection that could be used to support a conversation with the student's parents will be created.

3. **Number Talk- Signature Assignment:** This assignment focuses on facilitate a series of Number Talks in your class. The purpose of the Number Talk is for you to learn how to orchestrate mathematical discussion in your classrooms. This will entail identifying appropriate problems, anticipating student responses, listening to students' thinking, asking probing questions, and analyzing student strategies. In your reflection you will examine issues of status that were present (or not) while facilitating the Number Talk, with particular attention to students with identified disabilities.

4. **Reading Reflections:** There will be four assigned individual reading reflections to complete during the quarter (10 points each). They will be posted on Camino under the Quiz tab. These reflections provide you with the opportunity to think about specific course assigned readings and how you believe they shape you as a mathematics teacher.

5. **Mathematics Current Event:** In small groups, you will choose one short article of interest specific to mathematics teaching and/or student learning to share with a small group of your classmates. I will meet with each group the week before they present their current mathematics event to review their article choice. I will discuss in our first week of class lists of potential sites to search for articles.

Assessments & Grading Criteria

1. All written and oral assignments must reflect graduate-level standards. As a future teacher, you must be able to model communication skills for your students.

2. Attendance and participation in all class meetings is **required**. If you are going to be absent from class, you must email or call me to inform me of your absence. You will still be responsible for all missed content and in-class work.

3. Letter grades are assigned based on the following percentage scores:

A	94-100	C+	77-79
A-	90-93	C	74-76
B+	87-89	C-	70-73
B	84-86	D+	67-69
B-	80-83	D	63-66

4. Assignments done in pairs, both partners will receive the same grade, unless otherwise stated.

5. Final grades will reflect students' contributions (e.g., attendance, class discussions, quality of presentation, ability to lead discussion groups, completion and quality of course assignments), critical thinking and ability/degree to which student integrates theory, research and practice.

6. All assignments are expected on their due dates in the room where our class meets. I cannot be responsible for papers submitted at other times or in other formats. Unless we have made special arrangements beforehand, late assignments will be docked 3 points for each day past the due date that they are submitted.

Regular attendance at all class meetings is a requirement in this program. Ten points will be deducted from your final grade for the course for each class session you missed. Each of you will be granted one Emergency Release (ER) per course. Your ER excuses you from one class session with half the grade penalty (loss of 5 points instead of 10). To use your ER you must notify me by email or phone **BEFORE** class. Save your ER for medical issues, family demands, car trouble, etc.

Students will not be penalized for absences due to the observance of religious holidays that fall on our scheduled class day; please give me advance notice of these absences so I can make the necessary accommodations. All other absences are unexcused and will affect your grade.

Punctuality. Coming to class (and returning from breaks) on time is another course requirement. Your first lateness will be excused; your second lateness will cause 1 point to be deducted from your final course grade; your third lateness will cause an additional 4 points to be deducted. More than three late arrivals indicate a serious problem; this situation will be dealt with at the instructor's discretion. Attendance and punctuality are the only policies with the immediate potential to impact your course grades. Your instructor through ongoing observation and documentation gathers data documenting your adherence to the remaining policies listed here.

If an instructor has reason to feel you are not meeting all the expectations spelled out below, the instructor will contact you privately to discuss the issue, to clarify the expectations as needed, and to offer their support in helping you reach those expectations. If your instructor does not contact you with a concern, you can assume you are satisfying these requirements. However, if you would like specific feedback on your professional conduct during the quarter, you are welcome to contact your instructor at any time and they will be glad to share their assessment with you.

As we will read about and study in this course, everyone's learning is enhanced by the quantity and quality of the interactions in the learning environment. Hence, your participation in whole class discussions, group work and pair group are essential for the success of this course.

While a class is in session, you should not engage in any activity not directly related to what is taking place in the classroom. Instructors reserve the right to ask you to close your laptop or put away some other form of technology at their discretion; when/if this occurs, please respond quickly and without protest to avoid further disruption of the class's learning. Instructors also reserve the right to ignore your inappropriate use of technology in class and simply deduct points from your final grade. If you would like more detailed clarification about the expectations regarding appropriate and inappropriate in-class technology use, please feel free to contact your instructor for further information.

Note: Points lost due to poor attendance and/or lack of punctuality will be deducted from your final grade. A student with excellent grades on assignments and other aspects of professional conduct can earn a poor course grade as a result of excessive absence or chronic lateness.

Canvas/Camino Course Management System

To access course materials and participate in On-line activities, please be sure to review Canvas (also known as Camino). Reminders, tools, readings and assignment descriptions will be made available through this on-line course management system. Your SCU username and password gets you access to Canvas.

Disability Accommodations Procedure

If you have a disability for which accommodations may be required in this class, please contact Disabilities Resources, Benson 216, <http://www.scu.edu/disabilities> as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through Disabilities Resources, please discuss them with me during my office hours. Students who have medical needs related to pregnancy may also be eligible for accommodations.

While I am happy to assist you, I am unable to provide accommodations until I have received verification from Disabilities Resources. The Disabilities Resources office will work with students and faculty to arrange proctored exams for students whose accommodations include double time for exams and/or assisted technology. (Students with approved accommodations of time-and-a-half should talk with me as soon as possible). Disabilities Resources must be contacted in advance to schedule proctored examinations or to arrange other accommodations. The Disabilities Resources office would be grateful for advance notice of at least two weeks. For more information, you may contact Disabilities Resources at 408-554-4109.

Accommodations for Pregnancy and Parenting

In alignment with Title IX of the Education Amendments of 1972, and with the California Education Code, Section 66281.7, Santa Clara University provides reasonable accommodations to students who are pregnant, have recently experienced childbirth, and/or have medically related needs. Pregnant and parenting students can often arrange accommodations by working directly with their instructors, supervisors, or departments. Alternatively, a pregnant or parenting student experiencing related medical conditions may request accommodations through Disability Resources.

Discrimination and Sexual Misconduct (Title IX)

Santa Clara University upholds a zero-tolerance policy for discrimination, harassment and sexual misconduct. If you (or someone you know) have experienced discrimination or harassment, including sexual assault, domestic/dating violence, or stalking, I encourage you to tell someone promptly. For more information, please consult the University's Gender-Based Discrimination and Sexual Misconduct Policy at <http://bit.ly/2ce1hBb> or contact the University's EEO and Title IX Coordinator, Belinda Guthrie, at 408-554-3043, bguthrie@scu.edu. Reports may be submitted online through <https://www.scu.edu/osl/report/> or anonymously through Ethicspoint <https://www.scu.edu/hr/quick-links/ethicspoint/>

Academic Integrity

The University is committed to academic excellence and integrity. Students are expected to do their own work and to cite any sources they use. A student who is guilty of dishonest acts in an examination, paper, or other required work for a course, or who assists others in such acts, will receive a grade of F for the course. In addition, a student guilty of dishonest acts will be immediately dismissed from the University. Students that violate copyright laws, including those covering the copying of software programs, or who knowingly alter official academic records from this or any other institution, are subject to disciplinary action (ECP Graduate Bulletin, 2013-2014).

Course Meeting	Course Topics	Course Readings	Course Assignments
Session 1 Sept 19th	Introduction to Teaching & Learning Mathematics for Understanding (Part 1)	Boaler. (2015). <i>What's Math Got to do with It?</i> Intro.	Math Autobiography
Session 2 Sept 26th	Introduction to Teaching & Learning Mathematics for Understanding (Part 2)	<p>Allen & Schnell. (2016). Developing Mathematical Identities. <i>Teaching Mathematics in the Middle Schools</i>.</p> <p>Boaler (2015). <i>What's Math Got to do with it</i>. Chapter 1. "What is math?"</p> <p>Boaler (2014). Research suggests timed tests cause math anxiety. <i>Teaching Children Mathematics</i>.</p>	Due: Sept 25th on Camino Math Autobiography
Session 3 Oct 3rd	<p>What is mathematical proficiency?</p> <p>Virtual Class on Zoom</p>	<p>Van de Walle - Chp 2: What does it mean to learn mathematics? pp.19-23</p> <p>NRC's Adding it Up. Chapter 4.</p> <p>CCSS Mathematical Practices</p>	<p>Assignment: Student Interview #1: Getting to know a student</p> <p>Due: October 9th Reading Quiz #1</p> <p>Mathematics Current Event Group 1 to present in class</p>
Session 4 Oct 10th	Teaching through Problem Solving in Diverse Classrooms: Part 1 ELs & Special Education	Moschovich (2013). Guidelines for Design of Mathematics Instruction and Materials for ELLs from Understanding Language.	Mathematics Current Event Group 2 to present in class

		<p>EL Article (TBD) - You will be assigned one additional reading.</p> <p>Fennell (2007). What's so Special About Special Education? Everything!</p> <p>Yeh et al. (2020) Reimagining Inclusive Spaces for Mathematics Learning</p>	
<p>Session 5 Oct 17th</p>	<p>Early number sense, sense making with addition and subtraction</p>	<p>TD - Chapter 8 <i>Developing early concepts and number sense</i>. pp. 128-144.</p> <p>Schwerdtfeger & Chan. (2007). <i>Counting Collections</i>.</p>	<p>Due: Oct 16th on Camino Student Interview #1: Getting to know a student</p> <p>Assignment: Addition/Subtraction Interview</p>
<p>Session 6 Oct 24th</p>	<p>Listening to student thinking - Part 1 Addition & Subtraction continued)</p>	<p>Ch. Intro-3. pp. xiii - 31. <i>Children's Mathematics Cognitively Guided Instruction</i></p> <p>Feitelberg (2018). <i>CGI: Supporting Students to Create Their Own Mathematical Understanding</i> (one page).</p>	<p>Mathematics Current Event Group 3 to present in class</p>
<p>Session 7 Oct 31st</p>	<p>Listening to student thinking: Part 2 Multiplication & Division</p> <p>Virtual Class on Zoom</p>	<p>Ch. 4. pp. 33 - 53. <i>Children's Mathematics Cognitively Guided Instruction</i></p>	<p>Due: Oct 30th on Camino Addition/Subtraction interview written assignment</p> <p>Due: November 6th Reading Quiz #2</p> <p>Assignment: Multiplication/Division interview</p>

			& Final Interview Study Write Up
Session 8 Nov 7th	Teaching through Problem Solving in Diverse Classrooms: Part 2 Status & Competence	Cohen et al. (1999). <i>Complex instruction: Equity in cooperative learning classrooms.</i> Coleman (2020). <i>Build a Bridge: Provide Access to Grade-Level Content for All Students.</i>	Mathematics Current Event Group 4 to present in class
Session 9 Nov 14th	Status & Competence and Number Talks (Continued)	<i>Smarter Together - Chapter 6 - Addressing Status Issues during the Lesson.</i>	Due: Nov 13th on Camino Multiplication/Division interview written assignment with Final Interview Study Write Up Assignment: Number Talk & Reflection
November 21st	No Class	Happy Thanksgiving	
Session 10 Nov 28th	Promoting High Quality Mathematics for All Students Mathematics Festival!	Stoehr & Patel (2018) <i>Meaningful mathematical discussions that matter.</i> Jacobs et al. (2014) - <i>Warning Signs</i>	Mathematics Current Event Group 5 to present in class Due: Dec 5th on Camino Number Talk & Reflection Assignment Due: December 5th Reading Quiz #3